THE

AMERICAN COAST PILOT;

CONTAINING THE

COURSES AND DISTANCES

BETWEEN THE

PRINCIPAL HARBOURS, CAPES, AND HEADLANDS,

ON THE

OAST OF NORTH AND SOUTH AMERICA;

WITH DIRECTIONS FOR SAILING INTO THE SAME;

Describing the Soundings, Bearings of the Light-Houses and Beacons from the Rocks, Shoals, Ledges, &c.

WITH THE PREVAILING

WINDS, SETTINGS OF THE CURRENTS, &c.

AND THE

LATITUDES AND LONGITUDES

OF THE

PRINCIPAL HARBOURS AND CAPES.

TOGETHER WITH A

TIDE TABLE.

BY EDMUND M. BLUNT.

Corrected and Improved by Information derived from Official Documents, Actual Observations, and the most Experienced Pilots.

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FOR WILLIAM HOOKER.

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BOOKS:

BOWDITCH'S PRACTICAL NAVIGATOR, 5th edition, stereotyped.
BLUNT'S AMERICAN COAST PILOT, 10th edition.
THE MERCHANTS' AND SHIPMASTER'S ASSISTANT, containing information useful to the American Merchants, Owners, and Masters of Ships, &c. &c.
NAUTICAL ALMANACS, from the year 1811 to 1824, inclusive—to be continued annually. Explanation stereotyped, and English copy corrected.
SEAMANSHIP and NAVAL TACTICS

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——————, of Bahama Bank, from actual Survey, made in Sloop Orbit, in 1820, with Sailing Directions.
——————, from New-York to Nova Scotia, extending from latitude 38° N. to latitude 47° N. longitude 68° W. to longitude 71° W. including the whole of St. George's Bank, improved to August 1821, by government and other surveys, by which the latitude of South Shoal of Nantucket was found 22' wrong, and is here, for the first time, published correct.
——————, of the Atlantic or Western Ocean, improved to 1820, with an Analysis of the authorities upon which the dangers have been inserted on the Chart. The Tracks extend to the Equator, and are continued on the Chart of the South Atlantic Ocean. This is the only general Chart extant which has the latitude of the South Shoal of Nantucket, within 22 miles correct.
——————, of the South Atlantic Ocean, containing more authentic information than any extant, part of which describes dangers lately discovered, with original Plans of Harbours and Views.
——————, of the North Coast of Brazil, showing the entrances and courses of the Rivers Para and Amazon.
——————, of the West-Indies, on four sheets, which may be had separate.
——————, of the Coast of Guayana.
——————, of the Coast of Brazil.
——————, of the Island of Bermudas, with Sailing Directions on the Chart.
——————, of Long-Island Sound, improved to 1821.
——————, of the Coast of Labrador.
——————, of Newfoundland.
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March, 1822.

Southern District of New-York, ss.

BE IT REMEMBERED, That on the fifteenth day of March, in the forty-sixth year of the Independence of the United States of America, EDMUND M. BLUNT, of the said District, hath deposited in this office the title of a book, the right whereof he claims as author, in the words following, to wit:

"The American Coast Pilot; containing the courses and distances between the principal harbours, capes, and headlands, on the coast of North and South America: with directions for sailing into the same; describing the soundings, bearings of the light-houses and beacons from the rocks, shoals, ledges, &c with the prevailing winds, settings of the currents, &c. and the latitudes and longitudes of the principal harbours and capes. Together with a Tide Table. By Edmund M. Blunt. Corrected and improved by information derived from official documents, actual observations, and the most experienced pilots. Tenth edition"

In conformity to the Act of the Congress of the United States, entitled "An Act for the encouragement of Learning, by securing the Copies of Maps, Charts, and Books, to the authors and proprietors of such copies, during the time therein mentioned" And also to an Act, entitled "an Act, supplementary to an Act, entitled an Act for the encouragement of Learning, by securing the copies of Maps, Charts, and Books, to the authors and proprietors of such copies, during the times therein mentioned, and extending the benefits thereof to the arts of designing, engraving, and etching historical and other prints."

JAMES DILL,
Clerk of the Southern District of New-York.

REPORT

Of the Committee appointed to examine Blunt's Chart of the North-East Coast of North America, relative to the South Shoal of Nantucket.

The committee appointed to examine the evidence relative to the position of Nantucket South Shoal,

RESPECTFULLY REPORT,

That the South Shoal of Nantucket, which has been heretofore placed in lat. 40° 42′, or thereabouts, on the charts of the Coast of North America, has been placed in lat. 41° 4′ on a Chart of part of the Coast of North America recently published by E. M. Blunt, on the following evidence of its position.

1st. A survey by Capt. J. Colesworthy, made in June and July, 1821, for account of, and at the expense of Mr. E. M. Blunt.

2d. Observations of Capt. Colesworthy on the 11th of September following, assisted by Mr. Walter Folger, jr. of Nantucket, who accompanied him at the instance of several of the inhabitants of that Island, to determine whether a mistake had or had not been made by Capt. Colesworthy in his previous surveys.

At this time, (11th Sept.) a good observation was had at noon half a mile south of the Shoal according to the account given by Mr. Folger.

3d. A survey made by William Coffin, P. F. Coffin, Jona. C. Briggs, and several other experienced navigators of Nantucket, who were provided with a sloop equipped at the expense of the inhabitants of that Island, by subscription, for the express purpose of surveying the South Shoal, to ascertain whether the Shoal surveyed by Capt. Colesworthy was the "*Old South Shoal*," or not.

This party left Nantucket on the 20th of October last in the morning, and "*at noon of the same day observed in latitude* 41° 4′, *by four good instruments, the Shoal east two miles distant.*

After this they traversed to the S. S. W. South, East, N. and E. and N. and W. between the parallels of 40° 40′ and 41° 4′. They "had 30 fathoms in 40° 40′, and on running one hour to the south had 35 fathoms."

In traversing over the position assigned to the Shoal on the old Charts, they found 30 fathoms, and not less at any time to the south of 40° 40°; from that depth the soundings were found regular to 15 fathoms near the Shoal in 41° 4′.

Mr. Walter Folger, jr. says in a letter dated October 21st, "this evening the vessel arrived here that was sent out to find the South Shoal in 40° 42′, on board of which were some of those who were most positive that it lay in that latitude. They inform me, that they could not find less than 30 fathoms water on that parallel. They observed yesterday, west from the Shoal that Capt. Colesworthy surveyed 24th June and 9th July, and that we observed at the south of half a mile distant on the 11th September; *I could then see the vessel from my house.*"

This statement is supported by the letters of William Coffin, P. F. Coffin, Jona. C. Briggs, and several others, which give particular accounts of the survey, and which accompany this Report.

Your Committee are therefore of opinion, that the position assigned to Nantucket South Shoal by Mr. E. M. Blunt, on the Chart recently published by him (in lat. 41° 4′ N.) is the true place of the Shoal.

Your Committee recommend the following resolutions for adoption—

Resolved, That this Society is satisfied that the position assigned to Nantucket South Shoal (lat. 41° 4′ N.) by Mr. E. M. Blunt, on a Chart of part of the Coast of North America recently published by him, is the true place of the Shoal, and that the position of that Shoal is established by more sufficient testimony than that of any other Shoal on the Coast of North America.

Resolved, That in detecting an error of 22′ in the position assigned to the dangerous South Shoal of Nantucket on the Charts heretofore published, Mr. E. M. Blunt has rendered an important service to the shipping interest, and to the mariners of the United States.

Resolved, That the Secretary be directed to transmit to Mr. E. M. Blunt a copy of the foregoing Report and Resolutions.

H. AUSTIN,
ISAAC WAITE, } Committee.
E. FISHER,

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PREFACE

TO

THE TENTH EDITION

OF

THE AMERICAN COAST PILOT.

Of the many improvements which the science of navigation has been continually receiving, in the lapse of centuries, since the invention of the compass, perhaps there is not one embracing a greater scope of practical utility, than an accurate description of the marine boundaries of a country, by which the adventurous mariner may recognise his coast at a distance; of the soundings and courses of channels, the knowledge of which enables him to set the rock-bound shore at defiance, and of the aspects and properties of harbours into which he can securely enter and embay himself from the inclemency of the elements. This remark is made with more confidence, as it results from the consideration that the life of the most experienced mariner is more endangered when he approaches the coast, than when exposed to the tempests which agitate the mid ocean. Pilots, who are not always to be found in the discharge of their duty, are often prevented from offering their assistance to vessels endeavouring to make a harbour, by storms and violent winds. In such cases, unless the masters are acquainted with the port, the safety of the vessel depends upon the accuracy of their sailing directions. Charts are intended rather to give a general idea of the coast, than minute and accurate descriptions of particular harbours. It is therefore to their printed directions, they must resort to procure information, which at such moments becomes vitally important. Their instruments, by which they have been enabled to shape their course through a trackless ocean, are rendered useless by ignorance of the channel through which they are to enter the harbour; and mariners, who have escaped all former dangers of the voyage, are often shipwrecked upon some sunken rock, or unknown shoal, at the entrance of their destined port. The knowledge of such dangers, important as

it is to seamen generally, is particularly so, to those of the United States. Navigating waters filled with sand banks, that have been formed by the Gulf Stream, and by the mighty rivers which discharge themselves from the eastern coast of the North American continent, they require no ordinary skill and knowledge to avoid those extensive and intricate shoals that line our shores, rendered still more dangerous by rapid currents and eddies peculiar to the American seas, and by a strong current running counter to the Gulf Stream, from the Bank of Newfoundland to Cape Florida. The boisterous and variable weather, so common in this climate, also tends to increase the difficulties and dangers of our coasting trade.

Impressed with these considerations, and sensible of the growing importance of this trade, the author of the American Coast Pilot, about thirty years since, undertook to acquire and publish information concerning the navigation of this country. At that time the American sailor had to contend with the difficulties and dangers incident to his profession, unassisted by those aids, which have lately made his task comparatively easy. No charts or sailing directions for the coast were published in the United States, and, as might have been expected, those published in England, being derived from partial information, were full of errors.

Pursuing the selfish policy, of drawing the most from the colonies at the least expense, the British government caused surveys to be made, of the ports most frequented by ships from the mother country, and left the colonial mariners to acquire a knowledge of the coast from the shipwrecks of others. The charts of this country were consequently drawn from information given by masters of English vessels, who occasionally visited our ports, and who were deficient in that minute knowledge of the coast which belongs solely to the inhabitants, and which alone can render charts and directions useful.

The inaccuracy of the English charts, which might have been reasonably presumed, has been fully proved by late surveys taken by the orders of the government of the United States, as well as by those taken at the expense of the subscriber. In almost every instance the old charts have been found to be incorrect in the delineation of the coast, the depth of channels, and the extent of shoals.

Such was the condition of hydrography in 1796, when the first edition of the American Coast Pilot was published, with a determina-

tion on the part of the author to advance in the survey of the coast as his means and opportunities would permit. The magnitude and responsibility of the task, and the scantiness of materials, were sufficiently appalling; and the pecuniary difficulties of the government threatened to prevent for an indefinite time any surveys at the public expense. The execution of this design, however difficult, was not impracticable, and every source of marine intelligence which our country afforded, has been successively resorted to. Letters have been addressed to the collectors and pilots in the several ports of the United States, requesting nautical information, which they have given with commendable promptitude. Personal application has been made to the most experienced mariners, who have stated the soundings of channels, the extent of shoals, the courses to be followed in entering different harbours, and the situations and bearings of various beacons and land-marks. Whenever a vessel was lost, proper measures were taken to obtain an accurate description of the rock or shoal upon which she was shipwrecked. Regular surveys too were made at the expense of the author, of the most important harbours in the United States. In performing these various duties, many expensive journeys were indispensable, and more than once he has been obliged to travel the whole length of the coast. So much however was to be done, and so great were the obstacles to be overcome, that for several years the progress of the work was hardly perceptible. The prejudice which exists against every new undertaking was to be met and vanquished. The embarrassment under which the commerce of the United States laboured during the embargo, the non-intercourse, and the war with Great Britain, besides the pecuniary loss to which it subjected the author, prevented him from prosecuting his contemplated improvements. The same reasons and their effects, which induced the government to adopt the restrictive system, prevented any surveys at the public expense, (except an unfinished survey of the coast of North Carolina, in 1805.) until the year 1819.

Notwithstanding these obstacles, many important improvements and additional directions were inserted in the Coast Pilot at each successive edition. In 1805, charts of the coasts of Labrador and Newfoundland, illustrating and conforming to the directions, were published; in 1807, a similar chart of the West Indies; in 1812, charts of the whole coast of the United States, to which the late sur-

veys have been subsequently added, and since that time charts of the North and South Atlantic, of the mouth of the Mississippi, of the Bahama bank, of the Bermudas, of the coasts of Brazil and Guyana; and an improved chart of the West Indies, on a larger scale than the former, have been published by the subscriber. As all these charts illustrate and agree with the Pilot, the mariner is freed from the perplexity and danger, to which he was liable from the discordance of the old charts and directions.

In making these publications, besides the difficulties incidental to his profession, he has been obliged to encounter the illiberal opposition of many importers of English charts; though the duty on foreign publications is much less than the duties on the materials used in their manufacture; the article of paper, for instance, is subject to double the duty of books and charts, and notwithstanding this burden, imported paper for charts is cheaper in the American market than that of domestic manufacture. This opposition, he regrets to add, has, in some instances, descended to misrepresentation and anonymous falsehoods.

His countrymen, however, have afforded his publications a fair trial, and by their universal and continued preference, have evinced their confidence in their accuracy, and given to him the only patronage he desires. Since the commencement of Mr. Monroe's administration, the government has become sensible of the importance of accurate nautical publications, and surveys, in pursuance of various acts of Congress, have been made of Capes Fear, Hatteras, and Look-out, of the entrance of the Chesapeake, the river Darien, and of the Isles of Shoals: copies of which the author has been permitted to take, by the politeness of the Honourable Secretary, and the Commissioners of the Navy Department, and has inserted them in this edition of the Pilot. These, however, are but part of the present improvements. The Bahama Bank, and the adjacent keys, which lie directly in the course of all vessels bound to New Orleans and Havana, and have long been the dread of our West India mariners, were surveyed in 1820, by Messrs. E. C. Ward, a mathematician in the employ of the U. States, E. Blunt, G. W. Blunt, and Francis Mallaby and Matthew Stout, officers in the U. S. Navy, who, with the characteristic enterprise of American seamen, volunteered in that expedition, which was fitted out at the expense of the subscriber. The next year, the sloop Orbit, a surveying vessel in his em-

ploy, was sent to examine the South Shoal of Nantucket, the extent and situation of which he had long suspected were incorrectly described. It was then ascertained, that this Shoal, which had been laid down in all the English charts as extending to the south as far as lat. 40° 42′, in fact terminated in lat. 41° 4′. The importance of this discovery to the navigation of the United States, may be easily conceived. Heretofore mariners bound from Europe, or from the eastern ports to New-York, Philadelphia, or any of the southern ports, in their desire to avoid this dangerous shoal, kept so far to the south-east, as often to run into the Gulf Stream, and were thereby retarded from 60 to 70 miles per day. By this survey, a clear and perfectly safe channel, 22 miles wide, is added to the space supposed to be between the stream and the shoal, which will enable them to keep more to the north-west, and to take advantage of the south-west current on the inner edge of the Gulf. An average gain of 24 hours may be thus made in the home passage of most European traders.

The accuracy of this survey, which was at first disputed, has been fully proved, by two different expeditions subsequently sent from Nantucket to ascertain the extent of the shoal.

The Orbit also accompanied a vessel sent by Capt. Isaac Hull to examine St. George's Bank, and the result of the surveys and soundings will appear in this edition of the Coast Pilot. The harbours of Portland, Portsmouth, Newburyport, Squam, Newport, New-York, Little Egg Harbour, Georgetown, Charleston, and Savannah, have also been surveyed by the direction of the author, and improved copies are now inserted. Minute and accurate sailing directions for the Gulf of Mexico have been lately given to him by Capt. Nathaniel Fowler, of New-Orleans, to whose politeness he feels much indebted.

These are the most important improvements of the present edition, though many material corrections have been made, whenever the author was satisfied, by the testimony of mariners or by surveys, that his former directions were inaccurate. Alterations have not, however, been made, unless upon stronger evidence than what prompted him to insert the original directions.

In presenting the 10th edition of the American Coast Pilot to the public, the author does not flatter himself, that it will prove entirely free from errors. The shifting nature of certain parts of the coast may occasionally present deviations from the present directions.

Imperfection too, is the lot of man, and in attempting to give directions for the navigation of a coast 6000 miles in length, and which was first traversed long after the European coasts had been fully explored, he is sensible that he has undertaken a duty, the performance of which belongs rather to a nation than to an individual. Of such a momentous task, it is matter of astonishment that so much has been done, and not that so much remains to be performed. During the many years devoted to its execution, his zeal has not been excited, nor his industry quickened by the consciousness that he was engaged in a brilliant undertaking, which would attract the attention of mankind: neither was there opportunity or place in a work addressed to a class, using a peculiar dialect, and who required only perspicuity and accuracy, for the beauties of style and language. His pecuniary reward has been hitherto nothing, the profits of each edition, having been wholly absorbed in the expenses of subsequent improvements.

It is, however, no small satisfaction to reflect, that the average rate of insurance, since the first publication of the Pilot, has been diminished more than one half upon coasting vessels, and four-fifths on vessels bound to New-Orleans, and that, among other causes, the improvements in hydrography must have contributed to effect this great reduction. Still more satisfactory is the consciousness, derived from many public and private acknowledgments, that, in no small number of instances, by following his directions, both vessels and crews have been saved from the rage of a merciless element; when the pilots were unable to come to their assistance.

With such pretensions to patronage, the author is not unwilling to meet the scrutiny of the public, being more desirous that errors should be discovered in his publications, than that mariners should be endangered by inaccuracies, which neither his care nor industry could avoid.

EDMUND M. BLUNT.

March, 1822.

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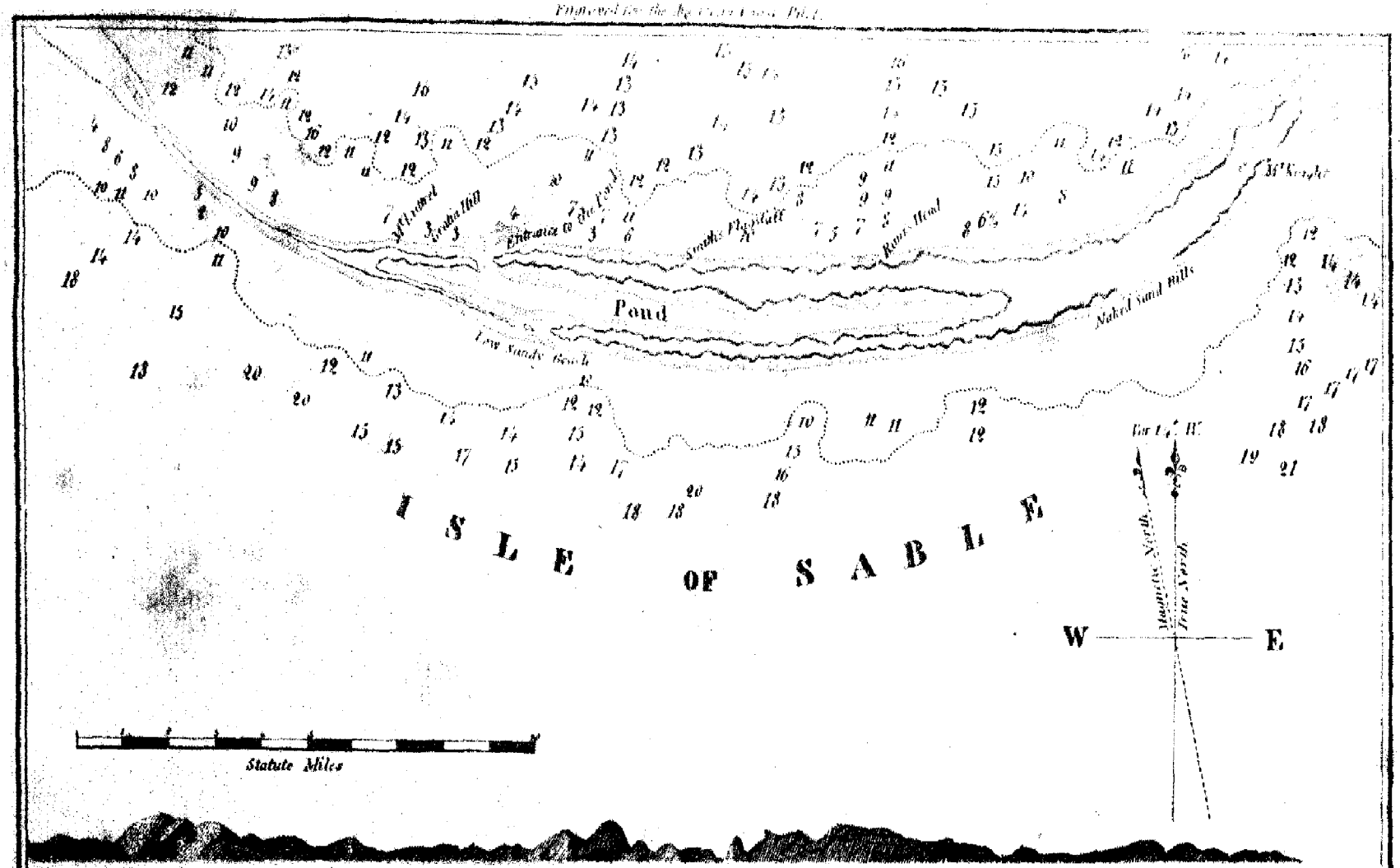


The Eastern End of the ISLE of SABLE, *taken from the Southward.*

New York Published by Edmund M Blunt. For W. Hooker.

Hooker Sc.

See Page 1

BLUNT'S AMERICAN COAST PILOT.

FROM CAPE SABLE TO THE BAY OF FUNDY.

THE south end of the South Seal Isle bears W. by N. from Cape Sable, distant about 7 leagues; between them there are 17 fathoms. About 3½ miles S. ½ E. from the S. W. part of the South Seal Isle, and W. 7 leagues from Cape Sable, there is a rock above water, which appears to be very smooth; between this rock and the South Seal Islands, there are 9 fathoms. Off the west side of the island there are two small rocky islands; between them and the Seal island there are 2 and 3 fathoms.

Between the South and the North Seal islands, there is a channel of about 2½ miles wide, with 15 fathoms in it. In going through this channel, you should keep nearer to the south than to the north island, because there is a shoal lies off about three quarters of a mile from the north island, on which there are 3 fathoms. The course through this channel is about north-west.

The Gannet Rock lies 13 miles N. ¾ W. from the S. W. part of the South Seal island, and 8 miles S. by W. ¼ W. from Cape Forchu. About 5 miles W. ¼ S. from the Gannet Rock, 14 miles N. N. W. ½ W. from the S. W. part of the South Seal island, and 11 miles S. W. ½ S. from Cape Forchu, there is a ledge of rocks, which appear about half ebb. Between the South Seal island and the Gannet Rock, there are from 8 to 20 fathoms; between the Gannet Rock and Cape Forchu there are 23, 28, 16, and 14 fathoms.

The Lurcher ledge lies 17 miles N. N. W. from the Gannet Rock, 11 miles N. W. ¾ W. from Cape Forchu, 15 miles S. W. by W. from Cape St. Mary, and 18 miles S. by W. ¾ W. from the S. W. part of Bryer's Island. Between Cape Forchu and the Lurcher, there are 28, 38, and 14 fathoms; and between the Lurcher and Bryer's Island, there are from 17 to 42 fathoms. On Bryer's island is a light-house.

Trinity ledge lies 5 miles N. E. by E. from the Lurcher ledge, 11 miles N. W. by N. ½ N. from Cape Forchu, 10 miles S. W. by W. from Cape St. Mary, and 14 miles S. by W. from the south point of Bryer's island. Between Cape Forchu and Trinity ledge there are from 12 to 24 fathoms; between the ledge and Cape St. Mary there are 18 fathoms; between the former and Bryer's island, there are 42 fathoms; and along the shore, between Cape Forchu and Cape St. Mary, there are 11 and 12 fathoms. Cape St. Mary bears from Cape Forchu N. by E. ¼ E. distant 16 miles.

The south entrance of the Great passage lies 9 miles N. N. W. ½ W. from the south part of Cape St. Mary; between them there are from 14 to 22 fathoms. The Great passage lies between Bryer's island and the S. W. end of Long Island; and the Petit passage lies at the N. E. end of Long Island, about 8 miles distant from the Great passage. About 2 miles S. W. from the S. W. part of Bryer's island, lies Black rock; and about a mile and a half further, in the same direction, there is a shoal, with only 3 feet on it. Between this shoal and Black rock there are 16 fathoms; between Black rock and the S. W. point of the island the water

is shoal. About 3 miles N. W. by W. from the north entrance of the Great passage, is the North West ledge. The widest and deepest channel for ships that come from the southward for the Bay of Fundy, is between the North West ledge and the West Seal isles; it is nearly 6 leagues wide. There is also a channel between Great Manan island and the point of the main land to the westward of it; this channel is about 4 miles wide.

Mount Desert rock lies 26 leagues N. W. by W. from the South Seal islands, 17 leagues W. S. W. from the West Seal isles, 7 leagues E. $\frac{1}{4}$ N. from Woodenball rock, and 12 leagues E. $\frac{1}{4}$ N. from Manheigen island.

From the Light on Sambro Island to Cape Sable.*

From Sambro island light-house to the entrance of Le Have, the course is W. $\frac{1}{2}$ S. and the distance 11 leagues; between them are Charlotte's and King's bays; the former is also called Margaret's bay. About 5 miles S. $\frac{1}{2}$ W. from the point of land which separates the two bays, lies Green island; it is small, and lies 7 leagues W. N. W. $\frac{3}{4}$ W. from Sambro island.

From the entrance of Le Have to Hope island, the course is S. W. by W. $\frac{1}{4}$ W. and the distance about 11 leagues; between them lie Port Jackson, Liverpool, and Gambier harbours. Port Jackson is called by some Port Metway, and Gambier harbour is also called Port Mattoon. Between Port Jackson and Liverpool is Cape Metway.

From Hope island to the entrance of Port Mills, or Ragged Island Harbour, the course is W. S. W. $\frac{1}{4}$ W. and the distance $5\frac{1}{2}$ leagues; between them lie Stormont river, Port Mansfield, and Penton river. Port Mansfield is also called Port Herbert.

From the entrance of Port Mills to that of Port Haldermand, the course is S. W. by W. $\frac{3}{4}$ W. and the distance about 6 leagues; between them lie Buller bay, Port Campbell, and Port Amherst. Port Campbell is also called Port Roseway; this is deemed an excellent harbour.

From the entrance of Port Halderman to Cape Sable, the course is W. $\frac{3}{4}$ S. and the distance 10 miles; between them lies Barrington bay. Port Haldermand is also called Port Latour.

The Brazil rock lies 5 miles S. $\frac{1}{2}$ W. from the point of land which separates the entrance of Port Haldermand from Barrington bay; and $6\frac{1}{2}$ miles S. E. by E. from Cape Sable; on this rock there are 10 feet; between it and Cape Sable there are 17 fathoms.

Cape Sable is a low sandy point; it may be known by several sandy hills lying just within and by the land a little further in or to the northward of the sand hills, which appear higher.

The east end of Baron bank lies 9 leagues S. W. by W. from Cape Sable; it thence extends W. S. W. $\frac{1}{2}$ W. 7 miles, is about 4 miles broad, and has 20 and 21 fathoms on it. Between this bank and Cape Sable there are 33 fathoms. The tide flows here, on the change and full days of the moon, at eight o'clock. From Cape Sable a reef of rocks extends W. by S. about 3 miles, on which the sea always breaks unless the water be very smooth.

A light-house has been erected on Cranberry Island, Nova Scotia, and was lit on the first of November, 1818. To distinguish it from Sambro light, off Halifax, it has two lights, the upper one large, and the lower one small.

* Sambro light, at the entrance of Halifax harbour, is 210 feet above the sea level, lit by seven oil lamps; stands in lat. 44° 28′ 35″ N. long. 63° 30′ 30″ W.

Directions for Halifax harbour.

SAMBRO island light-house is in latitude 44° 28′ 25″ North, and longitude 63° 30′ 30″ West.

From the westward, bring the light to bear N. E.; if it bear more easterly, stretch to the southward till it bears N. E. and as much more northerly as you please, there being no shoal or ledge to the southward; then keep it open on your larbour bow; give it more than a mile and a half birth, as much more as you please.

Note.—The western ledges lie from the light S. W. distant two miles, the other W. S. W. about one league; the eastern ledges lie in a range nearly, some above water; the outermost, one mile and a half from the light, bearing from it E. N. E.

When the light bears north, distant about 2 miles, run N. E. 4 miles, then north will carry you to Chedabucto head, at a proper distance clear of all danger.

When a-breast of Chedabucto Head, run N. ½ W. for the south point of George's island.

When within ½ a mile of George's island, you may enter the harbour west of it in 12 fathoms, or east of it in 15.

In passing between Sandwich point and Meagery's beach, run rather nearest the point, to shun a shoal which runs off S. W. from the beach.

There is also a shoal lying one mile south of Sandwich point.

Coming from the eastward, run for the light, and you cannot fail seeing Chedabucto Head as you open Halifax harbour; the light being 4½ miles distant from the Head to the S. W.

Bearings and Distances from Sambro Island light-house.

Chedabucto Head N. E. 4½ miles.
Cape Le Have W. ½ S. 33 miles.
Liverpool light W. by S. 53 miles.
Three Fathom Harbour E. N. E. 16 miles.
Jedore Head E. by N. ½ N. 24 miles.
Jedore outer ledge E. 25½ miles.

Var. 17° 28′ W.

Fort Aylesbury.

You have regular soundings and deep water as far up as point Bruce, where a rocky shoal extends near one-third of the way across the channel; when you are abreast of it, steer for the small island on the eastern shore, and under a short sail, haul round its west side, giving it but a small birth, to avoid a rocky flat running from the western shore, within the distance of 50 fathoms from the isle. You may anchor under the west side of the isle, or farther up. There is a passage, at high water, from this to the Bay of Rocks, for boats and small craft only.

Port Hood is situated on the north-western extremity of the island of Cape Breton, bears by compass north 4 degrees east, distant 20 miles from the north entrance of the gut of Canso, and east 8 degrees south 17½ miles from Cape George. The flood tide sets from the northward at the rate of 1½ mile an hour; and on the days of full and change, it is high water at half-past seven; common spring tides rise about 5 feet. To sail in, keep your course to the eastward, till Point Emerson is on with the gut of Canso; this direction will lead you into no less than 6 fathoms; and close by the end of the sand flat which runs from the south-east part of the Peninsula:—here are two small remarkable white beaches at the bottom of

the cliffs ; when the southernmost bears W. by S. you may haul round to the anchorage in 4 and 5 fathoms, muddy bottom, where ships may lie well sheltered from all winds. The water on the flats appears very white, and breaks when the wind blows strong from the southward. There is a passage for small vessels between point Susannah and Henry Isle.

Convey Harbour.

This harbour is sheltered by Seymour Isles, and has two entrances. Sailing into the westernmost, in order to avoid Henry ledge, keep the starboard shore on board ; and on your larboard tacks, observe not to borrow nearer than 6 fathoms, which will keep you clear of the tail of the east reef, and of a small sunken rock about a cable's distance to the N. E. from it. The 12 feet shoal lies 220 fathoms distance from Park Isle, and E. by S. 900 fathoms distance from Fish beach. To sail into the western entrance, come not nearer Seymour Isles than 6 fathoms : shaping your course to the northward, until you open the North Stage mid-channel ; then steer for it, and you may anchor in 6, 8, and 10 fathoms, good holding ground.

Milford Haven.

The head of the Bay Chedabucto is surrounded with sand flats, but none extend farther from the shore than 200 fathoms, excepting Stony Isle shoal, running off south near half a mile, and meets Toby-head shoal, which makes a bar of 3½ fathoms across the channel into Milford Haven. At the beginning of the flood and ebb, the tide streams with great velocity in the Narrows between Stony Isle and the western shore. Within the harbour, between Eliza point and the beach, there is a bar 3½ fathoms, above which is deep water for several miles up into the country. Salmon river is fit only for the smallest boats.

White Haven.

White-Head island is very high, and the rocks that surround it, with those off the entrance of White Haven, westward to Cape Martingo, inclusively, are high, and remarkably white also. There are several passages between these rocks ; the best is between the Gulf rock and the west breaker. You may sail close by Turtle rock ; then shape your course N. W. by N. keeping near Three-top island, to avoid a ridge of sunken rocks which extend from the eastern shore one-third of the way across the channel, and run up to anchor in 10 and 12 fathoms, muddy bottom.

Port How is a good snug harbour, but there are several breakers in the entrance. To sail into it, bring the body of Middle Isle to bear N. ½ E. then steer for it till you are above Iron-Head, to which, on account of some rocks southward of it, you are to give a good birth ; and you may anchor under Middle Isle in 7 and 8 fathoms, good holding ground, or in the north-west branch going up to it ; keep nearest the western shore. Crow harbour, or the south shore of Chedabucto bay, W. N. W. 4 leagues from Canso, has deep water, with good bottom, and may afford reception for 2 or 3 ships of war. The best channel is on the west side of Rook Isle, between it and Corby, which is a shoal extending eastward about 70 fathoms from 2 small red heads on the western shore. Isle Rook is bold too.

Philip inlet is shoal, and lies open to the north winds. A small schooner may lie sheltered within White Point in Shallop Cove.

Sandwich Bay.

There are safe and easy passages for the largest ships of war between the rocks, ledges, and breakers, about the entrance of this bay, leading up to the several harbours branching out from it. Country harbour is navigable a great way up, and affords good anchorage in mud bottom. Port Hinchinbroke has also sufficient depths of water for any ship, and good holding ground. Port Montagu lies very convenient for carrying on the cod fishery. You may lie very snug within Island harbour, in 7 or 8 fathoms, mud bottom, and commodious for going to sea with almost any wind. The south end of William island is shoal for a quarter of a mile. A rocky reef extends about half a mile S. S. E. from Cape Mocodome. Pollux shelves to the N. W. but is bold to on the south and east sides. From Orpheus ledge it is shoal above a mile to the S. S. eastward, and a quarter of a mile to the N. N. westward. The Flute, a sunken rock, lies S. E. 5 deg. S. 2 miles from Cape Mocodome, and N. E. by E. one mile and three quarters from Pollux, and S. W. by W. $\frac{1}{2}$ W. $4\frac{1}{4}$ miles from Green island. The Fiddle, another sunken rock, lies S. E. near 4 miles from Cape Mocodome, and E. $\frac{1}{2}$ S. 3 miles from Pollux. The Bassoons (two breakers) lie south above $1\frac{1}{2}$ mile from Green island, and E. by N. $\frac{1}{2}$ N. $5\frac{1}{2}$ miles from Pollux.

Port Bickerton is a safe little harbour. The south end of Richard Isle is shoal for about the distance of a cable's length. Hummock Head is surrounded with high black rocks—its interior part is barren: a ship may anchor within the head on the eastern shore. In running farther up, keep the starboard shore on board to avoid Murray's ledge, part of which is dry at low water.

River St. Mary.

At the entrance the soundings are irregular, and the bottom rocky; it is navigable for sloops and schooners by a narrow channel, winding through extensive flats, part of which, at low water, are left dry, leading to the fresh water falls.

Houlton Harbour.

Flint Isle is surrounded with shoals and breakers. From John Isle there are rocky reefs stretching out near one mile south and S. E. You may sail on either side of Mill Rock, it being steep to. Clamb Rock is dry at low water in spring tides. The best channel is between it and the bluff head on the east shore.

Liscomb Harbour.

The rocks and breakers extending from Cape Amelia are observed at a considerable distance, as the sea breaks over them at all times. Coming from the eastward, be careful of a sunken rock lying S. W. 1 mile from Cape Amelia. Within the entrance of the harbour there is a blind rock, lying three quarters of a cable's length from Point Pitt. You may anchor any where in this harbour, in 5 or $5\frac{1}{2}$ fathoms, and good holding ground.

Port Stevens.

There are some ledges and breakers which lie scattered from the E. to the S. E. within 3 miles of Cape Philip. The best channel is between Taurus and another shoal extending about half a mile S. E. from White

point, to which come no nearer than 5 fathoms, whence you may sail through between Breyenton island and Duck isle, and anchor at pleasure in the harbour.

White Islands Harbour.

The sunken rocks, which extend about half a mile S. S. E. from the eastern end of White islands, are steep too, and must be avoided by keeping mid-channel between them and Crane island. These islands, being remarkably high and iron bound, with white rocks, may be distinguished from the offing.

Flemming River.

The channel into this river being rocky and intricate, is scarcely fit for any but fishing and other small craft.

Beaver Harbour.

The Beaver isles are very remarkable to ships sailing along the coast, particularly Bald Isle, the westernmost, which is a high and darkish barren rock. A shoal spreads easterly near 200 fathoms from the eastern extremity of South isle, and about three quarters of a mile N. ½ W. from it, lies Bounce, a small sunken rock, with 15 fathoms close to it on all sides; and farther, in N. 3° E. 1¾ miles distant are the Twins.

Black rock, in the fair-way going up the harbour, has on its side 13 fathoms, and 16 on its westernmost side; you may anchor in 8 fathoms within Edward and Meadow isles. The red cliff on the south end of Edward's isle makes this harbour remarkable from the offing, being the only one between Egmont harbour and Liscomb. Sailing into Mackerel basin, give birth to the shoal which extends northerly above a cable's length off the beach, on the east side of its entrance. The interior part of this beach is so steep too, that a vessel of 100 tons may, at all times of tide, lie afloat with her side touching. There are 3 fathoms and mud bottom throughout the basin.

Port Parker.

At the entrance of this port the bottom is uneven and rocky within. Bridge Cove is good anchorage in 3 and 3½ fathoms, sound bottom.

Port North.

Off Cape Hide are two ledges, linked and surrounded by sunken rocks, commonly named Pegasus' Wing, to which come not nearer than 12 fathoms; the best way into this harbour is on the west side of them, and thence steer for Rock isle, which is steep too, and run up through between Banbury and Guilford isles, where you will have from 9 to 14 fathoms. N. 10° W. 570 fathoms distant from the N. E. end of Banbury Isle, and E. by N. 2° N. from Stony island, lies a sunken rock, on the shoalest part of which there are no more than two feet; when above it, you shape your course north-easterly up the river, and anchor at pleasure in 7, 8, and 9 fathoms, mud bottom.

Port Palisser.

Off the entrance of this port E. S. E. 7¼° S. 500 fathoms distant from the Hug, lies a sunken rock, with deep water on all sides around

it ; in sailing thence up the harbour, the soundings are irregular from 4½ to 10 fathoms. The best anchorage is within Hugh and Palisser islands, where you have from 6 to 8 fathoms, mud bottom : and the best channel leading to it is between them.

Spry Harbour.

Cape Southampton is high, rocky and barren ; two trees on the top make it very remarkable from the eastward and westward. Cape Spry is lower, and likewise barren ; and on account of two flat stony isles and several breakers extending south-westerly, not safe to approach nearer than 7 fathoms. You may sail up the harbour on either side of Cornish rock ; S. S. E. 2° E. 630 fathoms distant from this rock, and E. N. E. 2° E. from Cape Spry, lies a breaker, on which are 4 fathoms.—Aries is a blind rock, which shews itself at low water spring tides, and is steep too on all sides ; it lies N. N. E. 4½° E. 240 fathoms distant from Point Richard. From the anchoring place in 7 and 8 fathoms, mud bottom, you have a passage for small vessels, leading through within the islands into Deane harbour.

Deane Harbour.

To sail into the harbour, keep mid-channel between Cape Southampton and the Calibian ledge. Above Urn isle is good anchorage in 5 and 6 fathoms stiff blue clay.

Saunders Harbour.

Excepting the shoal and a breaker, east one mile off Comptroller's ledge, this harbour has a fair entrance, and regular soundings all the way up, and good anchorage in stiff blue clay.

Tangier Harbour.

To avoid Calibian ledges, and the shoal half a mile to S. S. E. keep the shore of Tangier island on board ; you may anchor any where above Fisher's Nose in 4 fathoms, mud bottom.

Knowles Harbour.

You may sail on either side of Bold rock, the N. E. side of which is steep too, but has a shoal extending from its S. W. side about 2 cables' length. From Hiron island there is a ledge and a shoal running easterly 3 quarters of a mile. Centaur is a blind rock, off the east point, at the entrance of Charles river, which shews itself at a quarter ebb. The bottom is a stiff blue clay throughout the harbour.

Keppel Harbour.

Owl Head makes this harbour very remarkable from the south-eastward. In the offing the shore appears in white spots from its entrance upwards. The best channel is on the west side of Hiron island ; there is no danger but what shews itself, excepting Hervey breakers, on which are 3½ fathoms, and which break only in bad weather. Sailing up, you shoal your water gradually from 17 to 5 and 4 fathoms, muddy bottom.

Egmont Harbour.

To sail through the best channel into this harbour, on the east side of

Thorn shoal, on which there are 11 feet lying S. E. by S. 300 fathoms from Point Darby, shape your course towards M'Bride point, which is bold too, observing to keep it open with the north end of Little Peninsula; and when the highest part of Winter rock bears south, you will be on the east side of Thorn shoal; whence sail northwards, until you shut in Little Peninsula with M'Bride's point, and steer northwesterly for Black rock, to avoid the dry sand flats on your starboard hand, within a ship's length of which the water deepens to 5 and 6 fathoms; whence you may run up to anchor at pleasure. In Watering cove, or further up there is good and well sheltered anchorage, without the harbour, between Isle James and Isle Worth. Bank's inlet leaves between the extensive dry flats, at its entrance, but a narrow and winding passage for the smallest fishing crafts.

Catch Harbour,

Has a bar across its entrance with 9 feet at low water, and it breaks when the wind blows upon the shore; it is frequented by small vessels only.

Sambro' Harbour.

Coming from the westward, the best passage is between Cape Palisser and the Bull rock; from the eastward, you may run up between Sambro' island and Inner ledge. The anchoring ground is within the Isle of Man, in 3 fathoms, mud bottom. The gut leading to Loudy basin has from 2 to 3 fathoms, and is very narrow.

Bristol Bay.

On the days of full and new moon it flows till three quarters past 7 o'clock, and the common spring tides rise eight feet. To run up to anchor in Shuldum harbour, when coming from the westward, bring Point Mackworth to bear north, and pass between White rocks and the rocks which lie off Point Mackworth. There is a good channel also between Cape Palisser and Hervey isle, with good anchoring ground in 7 and 8 fathoms.

Prospect Harbour.

The soundings on the entrance of the harbour are irregular. About two cables' length east of Dormon rock is a breaker, with 3 fathoms on it. There is good anchorage above Pyramid isle for the largest ships, and within Betsey's isles for small vessels, in 4½ fathoms, stiff blue clay.

Port Durham,

Has a sufficient depth of water, but the entrances into it are very narrow. Sailing in through the east passage, which is the best, give birth to the ledge extending E. S. E. half a mile from Inchkeith island.

Leith Harbour.

From Inchkeith island E. S. E. about 1½ mile lies the Hog, a sunken rock, on which there are but 6 feet; it may easily be perceived by a rippling of the tide in fair weather, or by a swell and breaking of the sea when the wind blows on the shore; there are good channels on both sides of it. The channel on the west side of the Hog is more difficult, on account of the ledge extending E. S. E. about half a mile from the eastern extremity of Inchkeith island.

Charlotte Bay.

In this bay are several harbours fit to receive armed ships of any rate. The high lands at Haspotageon, on the west, between it and King's bay, are very remarkable at a considerable distance in the offing. The shores on the entrance are high white rocks, and steep too: on the west side, coming in, you perceive a Dog (a ledge) almost covered and surrounded with breakers, which lies S. by E. 3° E. near 1½ mile distant from the south end of Holdorness island, and bears W. 3° S. from the southernmost point of Inchkeith island. You have good channels on both sides of the small island which shelters the south west harbour. In Fitzroy river, ships may lie land-locked in 5 or 6 fathoms; sailing into it lies Black ledge, with deep water close to it, and lying S. W. ½ S. 300 fathoms distant from Warren head, appears at all times of tide. Vessels may ride half a mile below the falls of Effingham rivers. In Delaware river the largest ships may lie in the greatest safety. Convay cove has also a sufficient depth of water for any ships, and sheltered from all winds. Sailing into it, keep nearest the starboard point of the entrance. Within Hertford basin you have from 8 to 10 fathoms throughout. Mecklenburg isle affords a commodious shelter; and further up, any where within Strelitz isles, you may anchor very secure.

Mecklenburg Bay.

This bay is full of the finest harbours; and there are deep passages within almost every island in it, with convenient anchorage for all kinds of shipping.

To sail from the southward into Prince harbour, when you are as high up as Royal George island, steer for Robinson's rock, which is always above water, until the north point of Louis island opens with the north end of William Henry island, whence you may shape your course to any part of the harbour, and anchor at pleasure in 4, 6 or 9 fathoms, good holding ground.

There are several good channels leading into the Royal arm; about the middle part of it, S. W. ½ S. 300 fathoms distant from the south end of Jarvis isle, and E. ½ S. distant 600 fathoms from the south point of Barrington island, lies a ledge, dry at low water.

The navigation into Cumberland arm, Chester, and the other harbours in this bay, is so easy and safe, that the sole inspection of the draft will give every information necessary on the subject.

Lunenburg.

There are good passages in Lunenburg on either side of Prince of Wales' island; sailing in on the east side, keep mid-channel, in order to avoid the shoals which extend from the north part of the island, and from Colesworth point. Sailing in through the best channel, on the west side of the island, incline towards the Ovens; then shape your course N. N. W. ½ W. over towards Battery cliff, in order to avoid the Cat, which lies N. by E. 1 mile distant from the Ovens, and on which are but 8 feet; and keeping the fort well open with Moreau point, you may safely run up to anchor in 3 fathoms, and good hold ground.

King's Bay.

This bay is parted from Charlotte's bay by a neck of land about 3 miles over, whereon the highlands of Haspotageon stand, whose appearance,

in three regular swellings, render it very remarkable at a great distance in the offing. Between the islands are good channels, leading up into several fine harbours within the bay. The outer breaker lies N. N. E. 1 mile and two thirds distant from the south east end of Duck island, and W. 7° S. 3¼ miles distant from the S. W. point of Green island. From this, about 3 miles northward, lies the Bull (a blind rock, visible at three quarters ebb) bearing W. S. W. 1200 fathoms distant from the S. W. end of Flat island, and S. S. E. ½ E. 2½ miles distant from the west point of Royal George island. And further up W. by N. 8° N. 400 fathoms distant from West point, lies Rocky shoal, within which and Royal George island is deep water. The Coachman is a blind ledge within Mucklenburg bay, visible at low water only. The east ends of Royal George's and Flat islands in one, will lead you clear on the east side of it. The west end of iron bound island open with the west point of the Little Tancock island, will clear you on its south side; and Governor's island on with West point, carries you safe on its north side.

Gambier Harbour.

On both sides of Portsmouth rocks, which are always above water, you have deep channels, and of a sufficient width for ships to turn into the harbour; with a leading wind you may steer up N. W. until you bring Saddle island to bear S. W. by S. and haul up S. W. to the anchoring ground. Small vessels may pass on the west side of Matoon island, between the Bull and the western shore.

Port Mansfield.

Green Island, without the entrance of this port, is remarkable from the westward, having no trees on it. The channel leading to the anchoring ground in 3 fathoms, is not more than 60 fathoms wide, between Bridge's rock and Stony beach, above which are flats with narrow winding channels through the mud.

Directions for sailing into Shelburne harbour, N. S.

Shelburne is a safe harbour against any wind, except a violent storm from the S. S. W. At town the wind from S. by E. does no harm, but from S. by W. to S. W. by S. if blowing hard for any considerable time, it is apt to set the small vessels adrift at the wharves; but in the stream, with good cables and anchors, no wind can hurt you.

Shelburne light-house is built on the south-eastern end of M'Knutt's island, and forms the western side of the entrance into the harbour.—About half way from its base to the upper lantern is a small lantern, shewing a distinguishing light. Generally, it is well attended to, and shews as well as any light on the coast. The light may be approached with safety in the night, from any situation, when it bears from N. N. E. to W. N. W. There is water enough for a first rate man of war, within a cable's length of the point on which it stands. A vessel going in at night, having got sight of the light and bringing it to bear any way between N. N. E. and W. N. W. ought to run for it until pretty near to it, so as (if it is not very dark) to see or hear the surf on the shore; then leave it on the larboard hand, and still keeping the larboard shore on board until they

find by their lead good anchorage, which will be 4 or 5 miles above the light-house. The bottom is good from the light-house to Sandy point, about 8 miles over, a depth of water from 12 to 5 fathoms; a vessel may turn up without meeting any obstruction whatever, except the shore on each side, taking care to keep the lead going, in order to discover the shore soundings, when the weather is so dark as to hide the land off the shore on both sides. The passage is not more than 1½ mile wide from the middle head of the island (which is about 3 miles above the light on the same side) over to the eastern shore. Coming from the eastward, or seaward, there is a rock, which is seldom, if ever, covered with water, called the Bell, (by some it is called the Bull, and others the Cow) which bears from the light, E. 20° N. 2½ miles distant. It is bold too, on any side of it, and may be passed at a pistol shot with safety; and a run of 4 or 5 miles N. W. from it, will bring you up to some where about the Middle head, whence you proceed up channel about N. N. W. to Sandy point, off which runs a spit of sand, which must be avoided by keeping further to the westward. This is the only obstacle in the whole passage, and you may anchor below it if night, as it would not be proper, or even necessary, for a stranger to attempt it, finding such good anchorage before you come to it. After rounding Sandy point, the town appears, and you may run up without difficulty.

[Shelburne *affords an excellent port of shelter to vessels in distress, of any kind, as a small supply of cordage and duck can, almost at any time, be had. Carpenters can be procured for repairing; pump, block, and sail-makers also. It affords plenty of spars and provisions of every kind, in tolerable plenty. Water is easily provided, of an excellent quality. If a vessel enters at the Custom-house, the charges are high; that, however, is seldom necessary.*]

The following bearings and distances were taken at the light-house.

From the light-house to Berry's or Sunbridge point, N. 40° E. 2 miles.
From ditto to Straptub rock, off the above, N. 45° E. 2 miles.
From ditto to the Bell rock, E. 20° N. 2½ miles.
From ditto to the south end of the westernmost Ragged island, N. 84° E. 7 miles.
From ditto to the easternmost Ragged island, N. 86° 30′ E. 10½ miles.
From ditto to the S. W. breaker of the Ragged islands, S. 81° 34′ E. 8 miles.
From ditto to Cape Negro, S. 39° W. 9 miles.
From ditto to the Jig rock, (which almost always breaks, and lies in shore of the track into Shelburne) S. 28° W. 1¼ mile.

Latitude of the light-house,	- -	43° 42′ 30″	N.
Longitude from London,	- -	65° 3′	W.

Variation of the compass, 13° westerly.

Port Mills.

The entrance of Port Mills has a very rugged appearance, several ledges and breakers lying scattered before it. Coming from the eastward, when you have passed Thomas' island, which has high rocky cliffs on the east side, and sunken rocks, extending in a S. W. direction near one mile from its southern point, keep a good look out for the Tiger, a breaker, lying south, half a mile from Rug point, which you will leave without you, and haul up N. W. by N. sloping your course along Muffat island, to avoid the shoal stretching midway over from the eastern shore. You are in the best of the channel when Centre isle is just open with Muffat island: on these marks you may run up to the North arm to anchor. Small vessels may be well sheltered within Cubb basin Coming

from the southward, or from the westward, you have deep water on either side of Gull rocks, or between the Bear and the Tiger.

Fort Campbell.

Cape Roseway is a high cliff of white rocks, the top of which is partly without wood. The west side of Roseneath island is low. South 4¼ miles distant from the Cape lies the Jig, a rocky reef, with no more than 6 feet, between which and the island you have 4 and 5 fathoms. The Bell, a rock, always visible, and bold too, lies S. E. 3° S. 1100 fathoms distant from Sundrich Point, and N. E. by E. above 2 miles from Cape Roseway, in the fair-way from the eastward into the harbour. The channel is clear within a cable's length of both shores, up to the anchoring-ground, in good water, and mud bottom. Sandy flat on the east shore, at the Narrows, has 5 fathoms close to; between Roseneath island and the western shore it is quite shoal.

Fort Amhurst.

Cape Negro island, which divides the entrance into two passages, is very low about the middle, and appears like two islands, the Cape itself remarkably high, rocky, and barren. Coming from the westward, in hauling round Point Jeffrey to avoid the ledges, blind rocks, and shoals extending easterly from the western shore, shape your course N. N. E. towards the Cape, giving the Savage Rocks a birth of 3 cable's length, until you open Davies' Isle, which is the westernmost and largest at the head of the harbour, a sail's breadth with Point William, and run up in that direction, observing to keep clear of a sunken rock, which lies E. S. E. from Point William, about 300 fathoms from the shore. Fishery Beach is bold too. To sail up through the east passage keep Gray Rocks on board, and steer up N. W. for Point John, until you can see across the isthmus in the middle of Cape Negro island, and have passed the Budget, a blind rock, which lies in a direction between the Whale's Back and the Gray Rocks, on both sides of which there is deep water; whence haul over to the westward, keeping the shore of the island, or the shoals, which extend half the distance over from Point John to the island. When you have opened the small islands at the head of the bay, shape your course N. N. W. to the anchoring-ground.

Fort Haldimand.

To sail into it, coming from the westward, continue your course easterly until you have Brehm Isle a ship's length open to the eastward of North Rocks; thence you may steer northerly for Isle George; and when you come up within the distance of two cables from its south end, incline to the westward in a direction with the western extremity of Pond Beach, until you open Prospect House on the north side of the northernmost Mohawk Lodge, and then haul into anchor in 3 fathoms, mud bottom.

About midway between Baccaro Point and the south ledges, lies the Folly, a sunken rock, within which and the western shore is a channel of no less than 6 fathoms.

Vulture, a dangerous breaker, lies S. W. by W. near 2 miles from Baccaro point. Brazil is a sunken rock, with 10 feet at low water; it lies E. by S. ½ S. 3 leagues from Cape Sable, and S. S. W. 3½ leagues from Cape Negro.

St. Mary's Bay.

From Cape St. Mary upwards into the bay, the south shore is low, and runs out in sandy flats for near three quarters of a mile. The north shore is surrounded by high steep cliffs, with deep water close under them. Mid-channel and about two-thirds up the bay, lies a rocky bank, with 4 and 4½ fathoms; and on each side of which are channels of 12 and 15 fathoms, mud bottom. The entrance of the river Sissibou is shoal, and within has a narrow channel of 2 fathoms. Opposite to Sissibou lies Sandy Cove, where vessels, when it blows hard, may ground on soft mud, and be sheltered from all winds.

Petit passage is 280 fathoms wide on its narrowest part, and has from 20 to 30 fathoms; its shores are bold too. On the west side, near the northern entrance, lies Eddy Cove, convenient for vessels to anchor out of the stream of the tides, which runs so very swift, that without a fresh gale of a leading wind, no ship can stem it. W. N. W. ½ N. 3¼ miles distant from the N. W. point of the northern entrance of Great passage, lies the north-west ledge. Coming in from the southward, the widest and deepest channel is on the west side of Belly's Island. To avoid the 9 feet shoal (north distant 300 fathoms of it) haul close round the island, or give it a birth of 4 cable's length ere you bear up for the anchoring-ground off the houses on the western shore. The Black Rock is 1½ mile distant S. S. W. from the S. E. end of Bryer Island: and near 2 miles farther on the same direction is a shoal with 3 fathoms, between which and the rock are 16 fathoms. Trinity ledge lies 10 miles S. W. by W. from Cape St. Mary. When the tide is out, three stones appear above water; it is near one quarter of a mile in length, and as much in breadth; and it tails off half a mile to the westward, deepening the soundings gradually.

Annopolis Royal.

The shore on both sides the Gut of Annopolis is iron bound for several leagues. From the southwest end of Long island, a range of hills rise gradually to a considerable height to the entrance of the gut, where it terminates by a steep fall. Here you have from 25 to 30 and 40 fathoms, which, as you draw into the basin, shoals quick to 10, 8, and 6 fathoms, mud bottom. The ebb and flood stream through at the rate of 5 knots, and cause several whirlpools and eddies. The truest tide is on the western shore, which is so bold too, that a ship might rub her bowsprit against the cliffs, and be in 10 fathoms. Point Prim runs off shoal about 30 fathoms. Ships may anchor on the east side of the basin or run up towards Goat island, observing, when within the distance of half a mile from it, to stretch two thirds of the way over the larboard shore, until you clear the island which is shoal all round, and thence to keep mid channel up to the town.

Sailing Directions for Sable Island, *the* Coast *of* Nova Scotia, *and* Bay *of* Fundy.

On the days of the new and full moon, it is high water along the south shore of the island at half an hour after 8 o'clock; and it flows till half an hour past 10 o'clock on the north side, and till near 11 o'clock in the

pond; common spring tides rise 7 feet perpendicular, and neap tides 4. The flood sets in from the S. S. W. at the rate of half a mile an hour; but it alters its course, and increases its velocity near the ends of the island: at half flood it streams north, and south at half ebb, with great swiftness across the north-east and north-west bars, therefore dangerous to approach without a commanding breeze. The north-east bar runs out E. N. E. about 4 leagues from the eastern extremity of the island, all which is very shoal, having in few places more than 2, 3, or 4 fathoms; whence it continues east and E. by S. deepening gradually to 12, 15, and 18 fathoms at the distance of 8 or 10 leagues, and shapes to the south and south-east, sloping gently to 60 and 70 fathoms. To the northward and eastward it is very steep; and in a run of 3 miles, the water will deepen to 130 fathoms. Abreast the body of the isle the soundings are more gradual. The shoal ground of the northwest bar, shapes to the westward, and deepens gradually to 70 fathoms, at the distance of 20 or 25 leagues from the isle, and winds easterly and southerly until it meets the soundings of the north-east bar. The quality of the bottom in general, is very fine sand, with a few small transparent stones: to the northward, and close to the north-east bar, the sand is mixed with many black specks; but near the north-west bar, the sand has a greenish colour. The north-east bar breaks in bad weather, at the distance of 8 and 10 leagues from the island; but in moderate weather, a ship may cross it, at 5 leagues distance, with great safety, in no less than 8 or 9 fathoms; and if the weather is clear, the island may be seen thence very distinctly from a boat. The north-west bar breaks in bad weather, at 7, and sometimes at 8 miles from the island; but when the sea is smooth, ships may cross it, within the distance of 4 miles in 7 fathoms.

Along the north and the south sides of the island are many spits of sand, extending nearly parallel, and within a mile from the shore. Vessels may anchor on the north side of the island, between these spits, and not be liable to be drove off by southerly winds. On the south side it is boldest off the body of the island, having 10 and 12 fathoms within a mile from the shore: but towards the bar it is more shoal, and dangerous to approach, for the currents, which are uncertain, are in a great degree influenced by the winds which have preceded. The surf beats continually on the shore, and in calm weather is heard several leagues off. Landing on this island with boats is practicable on the north side, after a continuance of good weather only. The whole island is composed of fine white sand, much coarser than any of the soundings about it, and intermixed, with small transparent stones; its face is very broken, and hove up in little hills, knobs, and cliffs widely heaped together, within which are hollows and ponds of fresh water, the skirts of which abound with cranberries the whole year, and with blue berries, junipers, &c. in their season, as also with ducks, snipes, and other birds. This sandy island affords a great plenty of beach grass, wild peas, and other herbages, for the support of horses, cows, hogs, &c. which are running wild upon it. It grows no trees; but abundance of wreck and drift wood may be picked up from along the shore for fuel. Strong northerly winds shift the spit of sand, and often even choke up the entrance of the pond, which usually opens again at the next southern blast. In this pond are prodigious numbers of seals, and some flat fish, eels, &c; and on the south west side lies a bed of remarkable large muscles and clams. The south shore is, between the cliffs, so low, that the sea breaks quite over in many places when the wind blows on the island. The Ram's head is the highest hill on this

island; it has a steep cliff on the north-west, and gently falls to the south-east. The naked sand hills are 146 feet of perpendicular height above the level of high water mark, and always appear very white. Mount Knight is in the shape of a pyramid, situated in a hollow between 2 steep cliffs. Mount Luttrel, is a remarkable hummock on the top of a large swelling in the land. Gratia hill is a knob at the top of a cliff, the height of which is 126 feet perpendicular above high water mark. The Vale of Misery is also remarkable as is Smith's Flag-staff, a large hill, with a regular ascent every way. From the offing, the south side of the island appears like a long ridge of sandy cliffs, lessening towards the west end, which is very low.

The Nova Scotia Banks extend nearly 70 leagues, in a westerly direction, from the isle of Sable: they are from 20 to 25 leagues wide; and their inner edges are from 14 to 18 leagues off shore; they are intersected by narrow winding channels (the bottom of which is mud) running north-west and south-east. Between these banks and the shore, are several small inner banks, with deep water and muddy bottom. The water deepens gradually from the isle of Sable, to the distance of 22 leagues, in 50 fathoms, fine gravel; thence proceeding westward, the gravel becomes coarser; at the distance of 23 leagues, and south from Prospect harbour, you have from 30 to 35 fathoms, large stones; and continuing westward to the western extremity of the banks, the soundings are rocky and shoal to 18 and 15 fathoms, Cape Sable bearing N. by W. distance 15 leagues.

The south-west extremity of bank Quero lies 26 miles E. N. E. ½ N. from the east end of the isle of Sable. This bank extends E. by N. 35 leagues in width; its shoalest part is about 5 leagues from its eastern extremity, in 16 and 18 fathoms, slimy sand and clams; from whence it deepens regularly every way to 60 and 70 fathoms towards the edges of the bank. This bank is steep to: and from its soundings on the north side, you will fall immediately in 90 or 100 fathoms, black mud, and in 120 fathoms on the south side.

[*See CHART of the before-mentioned Coast, published by E. M. BLUNT*, 1820.]

REMARKS.

The eastern extremity of Great Breton island (which ships sailing from Europe to Nova Scotia, in general choose to make) appears on the sea shore, and some way back into the country, barren and rocky; and the tops of the hills being so much alike, have nothing remarkable. The light-house and town of Louisburg, on making that part of the island, are immediately seen. The coast to the westward continues rocky on the shore, with a few banks of red earth, and appears less barren.

Cape Blancherotte is a remarkable cliff of whitish earth, lying just on the east of the isle of Saint Esprit (which is a small woody island, 2 miles distant from the shore with a breaker 1 mile and a half without it) from whence the land is low to the Richmond isles, on which appear several small banks of bright red earth, and beaches between them. Albion cliff is rocky, and remarkably high and steep.

In sailing through the gut of Canso, ships pass between it and the isles of Canso, which are surrounded with many low white rocks, and breakers extending from them. The south shore of the bay of Chedabucto is iron bound and steep too; and the north shore mostly red cliffs and beaches. From the southern entrance northward through the gut, the west shore

is high, rocky, and steep; and the east shore is low, with beaches to the north end of the gut; whence to port Rood, there are high, rocky red cliffs; and on the western shore of St. George's bay, between the gut and cape St. George, are several very remarkable cliffs of plaster, which appear extremely white. Cape St. George is iron bound and very high, its top being 420 feet above the level of the sea; about half way between it and port Luttrel lies the barn (a remarkable high large rock) from the resemblance to which, it takes its name; and from the barn to port Luttrel, Pictou harbour, Tatmegoushe, Ramshge, Linzee river and bay Vette, and as far as port Chediack and Cocaigne, the shore is bound with red cliffs and beaches under them. The inland country between Frederick's bay and the basin of Cobequid, appears remarkably high to vessels in the offing.

From Canso, westward to Torbay, the shore makes in several white rocky heads and points; here the country is much broken; and near White-head, many white stones appear from the offing, like sheep in the woods; thence to Liscumb harbour there are banks of red earth and beaches, and from Liscumb harbour to the rugged islands (excepting the white islands, which are white rocks) the capes and outer islands are bound with black slaty rocks, generally running out in spits from east to west; and from the rugged islands to the Devil's island, at the entrance of the harbour of Halifax you have several remarkable steep red cliffs linked with beaches.

From Halifax, westward to Charlotte bay, the country from the offing is very rocky and broken; the shore is steep too, and bound with white, rocky cliffs. The high lands of Haspotageen, on the east side of Mecklenburg bay, are very remarkable; from whence proceeding westward, the rocks which surround the shore are black, with some banks of red earth. Between cape Le Have (which is a remarkable promontory, bald on the top, with a red bank under it, facing the south westward) and Port Jackson, there are some hummocks within land about which the country appears low and level from the sea; and on the shore white rocks and stony beaches, with several low bald points, from whence to Port Campbell the land is woody. About the entrance of Port Haldimand, and within land, are several barren spots, which, from the offing, are easily discerned; from whence to Cape Sable the land appears level and low; and on the shore are some cliffs of exceeding white sand, particularly in the entrance of Port Haldimand, and on Cape Sable where they are very observable from sea.

From Cape Sable, sailing up the Bay of Fundy, you pass the Seal Isles and Tusket Bald Isles; the latter of which are small green isles, with red banks of earth; the shore between this and Cape St. Mary is surrounded with banks of red earth, and the country within appears even and well clothed with wood.

The coast from the south part of Long island to the gut of Annapolis is nearly straight; the shore is bound with high rocky cliffs, above which is a range of hills, which rise to a considerable height; their tops appear smooth and unbroken, excepting near the Great passage, Little passage, Sandy Cove, and Gulliver's Hole, where those hills sink in a valley. From the gut of Annapolis up the bay to Cape Split, the coast continues straight and nearly in the same direction, with a few rocky cliffs near the gut, and many banks of red earth under high lands, which appear very even. In the gut leading into the basin of mines from Cape Split to Cape Blow-me-down, and from Cape Dore, on the north side, to Partridge isl-

and, the land rises almost perpendicular from the shore to a very great height. Between Cape Blow-me-down, and Partridge island, there is a great depth of water, and the stream of the current, even at the times of neap tides does not run less than five or six knots.

Cape Dore and Cape Chignecto are high lands, with very steep cliffs of rocks and red earth, and deep water close under them ; you have nearly the same kind of shore to the head of Chignecto Bay, where very extensive flats of mud and quicksands are left dry at low water. The tides come in a boar, and rush in with great rapidity ; they are known to flow at the equinoxes from 60 to 70 feet perpendicular.

The Isle Hanto is remarkable for the great height and steepness of the rocky cliffs, which seem to overhang on its west side.

Directions for Navigating on part of the South Coast of Newfoundland.

[N. B. *All Bearings and Courses hereafter mentioned are the true Bearings and Courses, and not by Compass.*]

Cape Chapeaurouge, or the mountain of the Red Hat, is situated on the west side of Placentia bay, in the latitude of 46° 53′ North, and lies nearly west 17 or 18 leagues from Cape St. Maries ; it is the highest and most remarkable land on that part of the coast, appearing above the rest somewhat like the crown of a hat, and may be seen in clear weather 12 leagues.

Close to the eastward of Cape Chapeaurouge are the harbours of Great and Little St. Lawrence. To sail into Great St. Lawrence, which is the westernmost, there is no danger but what lies very near the shore ; taking care with westerly, and particularly S. W. winds, not to come too near the Hat Mountain, to avoid the flerrys and eddy winds under the high lands. The course in, is first N. W. till you open the upper part of the harbour, then N. N. W. ½ W. ; the best place for large ships to anchor, and the best ground is before a cove on the east side of the harbour in 13 fathoms water, a little above Blue Beach Point, which is the first point on the west side ; here you lie only two points open : you may anchor any where between this point and the point of Low Beach, on the same side near the head of the harbour, observing that close to the west shore, the ground is not so good as on the other side. Fishing vessels lay at the head of the harbour above the beach, sheltered from all winds.

To sail into Little St. Lawrence, you must keep the west shore on board, in order to avoid a sunken rock which lies a little without the point of the Peninsula, which stretches off from the east side of the harbour : you anchor above this Peninsula (which covers you from the sea winds) in 3 and 4 fathoms water, a fine sandy bottom. In these harbours are good fishing conveniences, and plenty of wood and water. Ships may anchor without the Peninsula in 12 fathoms good ground, but open to the S. S. E.

Sanker head lies 3 miles to the eastward of Cape Chapeaurouge ; it is a pretty high round point, off which lie some sunken rocks, about a cable's length from the shore.

Garden bank, whereon is from 7 to 17 fathoms water, lies about half a

mile off from Little St. Lawrence, with Blue Beach Point on with the east point of Great St. Lawrence.

Ferryland Head, lies S. W. 1 mile from Cape Chapeaurouge; it is a high rocky island, just separated from the main: this Head and Cape Chapeaurouge, are sufficient marks to know the harbours of St. Lawrence.

West 5 miles from Ferryland Head, lies the bay of Laun, in the bottom of which are two small inlets, called Great and Little Laun. Little Laun, which is the easternmost, lies open to the S. W. winds, which generally prevail upon this coast; and therefore no place to anchor in. Great Laun lies in about N. by E. 2 miles, is near half a mile wide, whereon is from 14 to 3 fathoms water. To sail into it, you must be careful to avoid a sunken rock, which lies about a quarter of a mile off from the east point. The best place to anchor is on the east side, about half a mile from the head, in 6 and 5 fathoms; the bottom is pretty good; and you are sheltered from all winds, except S. and S. by W. which blow right in and cause a great swell. At the head of this place is a bar harbour, into which boats can go at half tide; and conveniences for a fishery, and plenty of wood and water.

Off the west point of Laun Bay lie the islands of the same name, not far from the shore; the westernmost and outermost of which lie W. southerly, 10 miles from Ferryland Head; near a quarter of a mile to the southward of this island is a rock whereon the sea breaks in very bad weather: there are other sunken rocks about these islands, but they are no ways dangerous, being very near the shore.

Taylor's Bay, which lies open to the sea, is 3 miles to the westward of Laun Islands; off the east point are some sunken rocks, near a quarter of a mile from the shore.

A little to the westward of Taylor's Bay, there stretches out a low point of land, called Point Aux Gaul; off which lies a rock above water, half a mile from the shore, called Gaul Shag Rock; this rock lies W. $\frac{3}{4}$ S. 5 leagues from Ferryland Head: you have 14 fathoms close to the off side of it, but between it and the point are some sunken rocks.

From Point Aux Gaul Shag Rock, to the Islands of Lamelin, is W. $\frac{3}{4}$ N. 1 league; between them is the Bay of Lamelin, wherein is very shallow water, and several small islands and rocks, both above and under water, and in the bottom of it is a salmon river.

The two islands of Lamelin (which are but low) lie off the west point of the bay of the same name, and lie W. $\frac{3}{4}$ S. 6 leagues from the mountain of the Red Hat; but in steering along shore making a W. by S. course good, will carry you clear of all danger. Small vessels may anchor in the road between these islands in 4 or 5 fathoms, tolerably well sheltered from the weather. Nearly in the middle of the passage, going in between the two islands, is a sunken rock, which you avoid by keeping nearer to one side than the other: the most room is on the east side.—The easternmost island communicates with the main at low water, by a narrow beach, over which boats can go at high water, into the N. W. arm of Lamelin Bay, where they lie in safety. Here are conveniences for a fishery, but little or no wood of any sort. Near to the south point of the westernmost island is a rock pretty high above water, called Lamelin Shag Rock; in going into the road between the islands, you leave this rock on your larboard side.

Lamelin Ledges lie along the shore, between Lamelin Islands and Point May, which is 3 leagues, and are very dangerous, some of them being 3 miles from the land. To avoid these ledges in the day time, you must not

bring the islands of Lamelin to the southward of east, until Point May, or the western extremity of the land bear N. by E. from you; you may then steer to the northward with safety, between Point May and Green Island. In the night, or foggy weather, you ought to be very careful not to approach these ledges within 30 fathoms water, lest you get entangled amongst them. Between them and the main are various soundings from 16 to 5 fathoms.

All the land about Cape Chapeaurouge and Laun, is high and hilly close to the sea; from Laun islands to Lamelin it is of a moderate height; from Lamelin to Point May, the land near the shore is very low, with sandy beaches, but a little way inland are mountains.

The island of St. Peter's lies in the latitude 46° 46′ north, W. by S. near 12 leagues from Cape Chapeaurouge, and W. by S. ½ S. 5 leagues from the islands of Lamelin; it is about 5 leagues in circuit, and pretty high, with a craggy, broken, uneven surface. Coming from the westward, as soon as you raise Gallantry Head, which is the south point of the island, it will make in a round hummock, like a small island, and appears as if separated from St. Peter's. On the east side of the island, a little to the N. E. of Gallantry Head, lie three small islands, the innermost of which is the largest, called Dog Island; within this island is the road and harbour of St. Peter's; the harbour is but small, and hath in it from 12 to 20 feet water; but there is a bar across the entrance, whereon there is but 6 feet at low water, and 12 or 14 feet at high water. The road which lies on the N. W. side of Dog Island will admit ships of any burthen, but it is only fit for the summer season being open to the N. E. winds; you may lie in 8, 10, or 12 fathoms, and for the most part is a hard rocky bottom; there is very little clear ground; ships of war commonly buoy their cables; the best ground is near the north shore. Going in or out, you must not range too near the east side of Boar Island, which is the easternmost of the three islands above mentioned, for fear of some sunken rocks which lie east about 1 mile from it, and which is the only danger about St. Peter's, but what lies very near the shore.

The island of Columbo is a small circuit, but pretty high, and lies very near the N. E. point of St. Peter's; between them is a very good passage, ⅓ of a mile wide, wherein is 12 fathoms water. On the north side of the island is a rock pretty high above water called little Columbo: and about a quarter of a mile N. E. from this rock is a sunken rock, whereon is 2 fathoms water.

The island of Langly, which lies on the N. W. side of St. Peter's, is about 3 leagues in circuit, of a moderate and pretty equal height, except the north end, which is a low point, with sand hills along it; it is flat a little way off the low land on both sides of it; but all the high part of the island is very bold too, and the passage between it and St. Peter's (which is 1 league broad) is clear of danger. You may anchor on the N. E. side of the island, a little to the southward of the Sand Hills, in 5 and 6 fathoms, a fine sandy bottom, sheltered from the southerly, S. W. and N. W. winds.

There is no passage between the north point of Langly and the south point of the island of Miquelon, which island is 4 leagues in length from north to south, but of an unequal breadth; the middle of the island is high land, called the high land of Dunn; but down by the shore it is low, except Cape Miquelon, which is a lofty promontory at the northern extremity of the island.

On the S. E. side of the island, to the southward of the high land, is a

pretty large bar harbour, called Dunn Harbour, which will admit fishing shallops at half flood, but can never be of any utility for a fishery.

Miquelon Rock stretches off from the east point of the island, under the high land 1¼ mile to the eastward, some are above and some under water; the outermost of these rocks are above water, and you have 12 fathoms close to them, and 18 and 20 fathoms 1 mile off. N. E. ½ N. 4 or 5 miles from these rocks lies Miquelon bank, whereon is 6 fathoms water.

The road of Miquelon (which is large and spacious) lies at the north end, and on the east side of the island, between Cape Miquelon and a very remarkable round mountain near the shore, called Chapeaux: off the south point of the road are some sunken rocks, about a quarter of a mile from the shore, but every where else it is clear of danger. The best anchorage is near the bottom of the road in 6 and 7 fathoms, fine sandy bottom; you lie open to the easterly winds, which seldom blow in the summer.

Cape Miquelon, or the northern extremity of the island, is high bluff land; and when you are 4 or 5 leagues to the eastward or westward of it, you would take it for an island, by reason the land at the bottom of the road is very low.

The Seal Rocks are 2 rocks above water, lying one league and a half off from the middle of the west side of the island Miquelon; the passage between them and the island is very safe, and you have 14 or 15 fathoms within a cable's length all round them.

Green Island, which is about ¾ of a mile in circuit, and low, lies N. E. 5 miles from St. Peter's, and nearly in the middle of the channel, between it and Point May on Newfoundland: on the south side of this island are some rocks both above and under water, extending themselves 1 mile and a quarter to the S. W.

Description of Fortune Bay.

Fortune Bay is very large; the entrance is formed by Point May and Pass Island, which are 12 leagues N. by E. and S. by W. from each other, and it is about 23 leagues deep, wherein are a great many bays, harbours and islands.

The island of Brunet is situated nearly in the middle of the entrance into Fortune bay; it is about 5 leagues in circuit, and of a tolerable height; the east end appears, at some points of view, like islands, by reason it is very low and narrow in two places. On the N. E. side of the island is a bay, wherein is tolerable good anchorage for ships in 14 and 16 fathoms, sheltered from southerly and westerly winds; you must not run too far in for fear of some sunken rocks in the bottom of it, a quarter of a mile from the shore; opposite this bay, on the south side of the island, is a small cove, wherein small vessels and shallops can lie pretty secure from the weather, in 6 fathoms water; in the middle of the cove is a rock above water, and a channel on each side of it. The islands lying at the west end of Brunet, called Little Brunets, afford indifferent shelter for shallops in blowing weather; you may approach these islands, and the island of Brunet, within a quarter of a mile all round, there being no danger but what lies very near the shore.

Plate islands are three rocks of a moderate height, lying S. W. 1 league from the west end of Great Brunet. The southernmost and outermost of these rocks lie W. by S. ½ S. 11 miles from Cape Miquelon, and in a direct line between Point May and Pass island, 17 miles from the former, and 10

from the latter; S. E. a quarter of a mile from the Great Plate (which is the northernmost) is a sunken rock, whereon the sea breaks, which is the only danger about them.

There are several strong and irregular settings of the tides or currents about the Plate and Brunet Islands which seem to have no dependency on the moon, and the course of the tides on the coast.

The island of Sagona, which lies N. N. E. two leagues from the east end of Brunet, is about 3 miles and a half in circuit, of a moderate height, and bold too all round; at the S. W. end is a small creek that will admit fishing shallops; in the middle of the entrance is a sunken rock, which makes it exceeding narrow, and difficult to get in or out, except in fine weather.

Point May is the southern extremity of Fortune Bay, and the S. W. extremity of this part of Newfoundland; it may be known by a great black rock nearly joining to the pitch of the point and something higher than the land, which makes it look like a black hummock on the point; near a quarter of a mile right off from the point, or this round black rock, are three sunken rocks whereon the sea always breaks.

Near 2 miles north from Point May, is Little Dantzick Cove, and half a league from Little Dantzick is Great Dantzick Cove; these coves are no places of safety being open to the westerly winds; the land about them is of a moderate height, bold too, and clear of wood.

From Dantzick point (which is the north point of the coves) to Fortune, the course is N. E. near 3 leagues; the land between them near the shore is of a moderate height, and bold too; you will have in most places 10 and 12 fathoms two cables length from the shore, 30 and 40 one mile off, and 70 and 80 two miles off. Fortune lies north from the east end of Brunet; it is a bar place that will admit fishing boats at a quarter flood; and a fishing village situated in the bottom of a small bay wherein is anchorage for shipping in 6, 8, 10 and 12 fathoms; the ground is none of the best; and you lay open to near half the compass.

Cape of Grand Bank, is a pretty high point, lying one league N. E. from Fortune; into the eastward of the cape is Ship Cove, wherein is good anchorage for shipping, in 8 and 10 fathoms, sheltered from southerly, westerly, and N. W. winds. Grand Bank lies E. S. E. ½ league from the cape; it is a fishing village, and a bar harbour, that will admit of fishing shallops at a quarter flood; to this place and Fortune, resort the crews of fishing ships, who lay their ships up in harbour Britain. From the Cape of Grand Bank to Point Enragee, the course is N. E. ¼ E. 8 leagues, forming a bay between them, in which the shore is low, with several sandy beaches, behind which are bar harbours that will admit boats on the tide of flood, the largest of which is Great Garnish, 5 leagues from Grand Bank; it may be known by several rocks above water, lying before it; 2 miles from the shore, the outmost of these rocks are steep too, but between them and the shore are dangerous sunken rocks. To the eastward, and within these rocks is Frenchman's cove, wherein you may anchor with small vessels in 4 and 5 fathoms water, tolerably well sheltered from the sea winds, and seems a convenient place for the cod fishery.—The passage in is to the eastward of the rocks that are the highest above water; between them and some other lower rocks lying off to the eastward from the east point of the cove, there is a sunken rock nearly in the middle of this passage which you must be aware of. You may anchor any where under the shore, between Grand Bank and Great Garnish in 8 and 10 fathoms water, but you are only sheltered from the land winds.

Point Enragee is but low, but a little way in the country is high land; this point may be known by two hummocks upon it close to the shore, but you must be very near, otherwise the elevation of the high lands will hinder you from discovering them; close to the point is a rock under water.

From Point Enragee to the head of the bay the course is first N. E. $\frac{1}{4}$ E. 3 leagues to Grand Jervey; then N. E. by E. $\frac{1}{2}$ E. $7\frac{1}{2}$ leagues to the head of the bay; the land in general along the south side is high, bold too, and of an uneven height, with hills and vallies of various extent; the vallies for the most part clothed with wood, and watered with small rivulets.

Seven leagues to the eastward of Point Enragee, is the bay L'Argent, wherein you may anchor in 30 or 40 fathoms water, sheltered from all winds.

The entrance of harbour Mille is to the eastward of the east point of L'Argent; before this harbour and the bay L'Argent, is a remarkable rock, that at a distance appears like a shallop under sail. Harbour Mille branches into two arms, one lying in to the N. E. and the other towards the E. at the upper part of both is good anchorage, and various sorts of wood. Between this harbour and Point Enragee, are several bar harbours in small bays, wherein are sandy beaches, off which vessels may anchor, but they must be very near the shore to be in a moderate depth of water.

Cape Mille lies N. N. E. $\frac{1}{2}$ E. 1 league from the before mentioned Shallop rock, and near 3 leagues from the head of Fortune bay is a high, reddish barren rock. The width of Fortune bay at Cape Mille, does not exceed half a league, but immediately below it, it is twice as wide, by which this cape may easily be known: above this cape the land on both sides is high, with steep craggy cliffs. The head of the bay is terminated by a low beach, behind which is a large pond or bar harbour, into which boats can go at quarter flood. In this and all the bar harbours between it and Grank bank, are convenient places for building of stages, and good beaches for drying of fish, for great numbers of boats.

Grand L'Pierre is a good harbour, situated on the north side of the bay, half a league from the head; you can see no entrance until you are abreast of it; there is not the least danger in going in, and you may anchor in any depth from 8 to 4 fathoms, sheltered from all winds.

English harbour lies a little to the westward of Grand L'Pierre; it is very small and fit only for boats and small vessels.

To the westward of English harbour is a small bay called Little bay de Leau, wherein are some small islands, behind which is shelter for small vessels.

New harbour is situated opposite Cape Mille, to the westward of Bay de Leau; it is but a small inlet, yet hath good anchorage on the west side in 9, 8, 7, and 5 fathoms water sheltered from the S. W. winds.

Harbour Femme, which lies half a league to the westward of New harbour, lies in N. E. half a league, is very narrow, and hath in it 23 fathoms water; before the entrance is an island, near to which are some rocks above water: the passage into the harbour is to the eastward of the island.

One league to the westward of Harbour Femme, is a small cove called Brewer's Hole, wherein is shelter for fishing boats; before this cove is a small island near the shore, and some rocks above water.

Harbour le Conte is situated 1 mile to the westward of Brewer's Hole,

before which are two islands, one without the other; the outermost of which is the largest, is of a tolerable height, and lies in a line with the coast, and is not easy to be distinguished from the main in sailing along the shore. To sail into this harbour, the best passage is on the west side of the outer island, and between the two; as soon as you begin to open the harbour, you must keep the inner island close on board, in order to avoid some sunken rocks that lay near a small island, which you will discover between the N. E. point of the outer island and the opposite point on the main; and likewise another rock under water, which lays higher up on the side of the main; this rock appears at low water. As soon as you are above these dangers, you may steer up in the middle of the channel, until you open a fine spacious basin, wherein you may anchor in any depth from 5 to 17 fathoms water, shut up from all winds; the bottom is sand and mud. In to the eastward of the outer island, is a small cove fit for small vessels and boats, and conveniences for the fishery.

Long harbour lies 4 miles to the westward of harbour le Conte, and N. E. by N. 5 leagues from Point Enragee; it may be known by a small island in the mouth of it, called Gull island; and half a mile without this island is a rock above water, that hath the appearance of a small boat. There is a passage into the harbour on each side of the island, but the broadest is the westernmost. Nearly in the middle of this passage, a little without the island, is a ledge of rocks, whereon is 2 fathoms water: a little within the island on the S. E. are some sunken rocks, about 2 cables length from the shore, lying off two sandy coves; some of these rocks appear at low water. On the N. W. side of the harbour 2 miles within the island is Morgan's Cove, wherein you may anchor in 15 fathoms water, and the only place you can anchor unless you run into, or above the Narrows, being every where else very deep water. This harbour runs 5 leagues into the country, at the head of which is a salmon fishery.

A little to the westward of Long harbour is Bell bay, which extends 3 leagues every way, and contains several bays and harbours. On the east point of this bay is Hare harbour, which is fit only for small vessels and boats, before which are two small islands, and some rocks above and under water.

Two miles to the northward of Hare harbour, or the point of Bell bay, is Mall bay, being a narrow arm, lying in N. E. by N. 5 miles, wherein is deep water, and no anchorage until at the head.

Rencontre islands lie to the westward of Mall bay, near the shore; the westernmost which is the largest, has a communication with the main at low water; in and about this island are shelter for small vessels and boats.

Bell harbour lies 1 league to the westward of Rencontre islands: the passage into the harbour is on the west side of the island: in the mouth of it, as soon as you are within the island, you will open a small cove on the east side wherein small vessels anchor, but large ships must run up to the head of the harbour, and anchor in 20 fathoms water, there being most room.

Lally cove lies a little to the westward of Bell harbour: it is a very snug place for small vessels, being covered from all winds behind the island in the cove.

Lally head is the west point of Lally cove; it is a high bluff white point: to the northward of the head is Lally cove back cove, wherein you may anchor in 16 fathoms water.

Two miles to the northward of Lally cove head, is the bay of the east, and bay of the north; in both is deep water, and no anchorage, unless

very near the shore. At the head of the north bay is the largest river in Fortune bay, and seems a good place for a salmon fishery.

The bay of Cinq isles lies to the southward of the North bay; and opposite to Lally cove head there is tolerable good anchorage for large ships on the S. W. side of the island in the bottom of the bay. The north arm is a very snug place for small vessels; at the head of this arm is a salmon river.

A little to the southward of the bay of Cinq isles is Corben bay, wherein is good anchorage for any ships in 22 or 24 fathoms water.

S. E. about 2 miles from Lally cove head, are 2 islands about a mile from each other; the north easternmost is called Bell Island, and the other Dog Island; they are of a tolerable height, and bold too all round.

Between Dog Island and Lord and Lady Island, which lies off the south point of Corben bay, is a sunken rock (somewhat nearer to Lord and Lady, than Dog Island) whereon the sea breaks in very bad weather, and every where round it very deep water. About a quarter of a mile to the northward of the north end of Lord and Lady Island, is a rock that appears at low water.

Bande de La'rier bay lies on the west point of Bell bay and N. N. W. ½ W. near 3 leagues from Point Enragee; it may be known by a very high mountain over the bay, which rises almost perpendicular from the sea, called Iron head. Chappel Island, which forms the east side of the bay, is high land also. The harbour lies on the west side of the bay, just within the point, formed by a narrow low beach; it is very small, but a snug place, and conveniently situated for the cod fishery. There is a tolerable good anchorage along the west side of the bay, from the harbour up towards Iron head in 18 and 20 fathoms water.

The bank of Bande de La'rier, whereon is no less than 7 fathoms, lies with the beach of Bande de La'rier harbour, just open of the west point of the bay, and Boxy point on with the north end of St. Jaques island.

Two miles to the westward of Bande de La'rier, is the harbour of St. Jaques, which may be easily known by the island before it. This island is high at each end, and low in the middle, and at a distance looks like 2 islands, it lies N. 30° E. 8½ leagues from the cape of Grand bank, and N. E. by E. 7 leagues from the east end of Brunet. The passage into the harbour is on the west side of the island; there is not the least danger in going in, or in any part of the harbour; you may anchor in any depth from 17 to 4 fathoms.

Two miles to the westward of St. Jaques is the harbour of Blue Pinion; it is not near so large, or so safe as that of St. Jaques; near to the head of the harbour, on the west side, is a shoal, whereon is two fathoms at low water.

A little to the westward of Blue Pinion is English cove, which is very small, wherein small vessels and boats can anchor; before it and very near the shore is a small island.

Boxy point lies S. W. by W. ¼ W. 2½ leagues from St. Jaques island, N. N. E. near 7 leagues from the cape of Grand Bank, and N. E. ½ E. 13 miles from the east end of Brunet island; it is of a moderate height, the most advanced to the southward of any land on the coast, and may be distinguished at a considerable distance; there are some sunken rocks off it, but they lay very near the shore, and are no way dangerous.

N. N. E. 3 miles from Boxy point, is the harbour of Boxy; to sail into it you must keep Boxy point just open of Freyer's head (a black head a little within the point) in this direction you will keep in the middle of the

channel between the shoals which lay off from each point of the harbour, where the stages are; as soon as you are within these shoals which cover you from the sea winds, you may anchor in 5 and 4 fathoms water, fine sandy ground.

West 1 mile from Boxy point is the island of St. John's, which is of a tolerable height, and steep too, except at the N. E. point where is a shoal a little way off.

N. W. half a league from St. John's island is St. John's head, which is a high, steep, craggy point. Between St. John's head and Boxy point is St. John's bay, in the bottom of which is St. John's harbour, wherein is only water for boats.

On the north side of St. John's head are two rocky islands, called the Gull and Shag; at the west end of these islands are some sunken rocks.

One league and a half to the northward of St. John's head is the Great bay de Leau, wherein is good anchorage in various depths of water, sheltered from all winds. The best passage in, is on the east side of the island, lying in the mouth of it; nothing can enter in on the west side but small vessels and shallops.

To the westward of Bay de Leau, 3 miles N. N. W. from St. John's head is Little Bay Barrisway, on the west side of which is good anchorage for large ships in 7, 8, or 10 fathoms water; here is good fishing conveniencies, with plenty of wood and water.

Harbour Britain lies to the westward of Little Bay Barrisway, north 1½ league from the island of Sagona, and N. by E. from the east end of Brunet. The two heads which form the entrance of this harbour or bay are pretty high, and lay from each other E. N. E. and W. S. W. above two miles; near the east head is a rock above water, by which it may be known; there are no dangers in going in until you are the length of the south point of the S. W. arm, which is more than a mile within the west head; from off this point stretches out a ledge of rocks N. E. about two cables length; the only place for king's ships to anchor is above this point, before the S. W. arm, in 16 or 18 fathoms water, mooring nearly E. and W. and so near the shore as to have the east head on with the point above mentioned; the bottom is very good, and the place convenient for wooding and watering. In the S. W. arm is room for a great number of merchant ships, and many conveniencies for fishing vessels.

Opposite to the S. W. arm is the N. E. arm, or Jerseyman's harbour, which is capable of holding a great number of ships securely sheltered from all winds. To sail into it you must keep the point of Thompson's beach (which is the beach point at the entrance into the S. W. arm) open of Jerseyman's head (which is a high bluff head at the north entrance into Jerseyman's harbour) this mark will lead you over the bar in the best channel, where you will have 3 fathoms at low water; as soon as you open the harbour, haul up north, and anchor where it is most convenient, in 8, 7, or 6 fathoms water, good ground, and sheltered from all winds. In this harbour are several convenient places for erecting many stages, and good beach room. Jerseymen generally lay their ships up in this harbour, and cure their fish at Fortune and Grand bank.

From harbour Briton to the west end of Brunet, and to the Plate islands, the course is S. W. by S. 6½ leagues to the southernmost Plate. From the harbour Briton to Cape Miquelon is S. W. ¼ W. 10 leagues. From the west head of harbour Briton to Cannaigre head, the course is W. by S. distant 2 leagues; between them are Gull island and Deadman's bay. Gull island lies close under the land, 2 miles to the westward of

harbour Briton. Deadman's bay is to the westward of Gull island, wherein you may anchor with the land winds. Between harbour Briton and Cannaigre head, is a bank stretching off from the shore between 2 and 3 miles, whereon is various depths of water from 34 to 4 fathoms. Fishermen say that they have seen the sea break, in very bad weather, a good way without Gull island.

Cannaigre head, which forms the east point of the bay of the same name, lies north easterly 3½ leagues from the west end of Brunet; it is a high craggy point, easy to be distinguished from any point of view. From this head to Bassaterre point, the course is W. by N. ½ N. 2 leagues, and likewise W. by N. ½ N. 3½ leagues to the rocks of Pass island; but to give them a birth, make a W. by N. course good. Between Cannaigre head and Bassaterre point is Cannaigre bay, which extends itself about 4 leagues inland, at the head of which is a salmon river. In the mouth of the bay lay the rocks of the same name above water; you may approach these rocks very near, there being no danger but what discovers itself. The channel between them and the north shore is something dangerous, by reason of a range of rocks which lie along shore, and extend themselves one mile off.

Cannaigre harbour, which is very small, with 7 fathoms water in it, is within a point on the south side of the bay, 5 miles above the head; the passage into the harbour is on the S. E. side of the island lying before it. Nearly in the middle of the bay, abreast of this harbour, are two islands of a tolerable height; on the south side of the westernmost island, which is the largest, are some rocks above water.

Dawson's cove is on the N. W. side of the bay, bears north, distance about 4 miles from the head, and east 2 miles from the west end of the Great island. In it are good fishing conveniencies, and anchorage for vessels in 6 and 5 fathoms water, but they will lay open to the southerly winds. Between the S. W. point of this cove and Bassaterre point, which is 5 miles distance, lays the range of rocks before mentioned.

Bassaterre point, which forms the west point of Cannaigre bay, is of a moderate height, clear of wood, and bold too, all the way from it to Pass island, which bears N. W. by W. 1 league from Bassaterre point.

The land on the north side of Fortune bay, for the most part, is hilly, rising directly from the sea, with craggy, barren hills, which extend 4 or 5 leagues inland, with a great number of rivulets and ponds. The land on the south side of Fortune bay, has a different appearance to that on the north side, being not so full of craggy mountains, and better clothed with woods, which are of a short brushy kind, which makes the face of the country look green.

Pass island lies N. 16° 30′ E. 7½ leagues from Cape Miquelon; it is the N. W. extremity of Fortune bay, and lies very near the shore, is more than 2 miles in circuit, and is pretty high. On the S. W. side are several rocks above water, which extend themselves 1 mile from the island; and on the N. W. side is a sunken rock, at a quarter of a mile from the island: the passage between this island and the main, which is near 2 cables length wide, is very safe for small vessels, wherein you may anchor in 6 fathoms, a fine sandy bottom. This island is well situated for the cod fishery, there being very good fishing ground about it.

In the night time, or in foggy weather, ships ought to place no great dependence on the soundings in Fortune bay, lest they may be deceived thereby: for you have more water in many parts near the shore, and in

several of its contained bays and harbours, than in the middle of the bay itself.

Description of Hermitage Bay.

From Pass island to Great Jarvis harbour, at the entrance into the bay of Despair, the course is N. by E. ¼ E. near 3 leagues; and from Pass island to the west end of Long island, the course is N. N. E. 8 miles, between them is the bay of Hermitage, which lies in E. N. E. 8 leagues from Pass island, with very deep water in most parts of it.

The two Fox islands, which are but small, lie nearly in the middle of Hermitage bay, 3 leagues and a half from Pass island; near to these islands is good fishing ground.

Hermitage cove is on the south side of the bay, opposite to Fox's islands: to sail into it, you must keep between the islands and the south shore, where there is not the least danger; in this cove is good anchorage for shipping in 8 and 10 fathoms water, and good fishing conveniences with plenty of wood and water.

Long island which separates the bay of Despair from Hermitage, is of a triangular form, about 8 leagues in circuit, of a tolerable height, is hilly, uneven, and barren. The east entrance into the bay of Despair from Hermitage bay, is by the west end of Long island: about ½ a mile from the S. W. point of the said island, are 2 rocks above water, with deep water all round them.

Long island harbour lies on the south side of Long island, 2½ miles from the west end; before which is an island, and several rocks above water; there is a narrow passage into the harbour on each side of the island; this harbour is formed by 2 arms, one lying into the north, and the other to the eastward; they are both very narrow, and have in them from 42 to 7 fathoms water; the east arm is the deepest and best anchorage.

Round harbour, wherein is 6 fathoms water, lies near 2 miles to the eastward of Long island harbour, and is also in Long island; it will only admit very small vessels, by reason the channel going in is very narrow.

Harbour Picarre lies N. by W. ½ a league from Little Fox island, (which is the westernmost of Fox islands;) to sail into it, you must keep near the west point, to avoid some sunken rocks off the other, and anchor in the first cove on the east side, in 9 or 10 fathoms, sheltered from all winds.

Galtaus harbour, which is but small, lies near the east point of Long island; at the entrance are several rocky islands. The best channel into the harbour, is on the west side of these islands, wherein is 4 fathoms water, but in the harbour is from 15 to 24 fathoms. Here are several places proper for erecting stages; and both this harbour and Picarre are conveniently situated for a fishery, they lying contiguous to the fishing grounds about Fox islands.

Between the east end of Long island and the main, is a very good passage out of Hermitage bay, into the bay of Despair.

Description of the Bay of Despair.

The entrance of the bay of Despair lies between the west end of Long island and Great Jervis island (an island in the mouth of the harbour of the same name) the distance from one to the other, is 1¼ mile, and in the middle between them is no soundings with 280 fathoms.

The bay of Despair forms 2 capacious arms, one extending to the N.

E. 8 leagues, and the other to the northward 5 leagues; in the north arm is very deep water, and no anchorage, but in the small bays and coves which lay on each side of it. At the head of the bay of the east, which is an arm of the north bay, is a very fine salmon river, and plenty of wood. In the N. E. arm of the bay of Despair are several arms and islands, and tolerable good anchorage in some parts of it. Little river and Conne river are counted good places for salmon fisheries: about these rivers and the head of the bay are great plenty of all sorts of wood common to this country, such as fir, pine, birch, witch-hazle, spruce, &c. All the country about the entrance into the bay of Despair, and for a good way up it, is very mountainous and barren, but about the head of the bay it appears to be pretty level, and well clothed with wood.

Great Jervis harbour is situated at the west entrance into the bay of Despair, is a snug and safe harbour, with good anchorage in every part of it in 16, 18 or 20 fathoms; though but small, will contain a great number of shipping, securely sheltered from all winds, and very convenient for wooding and watering. There is a passage into this harbour on either side of Great Jervis island, the southernmost is the safest, there being in it no danger but the shore itself. To sail in on the north side of the island, you must keep in the middle of the passage, until you are within two small rocks above water near to each other on your starboard side, a little within the north point of the passage; you must then bring the said north point between these rocks, and steer into the harbour in that direction, which will carry you clear of some sunken rocks which lie off the west point of the island; these rocks appear at low water. The entrance into this harbour may be known by the east end of Great Jervis island, which is a high steep craggy point called Great Jervis head, and is the north point of the south entrance into this harbour.

Bonne bay lies one league to the westward from Cape Jervis head, and north 7 miles from Pass island, there are several islands in the mouth of it, the westernmost of which is the largest and highest. The best passage into the bay is to the eastward of the largest island, between it and the two easternmost islands; which two islands may be known by a rock above water, off the south point of each of them. The bay lies in N. N. W. four miles, and is near half a mile broad in the narrowest part; there is no danger going in, but what shews itself; you may go on either side of Drake island, which is a small island nearly in the middle of the bay; between this island and 2 small islands, lying on the west side of the bay within Great island, is anchorage in 20 and 30 fathoms, but the best place for large ships is at the head of the bay in 12 or 14 fathoms, clear ground, and convenient for wooding and watering. On the west side of the bay, abreast of Drake island, is a very snug harbour for small vessels, wherein is 7 fathoms water, and good conveniences for a fishery; off the south point of the entrance are some sunken rocks about a cable's length from the shore. On the N. W. side of the great island, within the 2 small islands, is very good anchorage in 16, 20, and 24 fathoms water sheltered from all winds. The passage into this place to the westward of the great island from the sea is very dangerous, by reason there are several sunken rocks in the passage and shallow water; but there is a very good passage into it from the bay, passing to the northward of the 2 small islands between them and the west shore. In sailing in or out of the bay you must not approach too near the south point of the Great island, because of some sunken rocks which lie a quarter of a mile from the shore.

A little to the westward of Bonne bay, between it and Facheux, is Musketa cove, a small inlet, wherein is from 30 to 47 fathoms of water.

The entrance of the bays of Facheux and Dragon, lies west 4 miles from Bonne bay, and N. W. by N. near 3 leagues from Pass island; this entrance is very conspicuous at sea, by which this part of the coast is easily known. Facheux, which is the easternmost branch, lies in north 2 leagues, and is a third of a mile broad in the narrowest part, which is at the entrance, with deep water in most parts of it. One mile up the bay on the west side is a cove, wherein is anchorage in 10 fathoms, with gradual soundings into the shore, and a clear bottom; and farther up the bay, on the same side, are 2 other coves, wherein is anchorage and plenty of wood and water. Dragon bay lies in W. N. W. 1 league, and is near half a mile broad, wherein is 60 and 70 fathoms water, and no anchorage till you come to the head, and then you must be very near the shore to be in a moderate depth of water.

One mile to the westward of Facheux is little hole, wherein is shelter for shallops. And one league to the westward of Facheux is Richard's harbour, a snug place for small vessels and fishing shallops, wherein is not more than 23 fathoms. The east point of this harbour is a very conspicuous high head, lying W. ½ S. 7 miles from Bonne bay, and N. W. ¼ W. 3 leagues from Pass island.

W. by N. 1½ league from Richard's harbour, is Hare bay, which lies in north about 5 miles, is about a third of a mile broad in the narrowest part, with very high land on both sides, and deep water close home to both shores in most parts of it. Near 1 mile up the bay, on the east side, is a small cove, wherein is anchorage in 20 fathoms, with gradual soundings into the shore, and 1 league up the bay on the west side, is a very good harbour, wherein is good anchorage in 8, 10, 12 and 15 fathoms, and plenty of wood and water.

W. by N. 4 miles from Hare bay and 1 league N. by W. from Hare's Ears point is Devil's bay, a narrow inlet, lying into the northward 1 league, wherein is deep water, and no anchorage till you come close to the head.

The bay of Rencontre, which lies to the northward of Hare's Ear point lies in W. by N. 2 leagues, it is near ½ a mile broad in the narrowest part, with deep water in most parts of it. To anchor in this bay, you must run up above a low woody point on the south side, then haul under the south shore until you are land-locked and anchor in 30 fathoms water.

Hare's Ear's point is a pretty large point, with a ragged rock upon it, that from some points of view looks like the ears of a hare; it lies west southerly 11 miles from the point of Richard's harbour, and W. by N, half N. 6 leagues from Pass island: off this point is a fishing bank that extends a mile from the shore, whereon is from 20 to 36 fathoms water.

One mile to the northward of Hare's Ears point, at the S. W. entrance into Rencontre is New harbour, a small harbour, wherein is anchorage for small vessels in 16 fathoms water, and good conveniences for a fishery.

West 2 miles from Hare's Ears point is the bay of Chaleur, which lies in first N. W. then more northerly, in the whole 2 leagues: it is about half a mile broad, and hath very deep water in most parts. At the north entrance into the bay, close to the shore, is a small island of a tolerable height, and half a league within the island, on the N. E. side of the bay, is a rock above water; a little within this rock, on the same side, is a

small cove with a sandy beach, off which you may anchor in 28 fathoms a cable's length from the shore.

W. S. W. near half a league from the bay of Chaleur, is the bay Francois, which is a small inlet, lying in N. N. W. ½ W. 1 mile; it is near ¼ of a mile broad at the entrance, and 17 fathoms deep; but just within is 50 and 60 fathoms; at the head is from 30 to 20 fathoms, good anchorage, and conveniences for a fishery.

W. S. W. 4 miles from the bay Francois, on the east side of Cape la Hune lies Oar bay; off the east point of the entrance is a low rocky island, close to the shore; from this point to the entrance into the bay of Despair, the course is W. ¾ N. 9 leagues. In the mouth of this bay is a rocky island, and a passage on each side of it: the bay lies in first N. N. E. near one league, then north 2 miles; it is one-third of a mile broad in the narrowest part, with deep water close to both shores all the way up; the least water is at the entrance: at the head is a small snug harbour, fit only for small vessels and fishing shallops, wherein is 5 fathoms water: at the west side of the entrance into the bay N. W. by N. from the rocky island before mentioned, is a small snug cove, called Cul de Sac, wherein is 3 and 4 fathoms water and good shelter for fishing vessels.

Cape la Hune is the southernmost point of land on this part of the coast, and lies in the latitude of 47° 31′ 42″ N. W. ½ N. from Pass island, and N. W. ½ N. 10½ leagues from Cape Miquilon; it may be easily known by its figure, which much resembles a sugar loaf; but in order to distinguish this, you must approach the shore at least within 3 leagues, (unless you are directly to the eastward or westward of it) otherwise the elevation of the high land within it, will hinder you from distinguishing the sugar loaf hill; but the cape may always be known by the high land of la Hune, which lies one league to the westward of it: this land rises directly from the sea to a tolerable height, appears pretty flat at top, and may be seen in clear weather 16 leagues.

South 29° W. 3½ leagues from Cape la Hune, and north 61° W. near 10 leagues from Cape Miquilon, lies the Penguin islands, which are a parcel of barren rocks lying near to each other, and altogether about two leagues in circuit; you may approach these islands in the day time to half a league all round, there being no danger at that distance off. On the S. W. side of the large island which is the highest, is a small cove, wherein is shelter for fishing shallops, and good conveniences for a fishery, and there is good fishing round about the island.

East 3° north, 7 miles from the Penguin islands, and south 9° E. 3 leagues from Cape la Hune, is a dangerous rock called the Whale rock, whereon the sea generally breaks; it is about 100 fathoms in circuit, with 10, 12, and 14 fathoms water close too all round it. From this rock stretches out a narrow bank 1 league to the westward, and half a league to the eastward, whereon is from 24 to 58 fathoms, a rocky and gravelly bottom. In the channel between the shore and this rock, also between the shore and Penguin islands is 120 and 130 fathoms water, a muddy bottom, and the same bottom, and nearly the same depth of water one league without.

Round the west point of Cape la Hune is la Hune bay, which lies in north near 2 leagues, and is about one-third of a mile broad in the narrowest part, which is at the entrance, with deep water in most parts of it. In sailing in or out of the bay, you must keep the cape or east shore on board, in order to avoid a sunken rock which lies off the west point of the entrance into the bay, near one-third channel over. Two miles up the

bay, on the east side is Lance cove, wherein is anchorage in 16 and 14 fathoms water, clear ground, and good conveniences for a fishery: 1 cable's length off from the south point of the cove (which is low) is a small shoal, whereon is 1½ fathoms, and between it and the point 5 fathoms water. To sail into the cove, keep the point of the cape, or east entrance into the bay open of a red cliff point on the same side, (off which is a rock above water) until a round hill you will see over the valley of the cove, be brought on the north side of the valley; you will then be above the shoal, and may haul into the cove with safety. There is a narrow bank which stretches quite across the bay, from the south point of the cove, to a point on the opposite shore, whereon is from 27 to 45 fathoms.

La Hune harbour, wherein is only room for the admittance of small vessels open to the westerly winds, lies half a league to the westward of Cape la Hune; before which is an island close under the shore. The passage into the harbour is on the N. W. side of the island; there is no danger in going in, and you must anchor close up to the head, in 10 fathoms water. This harbour is well situated for a fishery, there being good fishing ground about it, and other conveniences, such as a large beach quite across from the head of the harbour to la Hune bay, which is 800 feet, exposed to an open air, which is a great advantage for drying of fish.

Between Cape la Hune and Little river, the land is tolerable high, and the shore forms a bay, wherein lie several small islands and rocks above water, the outermost of which lies north 3 leagues from the Penguin islands; near these rocky and within them are sunken rocks and foul ground; the passage is very safe between the rocks and the Penguin islands.

W. by S. 4 leagues from Cape la Hune, is the entrance of Little river, which may be known by the land near it, which forms a very conspicuous point on the coast, and tolerable high; the river is about 100 fathoms broad at the entrance, and 10 fathoms deep, and affords good anchorage a little way up it, in 10, 8, and 7 fathoms water: its banks are tolerable high and clothed with wood.

S. ¼ E. 2 leagues from the entrance of Little river, N. W. ½ N. 2½ leagues from the Penguin islands, and E. S. E. ½ E. 3½ leagues from the isles of Ramea, lie the Little river rocks, which are just above water, and of a very small circuit, with very deep water all around them.

The isles of Ramea, which are of various extent both for height and circuit, lay N. W. ½ N. near 6 leagues from the Penguin islands and 1 league from the main; they extend E. and W. 5 miles, and N. and S. 2 miles: there are several rocks and breakers about them, but more on the S. side than the N. the easternmost island, which is the largest, is very high and hilly; and the westernmost, called Columbe, is a remarkable high round island, of a small circuit, near to which are some rocky islands and sunken rocks.

The harbour of Ramea (which is a small commodious harbour for fishing vessels) is formed by the islands which lie between Great Ramea and Columbe, the entrance from the westward (which is the broadest) lies E. from Columbe, give the S. point of the entrance a small birth, (off which are some rocks above water) and steer N. E. into the harbour, keeping in the middle of the channel which is more than a cable's length broad in the narrowest part, and anchor in Ship cove, which is the second on the N. W. side, in 5 fathoms clear ground, and sheltered from all winds. To sail into it from the eastward, keep the north side of Great Ramea on

board until you are at the west end thereof, then steer S. W. into the harbour, keeping in the middle of the channel, wherein is 3 fathoms at low water, and anchor as above directed. In this harbour, and about these islands, are several convenient places for erecting of stages and drying of fish, and seem well situated for that purpose.

S. E. ½ S. 4 miles from Ramea, are 2 rocks above water, close to each other, called Ramea rocks: S. W. 1 league from these rocks is a small fishing bank, whereon is 6 fathoms water; it lies, with the rocks above mentioned, on with the W. entrance of Little river, bearing N. E. and Ramea Columbe on with a high saddle hill, (called Richard's head) on the main within the isles of Burges, bearing nearly N. W. Nearly in the middle between Ramea and the Penguin islands, 2 leagues from the land, is a fishing bank, whereon is from 50 to 14 fathoms. To run upon the shoalest part of this bank, bring the two Ramea rocks (which lie S. E. ½ S. from Ramea islands) on with the S. W. part of the islands, or between them and Columbe, and the entrance into Little river to bear N. by E. ½ E.

Four miles to the westward of Little river, and N. E. by E. from Ramea islands, is Old Man's bay, which lies in N. 7 miles, and is a mile broad at the entrance, with deep water in most parts of it. N. E. half a league up the bay on the east side, is Adam's island, behind which is anchorage in 30 and 40 fathoms, but the best anchorage is at the head of the bay in 14 and 16 fathoms.

Half a league to the westward of Old Man's bay, and N. E. from Ramea isles, is Musketa harbour, which is a very snug and safe harbour, that will hold a great number of shipping in perfect security; but it is difficult to get in or out unless the wind is favourable, by reason the entrance is so very narrow (being but 48 fathoms broad) and the land high on both sides; the S. E. point of the entrance into the harbour is a high white rock; near a cable's length from this white rock, or point, is a black rock above water, on the south side of which is a sunken rock, whereon the sea breaks: from this black rock to the narrow entrance into the harbour, is N. W. ½ of a mile. In sailing in or out of the harbour, give the black rock a small birth, and keep the W. side most on board, it being the safest. If you are obliged to anchor, you must be very brisk in getting a rope on shore, lest you tail upon the rocks. In the harbour is from 18 to 30 fathoms, every where good anchorage, and plenty of wood and water, and fishing conveniences. In the Narrows is 12 fathoms bold to both shores there; with southerly and easterly winds it blows right in, with northerly winds out, and with westerly winds it is either calm, or blows in variable puffs.

Fox island harbour, which is formed by an island of the same name, lies N. E. by N. from Ramea isles, and half a league to the westward of Musketa harbour; between them are several rocky islands, and some sunken rocks. This harbour may be known by a high white rock, lying S. ½ a mile from the outer part of the island. There are two passages into the harbour, one on each side of the island, and no danger in either of them but what discovers itself; it is a small commodious harbour for the fishery, wherein is 6, 8, and 10 fathoms water, and some beach.

White Bear bay lies 2 miles to the westward of Fox island harbour, and N. 1 league from Ramea isles; there are several islands in the mouth of it. The best passage into the bay is to the eastward of all the islands; it lies in N. E. by E. ½ E. 4 leagues, and is near half a mile broad in the narrowest part, with high land on both sides, and deep water close to both

shores in most parts of it, until you are 8 miles up it, you will then rise the ground at once to 9 fathoms, and will afterwards have gradual soundings up to the head, and good anchorage. A little way inland from the head of the bay, you have a very extensive prospect of the interior part of the country, which appears to be all a barren rock, of a pretty even height, and watered by a great number of ponds, with which the whole country very much abounds. On the S. W. side of Bear island (which is the easternmost and largest in the mouth of the bay) is a small harbour, lying in E. N. E. ½ a mile, wherein is from 10 to 22 fathoms water, before the mouth of which are sunken rocks that doth not break but in bad weather. At the west entrance into white Bear bay, is a high round white island; and S. S. W. ½ a mile from the White island is a black rock above water. The best passage into the bay from the westward, is on the west side of this rock, and between the White island and Bear island; there are sunken rocks ½ a league to the westward of the White island, some of which are above a mile from the shore.

Five miles to the westward of White Bear bay, and N. by W. ¾ W. from Ramea Columbe, are 2 small harbours called Red island harbours, formed by an island of the same name, lying close under the land; that lying to the westward of the island is the largest and best, wherein is from 10 to 6 fathoms, good anchorage: to sail into it, keep the island close aboard, the outer part of which is red steep cliffs.

N. W. by W. 3 leagues from Ramea Columbe, lie the Burgeo isles, which are a cluster of islands extending along the shore, east and west about 5 miles, forming several snug and commodious harbours among them for fishing vessels, and are well situated for that purpose, there being good fishing ground about them. To sail into Burgeo from the eastward, the safest passage is on the N. E. side of Boar island, which is the northernmost, and lies N. W. from Ramea Columbe; S. E. by E. ½ a league from this island is a rock that uncovers at low water, on which the sea generally breaks; you may go on any side of this rock, there being very deep water all round it; as soon as you are to the N. W. of it, keep the north side of Boar island on board, and steer W. by S. ½ S. for Grandy's cove, the north point of which is the first low point on your starboard bow, haul round that point, and anchor in the cove in 14 fathoms, and moor with a fast on shore: but the best place for great ships to anchor, is between Grandy's cove and a small island lying near the west point of Boar island, in 20 or 24 fathoms, good ground and sheltered from all winds. To sail into Grandy's cove from the westward within the islands, it is dangerous, unless well acquainted, by reason of sunken rocks in the passage; but there is a good passage from the southward between Burgo Columbe, which is a high round island, and Rencontre (which is the highest of all the islands) you must steer in N. W. between the rocks above water lying to the eastward of Columbe, and then to the southward of Rencontre; as soon as you are within these rocks, keep the islands on board; there are several safe passages in from the southward and eastward, between the islands, and good anchorage; and in bad weather all the sunken rocks discover themselves, and you may run in any where without fear; these isles do not abound with either wood or water.

Wolfe bay lies in N. E. ½ N. 1 league, the entrance is N. E. 2 miles from Boar island, and 2 miles to the westward of Fox island harbours; the east point of the entrance is low ragged rocks, off which is a sunken rock, ¼ of a mile from the shore, whereon the sea breaks in bad wea-

ther. Near the head of the bay is tolerable good anchorage, and plenty of wood and water.

Round the west point of Wolfe bay is King's harbour, which lies in N. E. by N. $\frac{3}{4}$ of a mile, before the mouth of which is a cluster of little islands, 1 of which is pretty high : to sail into it keep the east point of the islands on board, and steer N. W. by N. and N. N. W. for the entrance of the harbour, and anchor under the east shore, in 9 fathoms water.

On the south sides of the islands, before King's harbour, and N. N. E. 1 mile from Boar island, is the entrance into the Ha Ha, which lies in west 1 mile, is about $\frac{1}{4}$ of a mile broad, wherein is from 20 to 10 fathoms, and good anchorage in every part of it : over the south point of the entrance into this harbour is a high green hill, and a cable's length and a half from the point, is a sunken rock that always shews itself: over the head of the Ha Ha, is Richard's head, mentioned as a mark for running upon Ramea shoal.

Four miles to the westward of the Burgeo isles is the Great Barrysway point, which is a low white rocky point, and N. W. by N. half a league from this point is the west entrance into the Great Barrysway, wherein is room and depth of water for small vessels : between the Burgeo isles and the Great Barrysway point are several sunken rocks, some of which are half a league from the shore.

N. W. by W. $\frac{1}{2}$ W. 4 leagues from the Burgeo isles is the bay of Connoir, the east point of which is something remarkable, rising with an easy ascent to a moderate height, and much higher than the land within it ; the top of it is green, but down by the shore is white ; the west point of the bay is low and flat, to the westward of which are several small islands : the bay lies in N. by E. 1 league from the entrance to the middle head, which lies between the two arms, and is half a league broad, with 14, 12, 10, and 8 fathoms close to both shores, good anchorage and clear ground, open to the S. S. W. and southerly winds ; but the N. E. arm affords shelter for small vessels from all winds. To sail into it, keep the starboard shore best on board, and anchor before a small cove on the same side near the head of the arm, in $3\frac{1}{2}$ fathoms ; towards the head of the arm, on the N. W. side is a bank of sand and mud, whereon one might run a ship and receive no damage.

Two leagues to the westward of Connoir, lies the bay of Cutteau, wherein is only shelter and depth of water for small vessels and fishing shallops : in sailing in or out of the bay keep the west point close on board, in order to avoid the many sunken rocks in the mouth of it.

Round the west point of Cutteau is Cinq Serf, wherein are a great many islands which form several small snug harbours, wherein is room and depth of water sufficient for fishing vessels, with conveniences for fisheries. Right off Cinq Serf, about half a league from the shore, is a low rocky island. The safest passage into the largest harbour is to the westward of this rock, keep in pretty near it, and steer in N. E. $\frac{1}{2}$ E. keeping the S. E. shore on board, until you are abreast of a small woody island, which is the easternmost but one, and lies about $\frac{1}{4}$ of a mile to the N. E. of a white rock in the middle of the passage, then haul short round this island, and anchor behind it in 7 fathoms water, covered from all winds, or you may continue your course up to the head of the arm and anchor in 4 fathoms water.

Four miles to the westward of the rocky island off Cinq Serf, is the harbour of Grand Bruit, which is a small commodious harbour, and well situated for a fishery : it may be known by a very high remarkable moun-

tain over it, ½ a league inland. which is the highest land on all the coast, down which runs a considerable brook, which empties itself in a cascade into the harbour of Grand Bruit. Before the mouth of the harbour are several small islands the largest of which is of a tolerable height with three green hillocks upon it. A little without this island is a round rock, pretty high above water, called Columbe of Grand Bruit ; and ¼ of a mile to the southward of this rock, is a low rock ; in the direct line between this low rock and the rocky island off Cinq Serf, ½ a league from the former, is a sunken rock, whereon the sea doth not break in fine weather. The safest passage into Grand Bruit is to the N. E. of this rock, and off the islands lying before the harbour between them and the 3 islands (which are low and lay under the shore) and after you are to the northward of the sunken rock above mentioned there is no danger but what shews itself. The passage into the harbour is very narrow, but bold to both sides. The harbour lies in north ½ a mile and is ¼ of a mile broad in the broadest part, wherein is from 4 to 7 fathoms water.

To the westward of Grand Bruit, between it and La Poil bay, lies the bay of Rotte, wherein are a great many islands and sunken rocks. The southernmost island is a remarkable high round rock, called Columbe of Rotte, and lies W. by N. 9 leagues from the southernmost of the Burgeos. Between this island and Grand Bruit is a reef of rocks, some above and some under water, but do not lay to the southward of the direct line between the islands. Within the isles of Rotte is shelter for shipping. The safest passage in, is to the westward of the islands between them and the island called Little Ireland, which lies off the east point of La Poil bay.

The bay of La Poil, which is large and spacious, with several commodious harbours, lies W. 10° N. 10 leagues from the southernmost of the Burgeos ; W. by N. 14 leagues from the isles of Ramea, and near 12 leagues to the eastward of Cape Ray. It may be known by the high land of Grand Bruit, which is only 5 miles to the eastward of it ; and likewise by the land on the east side of the bay which rises in remarkable high craggy hills. One mile S. S. W. from the east point lies Little Ireland, a small low island environed with sunken rocks, some of which are ⅓ of a mile off ; N. N. W. ½ a mile from this island is a sunken rock that shews itself at low water, which is the only danger going into the bay, but what lies very near the shore. Two miles within the west point of the bay, and N. N. W. ½ W. 2 miles from Little Ireland, is Tweeds, or Great harbour, the S. point of which is low ; it lies in west 1 mile and is 1½ cable's length broad in the narrowest part. To sail into it keep the north shore on board, and anchor near the head of the harbour, in 18 or 20 fathoms clear ground, and sheltered from all winds. In this harbour are several conveniences for erecting of stages and drying of fish. Half a mile to the northward of Great harbour, is Little harbour, the north point of which is the first high bluff-head on the west side of the bay (called Tooth's head) the harbour lies in west 1 mile, is not quite two cables' length broad in the broadest part. To sail into it, give the S. point a small birth, and anchor about half way up the harbour, in 10 fathoms water before the stage, which is on the north side.

Opposite to Tooth's head, on the east side of the bay, is Gally Boys harbour, a small snug and commodious harbour for ships bound to the westward : near the south point of the harbour are some hillocks close to the shore ; but the north point is high and steep, with a white spot in the cliff. In sailing in or out of the harbour keep the north side on

board ; you must anchor as soon as you are within the inner south point, in 9 or 10 fathoms, good ground, and sheltered from all winds.

Two miles to the northward of Tooth's head, on the same side of the bay, is Broad cove, wherein is good anchorage in 12 and 14 fathoms water. Off from the north point of the cove, stretches out a bank into the middle of the bay, whereon is from 20 to 30 fathoms, a stony and gravelly bottom. One mile to the northward of Gally Boys harbour, between two sandy coves on the east side of the bay, and near 2 cables' length from the shore, is a sunken rock that just uncovers at low water.

Two leagues up the bay, on the east side, is the N. E. arm, which is a spacious, safe, and commodious harbour. To sail into it give the low sandy point on the S. E. side a small birth, and anchor above it where you please, in 10 fathoms water, good holding ground, and sheltered from all winds, and very convenient for wooding and watering.

A little within the west point of La Poil bay, is Indian harbour, and de Plate, two small coves conveniently situated for a fishery, and into which small vessels can go at high water.

From Little Ireland island to harbour La Cove, and Moine bay, the course is W. $\frac{3}{4}$ S. 4 leagues ; between them lies the bay of Garia, and several small coves, wherein are shelter for small vessels, and conveniences for fisheries ; before which are several small islands, and sunken rocks lying along the shore, but none of them lie without the above course. In bad weather the sunken rocks all discover themselves. To sail into the bay of Garia, which lies midway between Poil and harbour La Cove, you will, in coasting along the shore, discover a white head, which is the south point of an island lying under the land, off the east point of the bay, a little to the westward of 2 green hillocks on the main : you must bring this white point to bear north, and steer in directly for it ; keep between it and the several islands that lie to the S. W. from it. From this point, the course into the bay is N. W. by N. keeping the east point on board, which is low. In this bay is plenty of timber, not only for erecting of stages, but large enough for building of shipping.

The S. W. point of the entrance into harbour La Cove, called Rose Blanche point (near to which are rocks above water) is tolerable high, and the land near the shore over harbour La Cove and La Moine bay is much higher than any land near them, by which they may be known. La Moine bay lies in N. N. E. $\frac{3}{4}$ E. $1\frac{1}{2}$ league, and is $\frac{1}{4}$ of a mile broad in the narrowest part. Off the east point are some small islands, and rocks above water. To sail into it, keep the west point on board until you have entered the bay, then edge over to the east shore and steer up to the head of the bay, where there is good anchorage in 10 and 11 fathoms, and plenty of wood and water. Your course into harbour La Cove, which lies at the west entrance into La Moine bay, is N. W. between a rock above water in the mouth of the harbour, and the west shore ; as soon as you are within the rock, haul to the westward, into the harbour, and anchor in 8 or 6 fathoms water, and moored with a fast on shore ; or you may steer into the arm, which lies in N. E. by N. from the harbour, and anchor in 20 fathoms, sheltered from all winds. Harbour La Cove is a small snug harbour for small vessels, and well situated for a fishery, where there has been one for several years.

Round to the westward of Rose Blanche point, is the harbour of the same name, a small snug harbour, well situated for a fishery, with good conveniences. The channel into the harbour is between the island lying off the west point, and Rose Blanche point ; you must give the island

a good birth, because of some sunken rocks which lie on the east side of it, and keep the west side of a small island, which lies close under Point Blanche, close on board, and anchor within the N. E. point of the said island, in 9 fathoms water. To sail into the N. W. part of the harbour is dangerous, unless acquainted, by reason of several small islands, and sunken rocks in it.

Mull Face is a small cove 2 miles to the westward of Rose Blanche point, wherein is anchorage for small vessels in 4 fathoms. Off the west point of the cove are two small islands, and several sunken rocks. The passage in, is to the eastward of the islands and sunken rocks.

Two leagues to the westward of Rose Blanche point are the Burnt isles, which lie close under the shore, and are not to be distinguished from it, behind which are shelter for small vessels, and good fishing conveniences. Off these islands, are sunken rocks, some of which are ½ a mile from the shore.

Three leagues and a half to the westward of Rose Blanche point, is Conny bay, and Otter bay; in the latter is good anchorage for shipping in 7, 8, and 9 fathoms, but it is dangerous going in, because of several sunken rocks without the passage, which in fine weather do not shew themselves.

West ¾ S. 4 leagues from Rose Blanche point, are the Dead islands, which lay close under the shore; in the passage between them and the main is good anchorage for shipping, in 6, 7, and 8 fathoms, sheltered from all winds, but it is very dangerous going in unless well acquainted, by reason of several sunken rocks lying in both the east and west entrance. The entrance from the eastward may be known by a very white spot on one of the islands; bring this white spot to bear N. W. by N. and steer in for it, keeping the rocks on the starboard hand nearest on board, and leave the island on which the white spot is on your larboard side. The west entrance may be known by a tolerable high white point on the main, a little to the westward of the islands; on the west part of this point is a green hillock; keep this white point close on board, until you are within a little round rock, lying close to the westernmost island at the east point of the entrance; then haul over to the eastward for the Great island, (on which is a high hill) and steer in N. E. by E. ½ E. keeping the little rock before mentioned in sight.

From the Dead isles to Port aux Basque, the course is west 4 miles: between them lie several small islands close under the shore, and sunken rocks, some of which are ½ a mile from the shore. Port aux Basque, which is a small commodious harbour, lies 2½ leagues to the eastward of Cape Ray. To steer in for it, bring the Sugar Loaf over Cape Ray to bear N. W. ½ W. or the west end of the Table mountains to bear N. W. Steer in for the land, with either of them as above, and you will fall directly in with the harbour, the S. W. point of which is of a moderate height, and white, called Point Blanche, but the N. E. point is low and flat, close to which is a black rock above water; in order to avoid the outer shoal (on which is 3 fathoms) and which lies east ¾ of a mile from Point Blanche, keep the said point on board, and bring the flag-staff which is on the hill, that is over the west side of the head of the harbour, on with the S. W. point of Road island, and keeping in that direction will carry you in the middle of the channel, between the east and west rocks, the former of which always shew themselves, and which you leave on your starboard hand. You must continue this course up to Road island, and keep the west point on board, in order to avoid the Frying-pan rock,

which stretches out from a cove on the west shore, opposite the island; and as soon as you are above the island, haul to the N. E. and anchor between it and harbour island, where it is most convenient in 9 or 10 fathoms, good ground, and sheltered from all winds; this is what is called the Road or Outer harbour, and is the only anchoring place for men of war: but fishing ships always lie up in the inner harbour. To sail into it, you must steer in between the west shore and the S. W. end of Harbour island, and anchor behind the said island, in 3 or 4 fathoms. In some parts of this harbour ships can lie their broadsides so near the shore as to reach it with a plank. This harbour hath been frequented by fishermen for many years, and is well situated for that purpose, and has excellent conveniences.

One mile to the eastward of Port aux Basque is Little bay, a narrow creek, lying in N. E. near half a league, wherein is room and depth of water sufficient for small vessels.

Two miles to the westward of Port aux Basque is Grand bay, in and before which are several islands and sunken rocks, the outermost of which are not above a quarter of a mile from the shore, on which the sea generally breaks. In this bay is anchorage for small vessels, but not water sufficient for large ships. From Port aux Basque to Cape Ray, the course is west 1 league to point Enragee, then N. W. 1½ league to the cape; off point Enragee (which is a low point) and to the eastward of it are some sunken rocks, one mile from the shore on which the sea breaks.

Cape Ray is the S. W. extremity of Newfoundland, situated in the latitude 47° 37′ N. The land of the cape is very remarkable near the shore; it is low, and 3 miles inland is a very high Table mountain, which rises almost perpendicular from the low land, and appears to be quite flat at top, except a small hillock on the S. W. point of it. This land may be seen in clear weather 16 or 18 leagues. Close to the foot of the Table mountain, between it and the point of the cape, is a high round hill, resembling a sugar loaf (called the Sugar Loaf of cape Ray) whose summit is something lower than the top of the Table mountain; and to the northward of this hill, under the Table mountain, are 2 other hills resembling sugar loaves, which are not so high as the former; one or other of those Sugar Loaf hills are from all points of view seen detached from the Table mountain. On the east side of the cape, between it and point Enragee, is a sandy bay, wherein shipping may anchor with N. W. northerly and N. E. winds, but they must take care not to be surprised there with the S. W. winds, which blow right in and cause a great sea, and the ground is not the best for holding, being all a fine sand. Towards the east side of this bay is a small ledge of rocks, 1 mile from the shore, on which the sea does not break in fine weather. The best place for great ships to anchor is to bring the point of the cape to bear W. by N. and the high white sand hill in the bottom of the bay N. N. E. in 10 fathoms water, but small vessels may lie much farther in. You must take care not to run so far to the eastward as to bring the end of the Table mountain on with the sand hill in the bottom of the bay, for fear of the ledge of rocks before mentioned. W. by N. ½ N. near 1 mile from the point of the cape, is a small ledge of rocks, whereon the sea always breaks; and 1 mile to the northward of the cape, close under the land, is a low rocky island in the channel between the ledge and the cape: also between it and the island is 14 and 15 fathoms, but it is not safe for shipping, on account of the tides, which run here with great rapidity. The soundings under 100 fathoms do not extend above 1 league from the land to the westward and

northward of the cape, nor to the southward and eastward of it, except on a bank which lies off Port aux Basque, between 2 or 3 leagues from the land, whereon is from 70 to 100 fathoms good fishing ground. S. E. by E. ½ E. 8 leagues from Port aux Basque, in the latitude of 47° 14′ N. is a bank whereon is 70 fathoms. *Note.*—The true form and extent of these banks are not yet sufficiently known to be described in the AMERICAN COAST PILOT.

From Cape Ray to Cape Anguille, the course is N. 16° W. distant 6 leagues; Cape Anguille is the northernmost point of land you can see, after passing to the northward of Cape Ray. In the country, over the cape, is high Table Land, covered with wood; between the high land of the two capes, the land is low, and the shore forms a bay, wherein are the Great and Little rivers of Cod Roy; the Great river, which is the northernmost, is a bar harbour, and will admit vessels of 8 and 10 feet draft at high water, and in fine weather. It is a good place for a salmon fishery, and for building of small vessels and boats, &c. there being plenty of timber. You may approach the shore between the 2 capes to ½ a league, there being no danger that distance off.

The island of Cod Roy lies 2 miles to the southward of Cape Anguille, close under the high land; it is a low, flat, green island, of near 2 miles in compass; it forms (between it and the main) a small snug harbour for fishing shallops, and is frequented by vessels of 10 and 12 feet draft, but they lie aground the greatest part of the time, there being not much above that depth of water in the safest part of the harbour at high water; the channel in is from the southward, wherein is 2 fathoms at low water. In that from the northward, is not above 3 feet; this harbour is very convenient for the fishery, with good beaches for drying of fish.

In the road of Cod Roy is very good anchorage for shipping in 8, 7, and 6 fathoms, a clay bottom, sheltered from the N. W. northerly, and S. E. winds: the best place is to bring the south point of the island to bear west, and the point of the beach, on the inside of the island, at the south entrance into the harbour on with a point on the main to the northward of the island, you will then be in 7 fathoms, and nearly half a mile from the shore. One league to the southward of Cod Roy is a high bluff point, called Stormy point, off which stretches out a shoal half a mile; this point covers the road from the S. E. winds, and it is good anchoring any where along the shore between it and the island.

The island of St. Paul lies S. 53° W. 13½ leagues from Cape Ray in Newfoundland, and N. 42° E. 3 leagues from the north cape, in the island of Cape Breton, in the latitude of 47° 12′ 30″ N. it is about 5 miles in compass (including the small island at the N. E. end of it) with three high hills upon it, and deep water close to the shore all round.

Cape North is a lofty promontory at the N. E. extremity of the island Cape Breton, in the latitude 47° 5′ N. The entrance into the gulf of St. Lawrence is formed by this cape and Cape Ray; they lie from each other N. 52° E. and S. 52° W. distant 17 leagues; in the channel between them is no ground under 200 fathoms.

A south east moon makes high water by the shore in most places, and flows up and down, or upon a perpendicular 7 or 8 feet; but it must be observed, that they are every where greatly governed by the winds and weather. On the sea coast between Cape Chapeaurouge and St. Peter's, the current sets generally to the S. W. On the south side of Fortune bay it sets to the eastward, and on the north side to the westward. Between Cape la Hune and Cape Ray, the flood sets to the westward in the

offing, sometimes 2 or 3 hours after it is high water by the shore; but this tide or current (which is no where strong but at Cape Ray) is very variable, both with respect to its course and velocity, sometimes it sets quite the contrary to what might be expected from the common course of the tides, and much stronger at one time than another, which irregularities cannot be accounted for with certainty, but seem to depend mostly on the winds.

N. B. The Burgeo isles, by an observation of the eclipse of the sun, on the 5th of August, 1766, are 3h. 50′ 4″ or 57° 31′ W. from the meridian of London.

From this observation the longitude of the following places are deduced, and their latitudes are from astronomical observations made on shore, except that of Cape Race, which was observed at sea; some one of those places being generally the first that ships make bound to southern parts of Newfoundland, or into the gulf or river of St. Lawrence, or from which they take their departure, at leaving those parts; it is hoped the determining their true position will prove useful to navigators.

	Latitude.		Longitude.	
Burgeo Isles	47	36 N.	57	31 W.
Cape Ray	47	37	59	8
Island of St. Paul	47	12	59	57
Cape North, N. E. extremity of Cape Breton	47	5	60	8
Island of Scataria, which lies off the S. E. point of Cape Breton	46	1	61	57
Island of St Peter's	46	46	56	5
Cape Chapeaurouge, or the Mountain of the Red Hat	46	53	55	17
Cape Race	46	40	52	38
St. John's	47	34	52	13

Directions for navigating the West Coast of Newfoundland.

[N. B. *All Bearings and Courses hereafter mentioned are the true Bearings and Courses, and not by Compass.*]

Cape Anguille lies 6 leagues to the northward of Cape Ray, N. E. by N. 17 leagues from the island of St. Paul, and is in the latitude of 47° 55′ N. it is high land, covered with wood; 2 miles to the southward of this cape lies the small island and harbour of Cod Roy before described. From Cape Anguille to Cape St. George, the course is N. ¾ E. distant 11 leagues; these two capes form the bay of St. George, which lies in N. E. 18 leagues from the former, and east 15 leagues from the latter; at the head of this bay on the south side round a low point of land is a very good harbour, wherein is good anchorage in 8, 10 or 12 fathoms water. In several parts about this harbour are convenient places for fishing works, with large beaches, and good fishing ground in the bay, which early in the spring abound with fish, and formerly was much frequented; a very considerable river empties itself into the head of this bay, but it is not navigable for any thing but boats, by reason of a bar across the entrance, which lies exposed to the westerly winds. On the north side of this bay, before the Isthmus of Port-a-Port, is good anchorage in 7 or 8 fathoms water, with northerly winds; from off this place stretches out a

fishing bank two thirds across the bay, whereon is from 7 to 18 fathoms water, a dark sandy bottom.

Cape St. George lies in the latitude of 48° 28′ ; it may be easily known, not only by its being the north point of the bay of the same name, but by the steep clifts on the north part of it, which rises perpendicular from the sea to a considerable height, and by Red island which lies 5 miles to the northward of the cape, and half a mile from the shore : this island is about 1 league in circuit, and tolerable high, and the steep cliffs round it are of a reddish colour. Under the N. E. end of the island, and before a sandy cove on the main, which lies just to the northward of the steep cliffs, is anchorage in 12 or 14 fathoms water, where you are covered from the S. W. winds by the island, and from the southerly and easterly winds by the main, but there is no riding here with northerly and N. W. winds ; this place formerly was much frequented by fishers.

From Red island to Long point, at the entrance into the bay of Port-a-Port, the course is N. 52° E. distant 7½ leagues. From Red island to Guernsey island in the mouth of the bay of islands, the course is N. E. ¾ N. 15½ leagues. From Red island to Cape St. Gregory, the course is N. E. ¾ N. 20 leagues. From Red island to the bay of Ingornachoix, the course is N. N. E. ¾ E. distant 48 leagues ; and from Red island to Point Rich, the course is N. 29° E. distant 48 leagues and 2 miles.

The land between Red island and the entrance into Port-a-Port, is of a moderate height, or rather low, with sandy beaches, except one remarkable high hillock (called Round-head) close to the shore, and is 2 leagues to the N. E. of Red island ; but up in the country over Port-a-Port, are high lands, and if you are 4 leagues at sea you will not discern the long point of land which forms the bay of Port-a-Port : this bay is capacious, being near 5 miles broad at the entrance, and lies into the southward 4 leagues, with good anchorage in most parts of it. The west point of the bay (called Long point) is a low rocky point from which stretches out a reef of rocks N. E. nearly 1 mile ; S. E. by S. 4 miles from Long point, and half a league from the east shore, lies Fox island, which is small, but tolerable high ; from the north end of this island stretches out a shoal, near 2 miles to the northward, called Fox's Tails ; nearly in the middle of the bay, between the island and the west shore lies the middle ground, on one place of which, near the S. W. end, is not above 3 or 4 feet water, at low water ; at the head of the bay is a low point, called Middle point, stretching out into the middle of the bay ; from off this point is a shoal pit, which extends near 2 miles to the northward, part of which dries at low water : from the head of the east bay over to the bay St. George, is a little more than a quarter of a mile : this isthmus is very low, with a pond in the middle of it, into which the sea washes in gales of winds from the southward at high tides. On the east side of the isthmus is a tolerable high mountain, which appears flat at top, and rises directly from the isthmus, on the north side of the mountain ; and about 5 miles from the isthmus is a conspicuous valley or hollow, which, together with Fox island, serves as a leading mark for coming in and out of this bay, as is hereafter described : two leagues to the N. E. from the entrance of the bay, and half a league from the shore lies Shag island, which appears at a distance like a high rock and is easy to be distinguished from the main ; west 1 league from the Shag island, lies the middle of Long ledge, which is a narrow ledge of rocks stretching N. E. and S. W. 4 miles, the N. E. part of them are above water ; the channel into the bay of Port-a-Port, between the S. W. end of this ledge, and the reef off the west point of

the bay is 1 league wide. To sail into Port-a-Port, coming from the S. W. come not nearer the pitch of the Long point of the bay than 1½ mile, or haul not in for the bay, until you have brought the valley in the side of the mountain before mentioned (which is on the east side of the isthmus) over the east end of Fox island, or to the eastward of it, which will then bear S. S. E. ½ E. you will be then clear of the Long point reef, and may haul into the bay with safety; coming from the N. E. and without the Long ledge, or turning into the bay in order to keep clear of the S. W. point of the Long ledge, bringing the isthmus or the foot of the mountain (which is on the east side of the isthmus) open to the westward of Fox island, near twice the breadth of the island (the island will then bear S. ½ E.) you may haul into the bay with this mark, and when Shag island is brought on with the foot of the high land which is on the south side of Coal river, and will then bear E. by N. ½ N. you will be within the Long ledge; there is a safe passage into the bay between the Long ledge and the main, passing on either side of Shag island, taking care to avoid a small round shoal which lies S. W. 1 mile from the island, on which is 2½ fathoms water. To sail up to what is called the West bay, and into Head harbour (which are the safest anchorages, and the best places to wood and water at) keep the west shore on board, and in turning between it and the middle ground, observe on standing over to the middle to put about as soon as you shoalen your water to 8 fathoms, you may stand to the spit of the middle point, to 6 or 5 fathoms. To sail up to what is called the East road, which lies between Fox island and the east shore, observe about 1 league N. E. from the island, a high bluff head, being the south part of the high land that rises steep directly from the shore, keep this head bearing to the southward of east until the isthmus is brought to the eastward of Fox island, which will then bear S. S. W. you will then be within the shoal (called Fox's Tail) and may then haul to the southward, and anchor any where between the island and the main: to sail up the east bay passing between the island and the east shore, observe the foregoing directions; and after you are above the island, come not nearer the main than half a mile until you are abreast of a bluff point above the island, called Road point, just above which, in 12 fathoms, is the best anchorage with N. E. winds; and to sail up to this anchorage between the middle ground and the Fox's Tail, bring the said point on with the S. W. point of the island, this mark will lead you up in the fair way between the 2 shoals. What is called the West road lies before a high stone beach; about 2 miles within Long point, where you ride secure with westerly and N. W. winds in 10 or 12 fathoms water, the said beach is steep too, and is an excellent place for landing and drying of fish, for which it has been formerly used; there is likewise a good place at the north end of Fox island for the same purpose; and the whole bay and adjacent coast abound with cod, and extensive fishing banks lie along the sea coast.

From Long point, at the entrance of Port-a-Port, to the bay of islands, the direct course is N. 35° E. distant 8 leagues, but coming out of Port-a-Port, you must first steer north 1 or 1½ league, in order to clear the Long ledge, then N. E. by N. or N. E.; the land between them is of considerable height, rising in craggy barren hills directly from the shore.—The Bay of Islands may be known by the many islands in the mouth of it; particularly the three named Guernsey island, Tweed island, and Pearl island, which are nearly of equal height with the lands on the main; if you are bound for York or Lark harbours which lay on the S. W. side of this bay, and coming from the southward, steer in between Guernsey isl-

and and the south head, either of which you may approach as near as you please ; but with S. S. W. and southerly winds come not near the south head, for fear of calms and gusts of wind under the high land, where you cannot anchor with safety ; you may sail in or out of the bay by several other channels, formed by the different islands, there being no danger but what shews itself, except a small ledge of rocks which lies half a mile from the north Shag rock, and in a line with the two Shag rocks in one ; if you bring the south Shag rock open on either side of the north rock, you will be clear either to the eastward or westward of the ledge ; the safest passage into this bay from the northward, is between the two Shag rocks, and then between Tweed island and Pearl island. From Guernsey island to Tortoise head (which is the north point of York harbour, and the S. E. point of Lark harbour) the course is S. by E. 5 miles ; Lark harbour lies in S. W. near 2 miles, and is one-third of a mile broad in the narrowest part, which is at the entrance. To sail into it with large ships keep the larboard shore on board, but with small vessels there is no danger, you may anchor with a low point on the starboard side bearing west, N. W. or north, and ride secure from all winds.

From Tortoise head into York harbour, the course is S. W. near one league ; between the said head and Governor's island, which lies before the harbour, is good room to turn, and anchorage all the way, but regard must be had to a shoal which spits off from a low beach point (called Sword point) on the west end of Governor's island ; to avoid which keep a good part of Seal island open to the northward of Governor's island, until you are above this point ; in turning up the harbour, stand not nearer the next point on the island (off which it is flat) then to bring Tortoise head touching Sword point, the best anchorages is to keep Tortoise head open to the said point, and anchor in 10 fathoms along the sandy beach on the main ; farther up within the island is too deep water for anchoring all the way through the passage within the island : this harbour is very convenient to wood and water at. W. S. W. and S. W. winds blow here sometimes with great violence, occasioned by the nature of the lands, there being a valley or low land between this harbour and Coal river, which is bounded on each side with high hills ; this causeth these winds to blow very strong over the low land.

Harbour island lies at the entrance of the river Humber, and S. E. 7 miles from Guernsey island at the S. W. point of which is a small snug harbour (called Wood's harbour) wherein is 5 and 4 fathoms water, but the entrance is too narrow for strangers to attempt, and but 2 fathoms deep.

The river Humber, at about 5 leagues within the entrance, becomes narrow, and the stream is so rapid in places, for about 4 leagues up, to a lake, that it is with great difficulty a boat can be got up it ; and at sometimes quite impracticable ; this lake, which stretches N. E. ½ N. is in length 7 or 8 leagues, and from 2 to 5 miles broad : the banks of this river, and the shores of the lake are well clothed with timber, such as are common in this country. This river is said to abound with salmon, in which has been formerly a very great salmon fishery.

The north and south arms are only long inlets, in which is very deep water until you come to their heads.

A little within the entrance of the north arm, on the starboard side, is a small cove, wherein a vessel might anchor in 30 fathoms water ; 1 league within the entrance of the south arm, on the starboard side, is a sandy cove (being the second on that side) wherein is anchorage in 16 fathoms water, and a good place to wood and water at ; haul into the cove until

the west point of it is brought on with the north point of the entrance of this arm, and there anchor; if you miss laying hold of this anchoring ground, there is a very good harbour at the head of the S. E. branch of this arm; on the east side of Eagle island, between the north and south arms, is anchorage in 8, 10, or 12 fathoms water: under the north side of Harbour island is good anchorage with S. W. winds, at a quarter of a mile from the island you will have a muddy bottom: opposite to the S. E. end of Harbour island, on the south side of this bay, is Frenchman's cove, wherein is good anchorage in 20, 16 or 12 fathoms water; it is very probable that none of these anchorages will ever be frequented by shipping; yet it is necessary to point them out, as it may happen, that in coming into the bay with a gale of wind at S. W. it may blow so hard out of York harbour, that no vessel can carry sail to work into anchoring ground; at such times they will be glad to get to an anchor in any place of safety.

The Bay of Islands has been much frequented formerly for the cod fishery; the best place for fishing ships to erect stages and keep boats, is in Small harbour, which lies a little without the South head, and the large beach on Sword point, on Governor's island, is an excellent place for drying of fish.

From Guernsey island to Bonne bay, the course is first N. N. E. 6 leagues, then N. E, 3 leagues: the land near the shore, from the north Shag rock to Cape St. Gregory, is low, along which lay sunken rocks, some of which are $\frac{1}{4}$ of a mile from the shore, but a very little way inland, it rises into a mountain terminating at top in round hills: from Cape St. Gregory to Bonne bay, the land rises in hills directly from the sea to a considerable height: Cape St. Gregory is high, and the northernmost land you can see, when coasting along shore between Red island and the Bay of Islands.

Bonne bay may be easily known if you are not above 4 or 5 leagues off at sea by the lands about it, all the land on the S. W. side of the bay being very high and hilly; the land on the N. E. side, and from thence along the sea coast to the northward, is low and flat; but about 1 league up inland, are a range of mountains which run parallel with the sea coast: you cannot distinguish the low land if you are 6 or 7 leagues off at sea. Over the south side of this bay is a very high mountain, terminating at top in a remarkable round hill, which is very conspicuous when you are to the northward of the bay. This bay lies in S. E. two leagues, then branches into two arms, one tending to the southward and the other to the eastward; the best anchorage is in the southern arm; small vessels must anchor just above a low woody point (which is on the starboard side of the bay, at the entrance into this arm) before a sandy beach, in 8 or 10 fathoms water, about a cable's length from the shore: but large ships must run higher up, unless they moor to the shore, they cannot anchor in less than 30 or 40 fathoms, but at the head of the arm, where there is but 24 fathoms; notwithstanding the great depth of water, you lay every where in perfect security, and very convenient to wood and water, there being great plenty of both. To sail into the east arm, keep the S. E. point or starboard shore on board; short round that point is a small snug cove, wherein is good anchorage in 16 or 18 fathoms water, and moor to the shore; a little within the north point of this arm is a very snug harbour for small vessels, wherein is 7 and 6 fathoms water. In sailing in or out of this bay with S. W. winds come not near the weather shore, for fear of being becalmed under the high land, or meeting with heavy

gusts of wind, which is still worse, and the depth of water is too great to anchor.

From Bonne bay to Point Rich, the course along shore is N. N. E. distant 24 leagues; but in coming out of the bay, you must first steer N. N. W. and N. by W. for the first 3 leagues, in order to get an offing. Ten miles to the northward of Bonne bay is a pretty high white point (called Martin point) three quarters of a mile right off from this point is a small ledge of rocks whereon the sea breaks: one league to the northward of Martin point, is a low white rocky point (called Broom point); half a mile S. W. from this point lies a sunken rock that seldom shews itself. On the N. E. side of Broom point lies the bay of St. Paul, wherein vessels may anchor with southerly and easterly winds, but lies quite exposed to the sea winds.

One league to the northward of the bay of St. Paul, is a pretty high point of land (called Cow head); it will have the appearance of an island, being only joined to the main by a very low and narrow neck of land; $\frac{3}{4}$ of a mile off this heap lies Steering island, which is low and rocky, and the only island on the coast between the Bay of Islands and Point Rich. On the south side of Cow head is Cow cove, wherein is shelter for vessels with easterly and northerly winds; and on the north side of this head is Shallow bay, wherein is water sufficient for small vessels, and good fishing conveniences; at the N. E. entrance into this bay are a cluster of rocky islands, which range themselves N. E. and S. W. and at the S. W. entrance are 2 rocks close to each other, which generally shew themselves; they lay a full cable's length from the shore, and there is a channel into the bay on either side of them. In sailing in or out of this bay, you may go on either side of Steering island, which lies right before it, but come not too near the N. E. end there being sunken rocks off that end. This place is the best situated for a fishery of any on the coast, there being excellent fishing ground about it.

From Steering island to Point Rich, the course is N. 20° 45′ E. distance 17 leagues: from Shallow bay to the south part of Ingornachoix bay is nearly a straight shore all the way, and neither creek or cove where a vessel can shelter herself from the sea winds; there are some small sandy bays, where vessels may anchor with the land winds; 6 leagues to the northward of Steering island, and about $\frac{1}{2}$ a mile inland, is a remarkable hill (called Portland); it makes not unlike Portland in the English channel, and alters not in its appearance from any point of view.

Hawke's harbour and Port Saunders are safe and commodious harbours, situated in the bay of Ingornachoix, S. E. 2 leagues from Point Rich; at the entrance of these harbours lies an island (called Keppel island) which is not easily to be distinguished by strangers from the main; the channel into Hawke's harbour (which is the southernmost) lies between the island and the south shore; on the starboard shore entering into this harbour, and opposite to the west end of the island begins a shoal, which stretches up along that shore 1 mile, the middle of which runs out into the harbour $\frac{2}{3}$ the breadth thereof, great part of this shoal dries at low water: your course into the harbour is east, keeping mid-channel, or rather nearest to Keppel island, until the east end thereof (which is a low stone beach) bears N. by E. or N. then steer S. E. $\frac{1}{2}$ E. for a small island you will see up the harbour, keeping the N. E. or larboard shore pretty well on board, and steer for the said little island; as soon as you have brought the point at the south entrance of the harbour to bear W. by N. $\frac{1}{2}$ N. and are the length of the S. E. point of a bay which is on the starboard

side of the harbour, you will then be above the shoal, and may anchor in 12 fathoms water, or you may run within ½ a mile of the small island and there anchor, where you will lay more convenient to take in wood and water. To sail into Port Saunders, there is not the least danger; leave Keppel island on your starboard side, and anchor as soon as you are ½ a mile within the entrance, in 10 or 11 fathoms water; but if you run up towards the head of this harbour, keep the larboard shore on board, in order to avoid a ledge of rocks which lies nearly in the middle of the harbour. This is the best harbour for ships to lay in that are bound to the southward, as the other is for those bound to the northward; all the lands near these harbours are in general low, and covered with wood; you may occasionally anchor without these harbours, in the bay of Ingornachoix, according as the winds are.

Point Rich lies in the latitude of 51° 41′ 30″: it is the S. W. point of a peninsula, which is almost surrounded by the sea; it is every where of a moderate and pretty equal height, and is the most remarkable point of land along the west side of Newfoundland, it projecting out into the sea farther than any other, from whence the coast each way takes a different direction.

Two miles N. E. from Point Rich is the harbour of Port-aux-Choix; it is but small, yet will admit of ships of large burthen, but they must moor head and stern, there not being room to moor otherwise. To sail into it, keep the starboard shore on board, and anchor just above a small island which lies in the middle of the harbour. In this harbour, and in Boat cove, which lies a little to the northward, are several stages, and good places for drying of fish.

Round the N. E. point of the peninsula, lies the harbour of old Port-aux-Choix, which is a small but safe harbour in the entrance of which lies a small island called Harbour island, and between this island and the west point of the harbour are rocks, some above and some under water. To sail into this harbour on the west side of the island, keep the island close on board; but to sail in on the east side, give the N. E. point of this island a small birth; you may anchor any where on the S. E. or larboard side of the harbour, but come not near the N. W. or starboard side, there being a shoal of sand and mud all along that side.

From Point Rich to the Twin islands (which are low, and the outermost islands in the bay of St. John) the course is N. N. E. distance 4 leagues, and from the Twin islands to Point Ferolle, the course is N. E. ½ N. 11 miles.

The bay of St. John lies between Point Rich and Point Ferolle; there are in it a great many islands and sunken rocks; the only island of any extent is that of St. John, which lies N. E. 3 leagues from Point Rich; on the S. W. side of this island is a small harbour, which seems not badly situated for the cod fishery, and it hath good conveniences for that purpose, but it is not a good place for shipping—they would be too much exposed to the S. W. winds, which send in a great sea. On the S. E. side of this island, opposite to the west end of Head island, is a small bay, wherein is anchorage in 16 or 14 fathoms water, and sheltered from most winds, and is the only anchoring place in the whole bay.

From the south part of Point Ferolle stretches out a ledge of rocks S. S. W. near 1 league; and along the shore to the river of Casters (which is in the bottom of St. John's bay) are sunken rocks 2 miles off.

Over the middle of the bay of St. John, is high table land, which is

very steep on that side next the bay, and terminates that chain of mountains which runs parallel with the sea coast from Bonne bay.

The course of the tides along this coast are greatly governed by the winds, but when not interrupted by strong gales of long continuance, a S. E. by S. or S. S. E. moon makes high water, and flows up and down, or upon a perpendicular, seven or eight feet.

Directions for Navigating on part of the N. E. side of Newfoundland, *and in the Streights of* Belle-Isle.

[N. B. All Bearings and Courses hereafter mentioned, are the true Bearings and Courses and not by Compass.]

On the N. E. coast of Newfoundland, about 2 leagues from the main, are 2 islands, the northernmost of which is called Groias; the north end of this island is in the latitude of 51° 00′ north: at about 2 miles distance from this north end, are some rocks high above water.

The harbour of Croque bears N. W. by W. ½ W. 2 leagues from the north end of Groias island; the entrance is not easily distinguished by strangers till you draw near it; then you will discover a small island, or rock, close to the south head of the harbour; you may stand boldly in with the land, there being no danger but what shews itself, and lies very near the shore: as soon as you are within the heads, you will open the 2 arms: that to the S. W. is not safe to anchor in, being foul ground, and open to the N. E. winds; you may run up into the N. W. arm until you are land-locked, and anchor where you please, from 16 to 10 fathoms water, every where very good ground. This is an excellent harbour, very convenient for the fishery, and plenty of wood and water.

From the north end of Groias island, along the coast to the White islands, the true course is N. by E. 12 leagues, but to give these islands and the Braha shoal a proper birth, make a N. N. E. course.

Between Croque and the bay of Griguet, are several good harbours with excellent fishing conveniences, particularly Great and Little St. Julian's, Grandsway, Waterman's cove, White's arm, Zealot, Feshot, Goose cove, Craimiliere, St. Anthony, and St. Lunare, which are not yet accurately described; there is no danger on the coast but what lies very near the shore; except the small shoal of Braha, which lies directly off the bay of the same name, 4 miles from the land on which the sea breaks in bad weather.

The bay of Griguet is situated on the N. E. coast of Newfoundland, in the latitude of 51° 32′ north; it is formed by Stormy cape to the north, and White cape to the south, and contains several good harbours for shipping of all kinds, wherein are many fishing conveniences.

Camel island lies in Griguet bay, is very high in the middle, like the back of a camel, and in sailing along the shore, is difficult to be distinguished from the main.

The north harbour lies within Stormy cape, at the entrance of which is a rock above water: you may go on either side of this rock, it being bold too all round, and anchor near the head of the harbour, in 6 fathoms water; in the entrance that leads to the N. W. and S. W. harbours, is a small rocky island, which makes the passage into those harbours narrow: the safest passage is to the northward of this island, giving the point at

the entrance of the N. W. harbour a little birth; as soon as you are within the island, you will open the two harbours; that of the N. W. which is the largest, runs in N. W. near 2 miles; to sail up to the head of the harbour, the west side is the safest; you will at first have 14, 16, and 18 fathoms water, and after you are a little within the point, will meet with a bank whereon is 7 and 8 fathoms; being over it, you will again have 16 and 17 fathoms, and as you approach the head, will shoalen your water gradually to 5 fathoms, every where good anchoring, and sheltered from all winds.

The S. W. harbour runs in near 2 miles behind Camel's island: it is but a narrow arm, and hath in it from 10 to 4 fathoms water; there is a shoal at the entrance, but neither it nor the harbour are yet sufficiently examined, to give any direction about it here.

The two islands of Griguet lay on the outside of Camel's island, and together form between them several small, but very snug harbours for fishing vessels.

From Stormy cape to Cape de Grat, on the island of Quirpon, is N. by E. distant 3½ miles: between which is the harbour of Little Quirpon, formed by the island of that name; there is no danger going in, but the shore itself; it is a small, safe, snug harbour, where fishing ships moor head and stern.

Quirpon island, which is the S. E. point that forms the entrance of the Streights of Belle-isle, is barren and mountainous; Cape de Grat on the S. E. side, and the highest part of this island may be seen in clear weather 12 leagues.

White islands lay between Griguet and Cape de Grat, about 2½ miles from the land; they are but small, and of a moderate height; on the inside of them are some rocks, both above and under water, but not dangerous, as they discover themselves even in fine weather; and the passage between them and the main, which is ½ a league wide, is very safe.

De Grat and Pigeon coves lay on the S. E. side of the island of Quirpon, and to the northward of Cape de Grat, in the mouth of which are some small islands, and rocks above water; behind these islands are shelter for shipping, in 4 fathoms water, and convenient places for fishing.

The passage into Great Quirpon harbour is on the N. W. side of the island of the same name, between it and Grave's island, which is an island in the mouth of the harbour; in approaching the entrance, you may make as free as you please with the island Quirpon, there being no danger but what shews itself, until you come to the entrance of the harbour, where there are shoals on your larboard side, which you avoid by keeping Black head, upon Quirpon, open of all the other land, until Cape Raven is brought over Noddy point; then haul in for the harbour, keeping about half a cable's length from the point of Grave's island; it is every where good anchoring within the said island, and room and depth of water for any ships, and good ground; the best place is in 9 fathoms water, up towards the upper end of Grave's island, abreast of Green island, which lies about the middle of the harbour: the passage to the inner harbour, on either side of Green island, is very good for ships of a moderate draught of water, through which you will carry 3 fathoms; and above the island is exceeding good anchoring, in 7 fathoms; there is a passage into this place through Little Quirpon, but it is too narrow and intricate for vessels to attempt, unless well acquainted: in and about Quirpon are excellent conveniences for a great number of ships, and good fishing grounds about

those parts: all the land about Griguet and Quirpon is mountainous and appears a barren rock.

Noddy harbour, which lies a little to the westward of Quirpon, runs in S. S. W. between Noddy point and Cape Raven, which form the entrance of the harbour; there is no danger in going in; the passage is on the west side of a small island, that lies about $\frac{3}{4}$ of a mile within the heads, and you anchor as soon as above it, in 5 fathoms water: or with small vessels you may run up into the basin, and anchor in $2\frac{1}{2}$ or 3 fathoms; within the island, on the east side of the harbour, is a stage, and very convenient rooms for many fishing ships.

In turning up towards Quirpon and Noddy harbour, you may stand pretty near to the Bull rock and Maria ledge, which are above water; and both of them about $\frac{1}{2}$ a league from the land of Quirpon; the passage between them is also $\frac{1}{2}$ a league wide, and very safe, taking care only to keep near to Gull rock, to avoid the N. W. ledge, which ledge does not appear but in bad weather; in the passage between the N. W. ledge and the main, are many rocks and shallow water.

The course from Bauld cape, which is the northern extremity of Quirpon, to the Great Sacred island, is west 2 leagues; this course will carry you the same distance without Gull rock, as you pass without Bauld cape. Little Sacred island lies E. S. E. from the great island, 1 mile, the passage between them is very safe, and you may sail round them both; they are high and bold: within them, to the S. W. is Sacred bay, which is pretty large, wherein are a great number of small islands, and rocks above water; the land at the bottom of this bay is covered with wood: this place is only resorted to for wood for the use of the fishery at Quirpon, Griguet, and places adjacent, where wood is scarce.

From Great Sacred island to Cape Norman, the course is west 13 miles, and to Cape Onion is S. W. by W. 2 miles; this cape is the north point of Sacred bay; it is pretty high and steep, near to which is a very remarkable rock, called the Mewstone; to the southward of the Mewstone is a small cove, where a vessel may lie in safety.

From Cape Onion to Burnt cape, the course is W. S. W. distance 5 miles; the shore between them is bold, and of a moderate height; Burnt cape appears white, and rises gradually from the sea to a tolerable height: on the east side of the cape lies the entrance to the bay Ha-ha, which runs in S. S. W. 2 miles; when without Burnt cape, you may anchor in 6 or 7 fathoms, open only to the N. E. winds; or you may run up into the harbour, where you lie land-locked in 8 fathoms: here are good conveniences for fishing ships, and plenty of wood for their use. Cape Norman from Burnt cape bears N. W. by W. $\frac{3}{4}$ W. 7 miles; between them is the bay of Pistolet, which runs in S. S. W. and extends several miles every way, with good anchoring in most parts of it, particularly on the west side, a little above the islands, which lie on the same side, in 5 fathoms water; the shore about this bay is tolerably well covered with wood; boats frequently come here for wood from Quirpon.

Cook's harbour is small, and lies within the islands, at the N. W. part of Pistolet bay, and 2 miles to the S. E. of Cape Norman; to sail into it you must take care and give the Norman ledges, which lie E. N. E. 1 mile off the north point, a good birth: in going along shore, the mark to keep without these ledges is, to keep all the land of Burnt cape open without the outermost rocks, which lie on the south side of the entrance to this harbour; if you are going in, as soon as you judge yourself to be to the southward of the Norman ledges, you must steer inf or the harbour, leav-

ing the islands on your larboard side; you must keep the south shore close on board, for fear of a ledge of rocks which spits out from a small rocky island on the other side; as soon as you are within that island, you must haul over for the north shore, and anchor in 4 or 5 fathoms water. In this harbour might be made several very convenient fishing rooms, and in the coves between it and Cape Norman, might be built stages for the boats to resort to, and to cure fish.

Cape Norman is the northernmost point of land in Newfoundland, lies in the latitude of 51° 38′ 23″ N. is of a moderate and even height, and a barren rock for some miles in the country: from Cape Norman, a W. S. W. course, between 9 and 10 leagues, will carry you a league without Green island; all the shore between them is bold, and of a moderate and equal height for several miles into the country; but a good way inland, is a chain of high mountains, lying parallel with the coast: between 3 and 4 miles to the westward of the cape is a cove, wherein small vessels and boats may lie very secure from all winds, except N. E.; from this place to Green island there is no shelter on the coast. In turning between Cape Norman and Green island in the night, or foggy weather, you may stand in for the land with great safety, in 25 fathoms water, until you are nearly the length of Green island: you will then have that depth of water very near the shore, and likewise on the outside of the island itself.

Green island lies $\frac{3}{4}$ of a mile from the main, is $\frac{2}{3}$ of a mile in length, very low, narrow, and agreeable in colour to the name it bears; from the east end stretches out a ledge of rocks $\frac{3}{4}$ of a miles to the eastward, whereon the sea breaks in bad weather: the channel between the island and the main, wherein is 4 and 5 fathoms water, is very safe, and where vessels may anchor if they find occasion: the only winds that can make a sea here, are from the W. S. W. and E. N. E.; to go in from the westward, keep the point of the island on board for the deepest water, which is 4 fathoms, and going in from the eastward, keep the main on board. The distance from this island to the opposite part of the coast of Labrador, called Castles, or Red Cliffs, doth not exceed $3\frac{1}{2}$ leagues; they bear from each other N. W. and S. E. and is the narrowest part of the Streights of Belle-isle.

From Green island to Flower ledge (which lies near $\frac{1}{2}$ a league from the shore) a W. S. W. course, 3 leagues, will carry you $\frac{1}{2}$ a league without the ledge: from Flower ledge to the bay of St. Barbe, the course is S. S. W. 5 miles, and to point Ferolle, S. W. $\frac{1}{2}$ S. 7 leagues: 5 miles to the westward of Green island is Sandy bay, wherein small vessels might ride in 3 and 4 fathoms water, with southerly and S. W. winds: between Green island and Sandy bay is Double ledge, which stretches off from the shore near half a mile, whereon is 8 and 9 feet water.

Savage cove, which is 2 miles to the westward of Sandy bay, is small, will admit only small vessels and boats, in the mouth of which is a small, low island; the passage in (which is very narrow) is on the east side of the island, and you must anchor as soon as you are within it, in $2\frac{1}{2}$ and 2 fathoms water: one mile to the westward of this cove is Mistaken cove, which is something larger than Savage cove, but not near so good, being shoal water in every part of it. Nameless cove lies 1 mile farther to the westward, wherein is very shoal water, and several sunken rocks; one mile right off from the east point of this cove lies Flower ledge, part of which just appears at low water; you will have 10 fathoms water close to the off side of it: between it and Mistaken cove, $\frac{1}{2}$ a mile from the land, lies Grenville ledge, whereon is 6 feet water. Flower cove (where-

in is 2½ fathoms water) lies just to the southward of Nameless cove; it may be known by some white rocky islands, called Seal islands, lying a little to the westward of it; you must not come too near the outermost of these islands, for fear of some sunken rocks near it. A little within the entrance lies a rock above water, and a channel on each side of it; this cove lies in east, as does Nameless cove, and you must mind not to mistake one for the other: between Seal islands and the main is a passage for boats, and conveniences for a seal fishery.

From Seal islands to Anchor point, which is the east point of the bay of St. Barbe, the course is S. W. by S. 1 league; there is no danger but what lies very near the shore, until you are the length of the point, where lies a rocky island, from which stretches out a ledge of rocks S. S. W. ½ of a mile, which you must be mindful of in going in or out of the bay of St. Barbe. A little within Anchor point, is Anchor cove, wherein is 3 fathoms water; it is so very small, that there is no room in it to bring a ship up, unless it be little wind or calm; the safest way is to anchor without, and warp in; there is room in it for 1 ship, and is a very snug and convenient place for 1 fishing ship, and for a seal fishery.

The bay of St. Barbe lies between Anchor point and St. Barbe's point, which is the S. W. point of the bay; they lie from each other S. by E. and N. by W. half a league; it lies in S. E. about 2 miles from Anchor point; to sail into the bottom of the bay or harbour, you must give Anchor point a good birth, and all the east side of the bay, to avoid the sunken rocks which lay along that shore; the bay will not appear to be of any depth, and you must be well in before you can discover the entrance into the harbour, which is but narrow: you must then steer in S. S. E. keeping in the middle of the channel, and anchor as soon as you are within the two points, in a small cove, on the west side, in 5 fathoms water; the bottom is sand and mud, and you lay land-locked. Near this place branches out two arms or rivers, one called the south and the other the east: in the east river is 3 fathoms water a good way up, but the other is shoal; in these rivers are plenty of salmon, and their banks are stored with various sorts of wood. Between the S. W. point of the bay and west point of the harbour is a cove, wherein are sunken rocks, which stretch off a little without the line of the two points; in the open bay is 7, 8 and 9 fathoms water, but no safe anchorage, because of the N. W. and W. winds, which blow right in, and cause a very great sea.

About 1 league to the S. W. of the bay of St. Barbe lies the bay of St. Genevieve; in and before this bay lie several small islands, 2 only of which are of any considerable extent; the northernmost of these two, which is the largest, called Current island, is of a moderate height, and when you are to the N. E. of it, the west point will appear bluff, but is not high; if to the westward, it will appear flat, and white like stone beach; near half a mile S. W. by S. from the point is a shoal, upon which is 3 fathoms water; the other island (called the Gooseberry island) lying to the southward (and within Current island) hath a cross on the S. W. point of it, from which point stretches out a ledge of rocks, near half a mile to the southward; on the south point of this ledge is a rock that just covers at high water; the best channel into the bay is to the southward of these islands, between the rocks above mentioned, and a small island lying south from it (which island lies near the south shore); this channel is very narrow, and hath not less than 5 fathoms at low water in it; the course is E. by N. before you come the length of the aforementioned rock, you must be careful not to approach too near the S. W. end of

Gooseberry island, nor yet to the main, but keep nearly in the middle between both; if you get out of the channel on either side, you will immediately fall into 3 and 2 fathoms water; as soon as you are within the small island above mentioned, you must haul to the southward, and bring St. Genevieve head (which is the S. W. point of the bay) between the small island and the main, in order to avoid the middle bank; you may either anchor behind the small island in 5 and 6 fathoms water, or steer over with the said mark into the middle of the bay, and anchor, with the S. W. arm open, in 7 and 8 fathoms water; it is very good anchoring in most parts of the bay, and pretty convenient for wooding and watering; the best place is in the S. W. arm, the channel going into which is narrow, and 4 fathoms deep. There is a channel into the bay between Current island and Gooseberry island, wherein is not less than 3 fathoms water, it is but narrow, and lies close to the N. E. end of Gooseberry island; there is also a channel for boats to the eastward of all the islands. The middle bank is a shoal lying in the middle of the bay, and nearly dries at low water; it is pretty large, and hath not less than 4 fathoms water all round it.

Four miles to the westward of the bay of St. Genevieve, is the harbour of Old Ferolle, which is a very good and safe harbour, formed by an island called Ferolle island, lying parallel with the shore. The best passage into this harbour is at the S. W. end of the island, passing to the southward of a small island, in the entrance, which island is very bold too; when you are within this island you must haul up N. E. and anchor behind the S. W. end of Ferolle island, in 8 and 9 fathoms water, where you lie land-locked in good ground: you may also anchor any where along the inside of the said island, and find a good channel up to the N. E. end thereof, where there is an exceeding good place for fishing ships to lie in, like a basin, in 5 and 6 fathoms water, formed by 3 islands, lying at the N. E. end of Ferolle island; there is also a narrow channel into this place from the sea, of 2 fathoms at low water, between the northernmost of these islands and the main; here are convenient places for many fishing ships, and plenty of wood and water; on the outside of these islands are some ledges of rocks a small distance off.

From the S. W. end of Ferolle island to Dog island, is W. S. W. between 4 and 5 miles; Dog island is only divided from the main at high water, is much higher than any land near it, which makes it appear when you are a good way to the eastward to be some distance from the main.

From Dog island to Point Ferolle is W. S. W. 3 miles: between them is the bay of St. Margaret, which is large and spacious, with several arms and islands in the bottom of it, abounding with great plenty of timber of the spruce and fir kind, and watered by small rivers; it affords good anchorage in many parts of it, particularly on the west side which is the best place, as being the clearest of danger, and most convenient for wood and water.

Between St. Margaret's bay and Point Ferolle, is a small bay, called New Ferolle, which lies in S. S. W. about 1 mile, and is quite flat all over, having not quite 3 fathoms in any part of it, and in some places not more than 2, and open to the N. E. winds; there is a stage on each side of the bay, and room for as many more.

Point Ferolle is situated in latitude 51° 02′ N. is 2 miles in length, of a moderate height, and joins to the main by a low neck of land, which divides New Ferolle bay from the bay of St. John's, which makes it appear like an island at a distance; all the north side of the point is very bold

too, having 20 fathoms water very near it; but from the S. W. part stretches out a ledge of rocks into the bay of St. John's.

This part of the coast may be easily known by a long table mountain, in the country above the bay of St. John's: the west end of this mountain, from the middle of the point of Ferolle, bears S. by E. and the east end S. 59° 30′ E.

In turning between Green island and Point Ferolle, you ought not to stand nearer the shore (until you are to the westward of Flower ledge) than half a league, unless well acquainted; you will have for the most part, at that distance off, 20 and 24 fathoms water; after you are above the ledges (that is to the westward of them) the shore is much bolder, but the soundings not quite so regular; you will have in some places 15 and 16 fathoms water close to the shore, and in others not above that depth 2 miles off: the land between Green island and St. Barbe, next the sea, is very low, and in some places woody. The land between the bay of St. Barbe and Point Ferolle is higher and hilly, the most part covered with wood, and watered with numbers of ponds and small rivers.

The tides in the harbour of Griguet, Quirpon, and Noddy harbour, flows full and change about E. by N. in the bay of Pistolet, and places adjacent, E. by S.

In all which places it flows up and down, or upon a perpendicular, spring tides 5 feet, and neap tides 3 feet.

At Green island S. E. bay St. Barbe and bay St. Genevieve, S. S. E. Old and New Ferolle about S. by E.

In all which places it flows up and down, or upon a perpendicular, spring tides 7 feet, and neap tides 4 feet.

Before Quirpon, in settled weather, the tide or current sets to the southward nine hours out of twelve, and stronger than the other stream; in the streights the flood in the offing sets to the westward two hours after it is high water by the shore, but this stream is subject to alteration in blowing weather.

On the coast of Labrador, a little way inland from Labrador harbour, or bay Phillippeaux, is a very remarkable mountain, forming at the top three round hills called Our Ladies Bubbies. This mountain bears from the bay of St. Barbe N. W. ¼ N. from the bay of St. Genevieve N. 30° W. and from Dog island N. 14° 45′ W.

Belle-isle, which lies at the entrance of the streights to which it gives name, is about 7 leagues in circuit, and pretty high; on the N. W. side of it is a very small harbour, fit for small craft, called Lark harbour, within a little island that lies close to the shore; and at the east point of the island is a small cove, that will only admit fishing shallops; 2 miles N. by E. from this point lies a ledge of rocks, part of which appears above water, and on which the sea always breaks very high; you will have 20 fathoms close to this ledge, and 55 fathoms between it and the island; all about this island is irregular soundings, but you will not find less than 20 fathoms home to the island, excepting on a small bank lying N. W. 4 miles from the N. E. end, whereon is only 5 fathoms.

Red bay, on the coast of Labrador, about 8 leagues to the westward of Chateaux, is an exceeding good harbour, with excellent conveniences for the fishery.

York, or Chateaux bay, on the coast of Labrador, lies W. N. W. ¼ W. 5½ leagues from the west end of Belle-isle, and N. W. ½ N. 8½ leagues from the island of Quirpon. In crossing the streight from Quirpon to

Chateaux bay, it is adviseable to fall in with the coast a little to the westward of the bay, unless the wind be eastwardly, and clear weather, as there is not the least danger to the westward, but to the eastward are several low rocky islands. This bay may be known by two very remarkable rocky hills on Castle and Henley islands, which islands lie in the mouth of the bay; those hills are flat at top, and the steep cliffs round them have something the resemblance of castle walls; but as these hills are not distinguishable at a distance, because of the highland on the main within them, the best marks for knowing the bay, when in the offing, is as follows: all the land to the westward of it is high, of a uniform even figure, terminating at the west side of the bay with a conspicuous nob or hillock; about Chateaux bay, and to the eastward of it, is hilly, broken lands, with many islands along shore, but there is no islands to the westward of it: to sail into the bay, you leave both the islands on which stand 2 castle hills, on the starboard side: and for large ships to keep clear of all danger, they must keep point Grenville (which point is known by a beacon upon it) on with the west point of Henley island (which point is a smooth black rock, and may be known by a small black rock just above water, about a cable's length without it) until you are abreast of the east point of Whale island: then to avoid the middle rock, on which is only 9 feet, and which lies nearly in the middle between the east point of Whale island and the said black point of Henley island, you must haul over either close to the little black rock, lying off the said point of Henley island, or else borrow on the Whale island, but not too near it, it being flat a little way off; when you are so far in as to open the narrow passage into Temple bay, in order to sail up into Pitt's harbour, haul to the westward, until you bring the outer point of Castle island a little open with Whale island; that mark will lead you up into Pitt's harbour, which is large and spacious, with a good bottom in every part of it, and covered from all winds; you lie in 10 or 14 fathoms; here are excellent conveniences for the fishery, and plenty of timber at hand; formerly ships from France carried on a most valuable fishery at this place for whale, cod and seals. There is a good though narrow passage into the northward of Henley island, through which you carry 3½ fathoms water; 1 mile to the eastward of Henley islands lie Seal islands, from them to Duck island is 3½ miles; between Seal islands and Duck island is Bad bay, which is open to the easterly winds, and full of rocks, some above and some under water.

Crossing the streights from Quirpon to Chateaux, you will meet with irregular soundings, from 20 to 30 fathoms on the Newfoundland side, and in places near the shore you will have 30 to 40 fathoms: in the middle of the streights in the stream of Belle-isle, is from 20 to 30 fathoms, and between that and Chateaux bay from 45 to 80 fathoms; within a mile of the coast of Labrador, to the westward of Chateaux bay, you will have 25, 30, and 35 fathoms; further up the streights, as far as Cape Norman and Green island, you will have 40 and 45 fathoms in the middle, less towards Newfoundland, and more towards the coast of Labrador.

About 7 miles to the eastward of Seal islands, is St. Peter's islands, a parcel of small barren rocks; within them is St. Peter's bay, which is a good bay, open only to the S. E. winds.

Cape Charles makes with a high steep towards the sea, and sloping inland, so that when you are to the westward of Chateaux, Cape Charles will make like an island.

From St. Peter's islands to Cape Charles island, the course is N. E. ½ N. distance near 4 leagues; between them lies Niger sound, which is an

inlet 2 leagues deep, before which lies several islands. You may pass to the northward or southward of any of those islands into the sound; the course in, is N. W. the best anchorage is on the north side, in 9 fathoms water.

From Cape Charles to the Battle islands (which are the outermost of the Caribou islands) the course is N. by E. ½ E. 4 miles, and from the northernmost of the Battle islands to Point Lewis, is N. N. W. ¾ W. 5 miles; between the Battle islands and the great Caribou island is a good harbour for small vessels; the south entrance is very narrow, and has only 3 fathoms water; this entrance is not easily distinguished, by reason of a small island before it; the north entrance is much wider, passing to the westward of the three small northernmost of the Battle islands; you may anchor from 5 to 10 fathoms water. This place is much resorted to by the savages, and is by them named Ca-tuc-to; and Cape Charles they call Ikkegaucheacteuc.

Between the Caribou islands and Cape Lewis, lies St. Lewis' bay, in which are many islands and inlets which have not yet been examined.

From the north part of Cape Lewis, at a quarter of a mile from the shore, are two flat rocks, and also several sunken rocks, all which are within that distance from the shore; round this point is the entrance of a small cove, running in S. S. W. ½ a mile, named Deep-water creek, but very narrow, and has from 20 to 40 fathoms water in it.

From the north part of Point Lewis to the south head of Petty harbour bay, the course is north 1½ mile; it is a high bold shore; from the south head to the north head of this bay, the course is N. ¼ E. 1½ mile; this bay runs up W. N. W. 1 mile; in it is 20 to 40 fathoms water. At the bottom of it is Petty harbour; the entrance is to the northward of a low point of land which shuts the harbour in from the sea, so as not to be seen till very near it; the entrance is very narrow, it is not above 50 fathoms broad, there is 5 fathoms in the middle and 3 fathoms close to the sides; the narrow part is but short, and after you are within the entrance the harbour becomes wider, running up W. by N. 1½ mile, and ½ of a mile broad, wherein ships may anchor in any part, from 12 to 7 fathoms, and lie entirely land-locked. From the north head of Petty harbour bay to Point Spear, the course is N. ½ E. 2¼ miles; between them is Barren bay and Spear harbour; Barren bay is to the northward of the north head of Petty harbour bay, in it is no shelter.

Spear harbour is to the southward of Spear point: this is a very good harbour; coming from the northward, about Point Spear, you will open two islands in the bottom of a small bay; the best passage in, is between the 2 islands, and to keep the north island close on board; there is 4 fathoms along side of it: after you are half a cable's length within the islands, steer for the middle of the harbour, and anchor in 7 or 8 fathoms, where is good room to moor; small vessels may go on either side of the islands; there is 2 fathoms at low water; but observe, in coming from the southward you will only distinguish one island, for the northernmost island will be shut in under the land so as not to be discerned till you get within the heads.

From Point Spear to the entrance of the Three harbours the course is W. N. W.; about 3 miles between them are several small high islands lying within half a mile of the shore, called Spear islands; they are all bold too, and there is 20 fathoms within them: N. N. E. ¼ E. from the S. E. head of the entrance of the Three harbours, lies 2 small islands close together, called Double island, about as high as they are broad, and about

half a cable's length to the eastward of those islands are 2 sunken rocks, on which the sea breaks in bad weather. Nearly in the middle of the entrance of the Three harbours lie 2 islands close together, which mostly appear as one island by being so close together, they are steep too: ships may pass on either side of them in 12 and 14 fathoms, and anchor within them, in Queen road, in 16 fathoms; by the S. E. end of the islands is the widest passage, and room for ships to work in or out.

The first and southernmost harbour within Queen road is Sophia harbour; it runs up S. by E. 1½ mile, and has from 15 to 10 fathoms water for that distance; then it tends away round a low point to the eastward, and becomes a mile broad but thence is very shoal water, and only fit for small vessels.

Port Charlotte is the middle harbour, and a very good one for any ships; there is a low flat island on the starboard side of the entrance, and from this island runs a reef of rocks a third of the channel over to the south side; to avoid which keep the south side nearest on board, for it is steep too, having 9 fathoms close to the shore, therefore keep the south side nearest until you are a quarter of a mile within the entrance, then you may anchor in any part of the harbour between 12 and 17 fathoms, only giving the starboard side a birth of half a cable's length, to avoid a small reef that lies along that side.

Mecklinburg harbour is the northernmost of the 3, and lies up N. W. ½ W. and W. N. W. 2 miles; in the lower part of this harbour is 20 fathoms, but in the upper part is no more than 12 fathoms room for ships to moor; to sail up to the head, keep the larboard side nearest, to avoid the ledge of rocks that lie along the starboard side, about 30 fathoms from the shore. These rocks lie within the narrowest part of the harbour, and above the low point on the starboard side; the best anchorage is at the head of the harbour.

From the islands at the entrance of the Three harbours to Cape St. Francis, the course is N. ½ E. about 5 miles; between them is the entrance into St. Francis or Alexis river, between 2 low points about a mile across; this river runs up about 10 leagues, where the water is fresh, and a very strong tide; in it are many bays, harbours and islands; the first part of this river runs up W. N. W. 3 miles and a half. There are 4 islands within the entrance, 2 of which are on the larboard side, and further up, 2 on the starboard side; the outermost island on the larboard side, which is about a mile within the entrance, is a high round island in the shape of a sugar-loaf, with the top part cut off, and is a very good mark to sail in by; there is a ledge of rocks about half a cable's length from the S. E. point of the entrance; and E. S. E. half a mile from the said point, there is a flat rock, always above water, with a ledge of sunken rocks half a cable's length to the N. E. from it, and half a mile without this flat rock, on the same line with the point there is another flat island with a ledge of sunken rocks a cable's length to the N. E. from it. In sailing into this river, to avoid these ledges, keep to the northward of the flat islands, till you bring the Sugar-loaf island, which is within the river, a third of the channel over from the S. E. point: that mark will keep you clear of the ledges, and to the northward of them you may either sail or work in, taking care not to shut the Sugar-loaf island in with the N. W. point and bring it no nearer the S. E. point than a third of the breadth of the channel; after being within the points, there is no danger but what is to be seen; there is anchorage within the two islands, on the larboard side, in 12 and 14 fathoms, but you will lay open to the N. E. the best place

to anchor within the first part of the river, is in Ship's harbour, which is on the larboard side, about 2½ miles from the entrance, where the course into it is S. S. W. 1½ miles; at the entrance it is ⅓ of a mile broad, at the head it is broader; there is 12 and 15 fathoms water, and good anchorage in security against all winds; at 3½ miles from the entrance the course of the river is W. by S. 7 miles; in the middle of it are several great and small islands, sailing up along the south side of the islands there is no danger, and not less than 40 or 50 fathoms water, but on the starboard, or north side of the islands there is much less water, and anchorage all the way up in 12 and 17 fathoms. The course up the third part of the river is W. S. W. 4 miles; here is only 2 islands, on the larboard or south side of which is very good anchoring in 12 fathoms; on the north side is 30 fathoms water, the land about here is very high and well covered with wood; here the water is fresh, and 7 miles further up is a bar, on which there is not above 3 feet at low water, the river above that bar runs W. and W. N. W. 6 miles, but the head of it is not yet known; by the rapid stream probably it comes from great lakes afar off.

One mile to the northward of St. Francis river, there is a harbour, called Merchantmen's harbour; between the river and this harbour there are 2 or 3 sunken rocks, lying a cable's length off from the second point from the river; there is no danger in sailing into this harbour, it runs in first W. N. W. and then W. about a mile, is 2 cables' length wide at the entrance, and 3 at the head of it, where ships may anchor in 12 fathoms water.

To the northward of this harbour, round a small point, there is an inlet which runs up W. N. W. 5 miles, where it turns to the southward into St. Francis river; it is about ⅓ of a mile broad at the entrance, and continues the same breadth about 2 miles up, and then becomes very broad, with an island in the middle, shaped not unlike a leg; there is no danger in this inlet but what appears above water; along the south side of Leg island there is anchorage in 12 and 13 fathoms. At about 3½ miles within the entrance, the lower part of Leg island forms 3 very good harbours, with 7 and 12 fathoms water in them; on the north side of Leg island there is a large space, about a mile broad, and 2 miles long; in it is from 60 to 80 fathoms water, from which to the N. W. is a passage into Gilbert's river, which runs from thence W. N. W. 6 miles, and is about ½ a mile broad, and from 50 to 60 fathoms water in it; then Gilbert's river divides into 2 branches, one to the W. N. W. 7 or 8 miles, the other S. S. W. 6 miles, the head of which is within a mile of St. Francis river; both these branches are full of small islands, rocks and shoals on each side, but in the middle is good anchorage all the way up, from 10 to 40 fathoms; this river has also a passage out to the sea to the northward of Cape St. Francis, between Hare island and Fishing islands; from St. Francis island to the north end of Hare island, is W. N. W. 2½ miles; within Hare island there is a small harbour; to sail into it you must pass round the North end of Hare island; there is from 12 to 5 fathoms water within this harbour, and no shoals in it; but the harbour hereabouts is Fishing ship harbour, which is formed by 3 islands, lying along shore a mile to the northward of Hare island; the best passage into it is between the 2 westernmost islands, which entrance bears from Hare island N. W. There is no danger in this passage: ships may sail right in N. W. up the head of the harbour, and anchor in 12 fathoms; there is good room for any ships to moor; there are 2 other passages to this harbour, one to the westward from the entrance of Gilbert's river, the other to the

eastward, passing to the northward of all the Fishing islands, and hath 7 fathoms through, but this is a very narrow passage, and difficult for those not acquainted. From the northernmost Fishing island to Cape St. Michael, the course is N. by W. ¾ W. distance 6 miles: this part of the coast is bold too, and very high land.

Two miles to the southward of Cape St. Michael, lies Occasional harbour, which may be easily known by 2 large rocks, called Twin rocks, which lie about two thirds of a mile without the entrance; they lie close together; ships may pass on either side of them; the entrance to this harbour is between 2 high lands, and runs up S. W. about 2 miles, then W. N. W. There is no danger in this harbour, both sides being steep too; and about 2 miles up there is good anchorage in 7 and 10 fathoms; the winds between the high land at the entrance always sets right into the harbour, or right out.

From Cape St. Michael to Cape Bluff, the course is N. by W. 4 leagues; these 2 capes form the great bay of St. Michael, which contains a great number of islands, inlets, rivers, &c. which are not yet known. Cape Bluff is a high bluff land, and may be seen 15 or 16 leagues; the best place yet known for large ships to anchor within St. Michael's bay, is on the south side, that is first keep Cape St. Michael shore on board, then keep along the south side of the first island you meet with, which is called Long island, till you come near as far as the west end of it, and there anchor from 12 to 20 fathoms, you will there lie land-locked, and may work out again to sea on either side of Long island. At the entrance of this bay is a large square island, within which are many small islands, which form several harbours.

The land from Cape Bluff to the northward lies N. N. E. 5 or 6 leagues, and makes in several high points.

Description of part of the Coast of Labrador, *from Grand Point of* Great Mecatina *to* Shecatica.

[N. B. All Bearings and Courses hereafter mentioned, are the true Bearings and Courses, and not by Compass.]

Courses and distances from island to island along the coast, between Grand Point and Shecatica, *which courses carry you without all other islands and rocks.*

From Grand Point to outer rocks off the islands of Entrance, the course is S. E. by E. ½ E. 2¼ miles.

From the outer rocks off the islands of Entrance, to the Murr rocks, the course is E. by S. ½ E. 3¾ miles.

From Murr rocks to Flat island, the course is N. E. ½ E. distance 5 miles.

From Flat island to Treble hill island, the course is N. by E. 5¼ miles.

From Treble hill island to Fox islands (which are a cluster of islands, lying S. S. E. ½ E. from Eagle harbour) the course is N. ¾ E. 3 leagues.

From Fox islands to the rocks off the entrance of the port of St. Augustine, called St. Augustine's chain, the course is N. E. by E. 5 leagues.

From the rocks called St. Augustine's chain to Shag island, the course is N. E. ½ E. 2½ leagues.

From St. Augustine's chain to the rocks without Shag island, called Shag rocks, the course is N. E. by E. distance 3 leagues.

From the Shag rocks to the rocks off the east end of the island of Shecatica, the course is N. E. ¾ E. 3 leagues.

Courses and distances along shore, passing within the Great Island of Mecatina.

From the outer rocks off the islands of Entrance to the Bay de Portage, the course is N. W. by N. ½ W. 4 miles.

From the outer rocks off the islands of Entrance to outer point of Mecatina island, the course is N. by W. ½ W. 4 miles.

From the outer point of Mecatina island to Gull island, the course is N. E. by E. 1 mile.

From Gull island to Green island, at the entrance of Red bay, the course is N. N. E. ½ E. 1 league. This course will carry you clear of the Shag rocks, as far as you pass without Gull island.

From Gull island to La Boule rock, off the N. W. end of Great Mecatina island, the course is N. E. by N. ½ E. 4 miles.

From La Boule rock to Green island the course is W. by S. ½ a league.

From La Boule rock to Duck island, the course is N. N. W. ¾ W. 1 league.

From Duck island to Round island, at the entrance of Ha Ha bay, the course is N. by E. ½ E. 1¼ mile.

From Round island into the harbour of Little fish, the course is S. W. by W. ¾ W. ½ league.

From Round island into the bay of Ha Ha, the course is N. N. E. ½ E. ½ league, leaving all islands on the starboard side.

From La Boule rock to Loon islands, the course is N. ¾ E. 1 league.

From La Boule rock to Goose island, the course is N. E. 5½ miles.

From Goose islands to Fox islands, the course is N. E. by N. 2 leagues.

The Grand Point of Great Mecatina lies in the latitude of 50° 41′ N. and is the extreme point of a promontory which stretches off from the main. The extreme of this point is low: from thence it rises gradually to a moderate height, and may be easily known from several adjacent islands and rocks, which lie off S. E. by E. ½ E. from it; the nearest of which is a small low rock, and is within one third of a cable's length from the point. Two of these islands are much larger and higher than the others; the outermost are small low rocky islands, and lie 2¼ miles from the Grand point.

From Grand point, E. by S. 5½ miles, lie the two Murr islands, which are the southernmost islands on this part of the coast. The northernmost Murr island, lies from the other N. N. W. ¼ W. about a quarter of a mile. These islands are very remarkable, being two flat barren rocks, of a moderate height, and steep cliffs all round. About half a mile to the S. E. of the southernmost Murr island, lie the two Murr rocks, which are above water. And E. N. E. ½ E. 1¼ mile from the southernmost Murr island, lies a ledge of rocks under water, on which the sea generally breaks.

From Murr islands, N. W. by W. 2 leagues, lies the Bay de Portage. The land over this bay makes in a valley, each side being high; at the entrance lies an island of a moderate height, which forms the harbour. You may sail into this harbour on either side of the island, but the eastern passage is only fit for small vessels, there being only 2 fathoms water in the entrance at low water. The western passage is sufficiently large and safe for any vessel to turn in, there being in it from 6 to 8 fathoms at low water. Large vessels bound for this harbour must be careful to avoid 2 sunken rocks, on which there is 2¼ fathoms water at low water. The northernmost of these rocks lies from Mutton island, S. by E. 1½ mile, and the southernmost lies from the Seal rocks, N. by E. ¼ E. half a mile. Vessels may borrow within one cable's length of Mutton island, or Seal rocks.

The harbour of Great Mecatina lies N. W. ¼ W. 2 leagues from Murr islands, and N. by E. 2¾ miles from Grand point. This harbour is form-

ed by Mecatina island and the main, and is a safe, but small harbour, yet will admit ships of burthen, there being not less than 3 fathoms water in either passage at low water; but they must moor head and stern, not being room to moor otherwise. To sail into this harbour through the western passage, there is not the least danger. To sail in through the eastern passage, observe the following directions: from the eastern point of the island, run N. N. W. for the main, and keep the main close on board, till you bring the western point of the island on with the point of Dead cove (this is a small cove on the main, which lies open to the eastward; the land which forms it is very low, with some brush wood on it) and sail in that direction till you are above a stony point, which is the north point of the said cove, or till you bring the north point of Gull island (which is a small island lying N. E. by E. 1 mile from Mecatina island) on with the N. E. point of Mecatina island, you will then be within a spit of rocks, which stretches off from Mecatina island, and must then haul directly over for Mecatina island, in order to avoid a ledge which stretches off from the south point of Dead cove, and may anchor, when you bring the western passage open, in 6 or 7 fathoms water in great safety. Vessels coming from the eastward, and bound for the harbour of Mecatina, and would pass to the northward of Gull island, must be careful either to keep Gull island or the main close on board, in order to avoid a sunken rock that lies near half way between Gull island and the main, on one part of which there is not above 3 feet water at low water.

The highest part of the land between Grand point and Ha Ha bay, is directly over the harbour of Mecatina.

The great island of Mecatina lies three miles from the main, and is in length, from north to south, 3½ miles, and in breadth, from east to west, 3 miles; is high land, but much higher in the middle than either end. The N. E. point of this island makes in a remarkable bluff head, which is in latitude 50° 46′ N. Round this head, to the northward, and within a cluster of small islands (on either side of which is a good passage) lies a cove, which runs in S. by W. ½ W. about 1½ mile from the said islands; vessels may anchor in this cove, in great safety, from 14 to 20 fathoms water, good ground. Here is wood and water to be had.

The great island of Mecatina being the most remarkable land about this part of the coast from whence vessels may best shape a course for other places, I will here give the bearings and distances of the most remarkable points, head lands, rocks and harbours from it.

Courses and distances from Great island of Mecatina to other places.

From the Round head of the Great island of Mecatina to Mecatina island, the course is W. by S. ¾ W. 3½ miles.

From Round head to the outer rocks off the islands of Entrance, the course is S. S. W. ¾ W. 5 miles.

From Round head to Murr islands, the course is S. ½ E. 5 miles nearly.

From the Bluff head of the Great island of Mecatina to Flat island, the course is S. E. by S. 5 miles.

From Bluff head to Loon islands, the course is N. by W. ½ W. 4 miles.

From Bluff head to Round island, at the entrance of Ha Ha bay, the course is N. W. by N. ½ W. 6½ miles. This course leaves Loon islands on the starboard side, and Duck island on the larboard side.

From Bluff head to Treble hill island, the course is E. N. E. ¾ E. 3½ miles.

From Bluff head to Double hill island, the course is N. 5½ miles.

From Bluff head to Goose islands, the course is N. by E. ¾ E. 5½ miles.

From Bluff head to the Fox islands, the course is N. N. E. ½ E. 11 miles.

From Bluff head to St. Augustine's chain, the course is N. E. 25 miles.

From Bluff head to Shag island, the course is N. E. 10½ leagues.

From Bluff head to Shecatica, the course is N. E. ¼ E. 13⅔ leagues.

The harbour of Little Fish lies in east and west, is but small, and is formed by an island covered with wood. You may sail into this harbour on either side of the island, but to the northward is the best passage. In the bay to the southward of the island, lies a ledge of rocks, part of which is always to be seen. E. by S. one third of a mile from the east point of Wood island, lies a rock, on which there is only 2 fathoms water at low water. You may anchor in this harbour at the back of the island in 7 or 8 fathoms water, good bottom, and have room sufficient to moor. Here is both wood and water to be had. Off the northern point of the entrance into this harbour, called Seal point, lies 2 small islands, and a sandy cove, where there is a seal fishery carried on.

Between the harbour of Little Fish and the bay of Ha Ha, is a remarkable high round hill, which makes in a peak, and may serve as a good mark for knowing either of those places by.

The bay of Ha Ha lies from La Boule point, N. N. W. $\frac{1}{4}$ W. $5\frac{1}{2}$ miles, in the mouth of which there are several islands, which form several passages, but the best is between Seal point and Round island, leaving all the islands on the starboard side; this is a wide and safe passage, there being no danger but what appears above water. This bay runs up north 7 miles, at the head of which on the starboard side are several islands: within these islands, to the eastward, are many good anchoring places, from 9 to 20 fathoms water. Vessels may occasionally anchor all along the eastern shore within this bay, in 12 and 14 fathoms water, mud ground; on the western side it is deep water. N. $\frac{1}{4}$ W. 2 miles from the entrance of the west side, is a high bluff head; round this head W. by N. $\frac{1}{4}$ W. half a mile, is a small but safe harbour for small vessels, in which you have 12 fathoms, good ground. This harbour is formed by an island, on either side of which there is a safe but narrow passage.

After you leave the bay of Ha Ha, proceeding to the eastward, you lose sight of the main land (till you come to the bay of Shecatica) which is hid from you by the number of great and small islands of different height, so numerous, and so near each other, that they are scarce to be distinguished as islands till you get in amongst them.

Amongst these islands are a great many good roads and harbours; some of the best and the easiest of access are as follow.

Eagle harbour lies near the west end of Long island, and is formed by a cluster of islands, on which a French ship of war of that name was lost. This harbour is capable of holding a number of shipping with great security, having in it from 10 to 20 fathoms, good bottom, but it is not easily to be distinguished by strangers; the best way to find it, is to shape a course as before directed, from the great island of Mecatina, to Fox islands, which lie from the westernmost entrance of the harbour S. E. by S. $\frac{1}{2}$ E. $1\frac{1}{3}$ mile. It is also to be known by a large deep bay, which forms to the eastward of it, without any islands in it, but to the westward is a vast number. If you intend for the east passage into this harbour, you must first steer from Fox islands, N. $\frac{1}{2}$ E. $2\frac{1}{2}$ miles into the bay, when you will observe to the N. W. of you, a remarkable high island, round which to the northward, there is a safe passage of 3 fathoms into the harbour, where you may anchor in great safety from all winds. In the western passage into this harbour is $2\frac{1}{2}$ fathoms water, fit only for small vessels, being a narrow passage between many islands. This part of the coast is very dangerous for a vessel to fall in with, in thick weather, by reason of the infinite number of small and low islands, and some rocks under water.

From the Bluff head of Great Mecatina island to St. Augustine's chain, the course is N. E. 8½ leagues. The west island of St. Augustine, is of a moderate height, the west part being highest and quite low in the middle, but is not as easy to be distinguished at a distance, by reason of the islands within being much higher. Half a mile to the eastward of this island is the East island, something larger, but not quite so high and is even at top. Between these two islands, after passing between the Chain and Square islands, is a safe passage for small vessels into this port; they may anchor between the West island and Round island, or they may run to the northward past Round island, and anchor in 6 or 7 fathoms water, where they will have good room to moor. S. by W. ¾ W. about half a league to the west of St. Augustine's island, runs a chain of small islands, called St. Augustine's chain, the outermost of which is a remarkable round smooth rock. At ¼ of a mile to the westward of this island lie rocks under water, which always break, and shew above water at ⅓ ebb. About half a mile to the S. W. of these rocks is a high black rock above water; between these two is the best passage for large vessels into the port of St. Augustine. You must steer from this black rock, for a remarkable low point which will bear N. ¾ W. till you open the port of St. Augustine, and then haul in and anchor as before; or you may steer up the passage between this point and Round island, and anchor as before directed.

The entrance of the river St. Augustine, lies from the port of St. Augustine 4½ leagues to the N. W. with several large and small islands between them. The river is not navigable for any thing but boats, by reason of a bar across the entrance, which dries at low water. This river, at two miles up, branches into two arms, both tending to the N. W. 14 or 16 leagues. There is plenty of wood to be had in this river.

From St. Augustine's chain to Shag island, the course is N. E. ½ E. 2½ leagues. This island is very remarkable, being small, high, and in the middle is a round peeked hill. From this island to the eastward are a number of small rocks above water, the outermost lies E. by S. ½ E. 1⅓ mile from Shag island. N. W. by W 2½ miles from Shag island, lies the bay and harbour of Sandy island, which is a very safe harbour. To sail into this harbour, you must pass to the eastward of Murr rocks, and keep the starboard point of the bay on board, you will then see a small rock above water to the N. W. which lies off the entrance of the harbour; you may pass on either side of this rock, and then steer in N. ½ W. for the harbour, there being no danger but what appears. In this harbour there is good room to moor, in 5 and 6 fathoms water, and a good bottom: there is not any wood to be had, but plenty of water.

Cumberland harbour lies N. ¾ W. 1 league from the outer Shag rocks, and is to be known by a remarkable high hill on the main, which is the highest hereabouts, and makes at the top like a castle, being steep cliffs appearing like walls. This hill lies N. W. by N. about 3½ leagues from the entrance of the harbour. The outer islands, named Duke and Cumberland islands, which form the harbour, are of a moderate height, the easternmost making in two round hills. To sail into this harbour there is no danger but what appears above water, except a small rock, which lies S. S. E. half a mile from the west head, the entrance is a quarter of a mile wide, and half a mile long: from the east head, steer for the inner point on the west side; after you are the length of that point, you may haul to the eastward and anchor where you please, from 20 to 7 fathoms water in good ground, and an excellent roomy harbour, fit for any ships, and is the best harbour and the easiest of access on this coast. Here is good water, but for wood you must go up Shecatica bay.

The bay of Shecatica lies 2½ miles to the N. E. from the entrance of Cumberland harbour, and runs many miles up the country to the northward, in several branches and narrow crooked passages, with many islands, which form several good harbours; the passages are too narrow for vessels to attempt without being very well acquainted.

To the eastward of the bay of Shecatica, and N. N. E. ¾ E. 2½ leagues from the outer Shag rocks, lies the island of Mistanogue; within it, to the northward, and before the mouth of the bay of the same name, is very good anchorage, from 20 to 15 fathoms water, good ground, and sufficient room to moor: To go into the road, you may pass round the west end of the island, which is bold too, or round the east end between it and the island of Shecatica, but this last passage is only for small vessels. There is good anchorage quite to the head of the bay of Mistanogue, which is long and narrow. This island and the main land about it is high and barren, but there is both wood and water to be had in the bay Mistanogue. A little to the eastward lies the island of Shecatica, between it and the main is a good passage for small vessels where there is a considerable seal fishery carried on. Three miles to the N. E. of the island of Shecatica lies the bay of Petit Pene, which runs up north 5 miles, but is not fit for vessels to anchor in, being deep water, narrow, bad ground, and entirely exposed to the southerly winds.

N. B. All the islands along the coast are quite barren, the outer ones being small and low rocky islands, the inner ones are large and high, covered mostly with green moss.

No wood to be got but at such places as are mentioned in the foregoing directions.

The course and the flowing of the tides along this coast are so irregular, no certain account can be given thereof; they depend much upon the winds, but in settled moderate weather I have found it high water at Shecatica, on the full and change, at 11 o'clock, and at Mecatina, at half past 2 o'clock, and rises and falls upon a perpendicular about 7 feet.

Directions for navigating on that part of the coast of Labrador *from* Shecatica *to* Chateaux, *in the streights of Belle-Isle.*

[N. B. All bearings and Courses hereafter mentioned, are the true Bearings and Courses, and not by compass; the variation was 26° W. in the year 1769.]

Bowl island lies E. by N. 2 leagues from the island of Shecatica, and 1 mile from the main; is a remarkable round island of a moderate height.

About this island, and between it and Shecatica, are a number of small islands and sunken rocks, which renders this part of the coast dangerous, unless there is a fresh wind, and then the sea breaks on the rocks.

From Bowl island to the entrance of bay D'omar, the course is N. E. by N. ½ E. distance 2 miles. This bay runs up N. by E. nearly three miles, with high land on both sides; is about 2 cables length off shore. Off the coves it is wider. The western shore is the highest. Without the east point lie two small islands about 1 cable's length off shore. In this bay there is very good anchorage, the best being at about 2 miles within the entrance, opposite a woody cove on the west side, where you may lie secure from all winds in 14 or 16 fathoms water, and be very handy for wooding and watering. About 1 mile within the entrance on the west side, lies a remarkable green cove, off which it is shoal a small distance from the shore; one mile to the eastward of Bay D'omar lies little Bay,

in which is tolerable good anchorage for small vessels. E. N. E. ½ E. distant 3 leagues from Bowl island, begins a chain of islands and rocks, lying E. N. E. 3 leagues, and from 3 to 5 miles distant from the main, the easternmost of which is called Outer, or Esquimaux islands: the middle part is called Old Fort islands; and the westernmost is called Dog islands. Within these islands on the main are several good bays and harbours, but are too difficult to attempt, unless very well acquainted, the passages being very narrow, and a number of sunken rocks.

N. ½ W. 4 miles from the west side of the outer Esquimaux islands, is very good anchorage for small vessels, between two high islands. Within these islands lies the river Esquimaux.

From outer Esquimaux island to point Belles Amour, the course is N. 59° E. distant 13 miles. This point is low and green, but about 1 mile inland is high. Round this point to the eastward is a cove, in which is anchorage for small vessels in 7 fathoms water, but open to easterly winds.

From Point Belles Amour to the entrance of the harbour of Bradore, the course is E. by N. 2 leagues nearly. This harbour is to be known by the land between it and point Belles Amour, being high table land, the land on the east side of it being low near the sea, and tending to the southward, or by our Ladies Bubbies, which are three remarkable round hills, seen all along this coast, lying N. by E. ¾ E. 2 leagues from the island of Ledges, which forms this harbour. This island is of a moderate height, having a great number of small islands and rocks about it. On the east side of this island is a cove, called Blubber cove, wherein is anchorage in 2½ fathoms water, for small vessels. There are two passages into the harbour of Bradore; but that to the northward of the island of Ledges is by no means safe, there being a number of sunken rocks in that passage. The eastern passage is safe, taking care to avoid a small rock, which lies S. 32° W. ¼ of a mile from the low point on the main where the houses stand. On this rock the sea mostly breaks, and shews above water at ¼ ebb. On the east side, within the rock, is a small cove, called Shallop cove. From the point above the cove, called shallop cove head, stretches off a shoal, one cable's length from the shore, and continues near the same distance, quite to the head of the harbour.

From the island of Ledges to green island, the course is S. 30° W. distant 5 miles. On the east side of this island is a cove, wherein a fishery is carried on. Between this island and the main, and between it and the island Bois, is a clear, safe passage.

The island of Bois lies 2 miles to the eastward of Green island, and is of a moderate height, and a safe passage all round it. To the northward of this island, lies Blanche Sablon, in which is anchorage, but the ground is not very good, being a loose sand.

From the south point of the Isle aux Baus, to the west point of Forteaux bay, the course is N. 70° E. distant 8½ miles. This bay is 3 miles broad, and nearly the same depth, at the head of which, on the west side, is good anchorage, from 10 to 16 fathoms water, but is open to the southward. Off the east point of this bay is a rock, which makes in the form of a shallop under sail, either coming from the eastward or the westward. On the west side of the bay is a fall of water, which may be seen in coming from the eastward.

Wolfe cove, or l'Ance a Loup, lies 1 league to the eastward of Forteaux bay. The land between these bays, being rather low near the shore, at the head of this cove is tolerable good anchorage in 12 fathoms. On the west side lies Schooner cove, in which is very good anchorage

for small vessels in 7 fathoms water, sandy bottom. The two points that form the entrance of this cove, bear N. N. E. ¼ E. and S. S. W. ¼ W. distant 2 miles. The east point is high table land, with steep cliffs to the sea, stretching N. E. 2 miles nearly, and called the Red cliffs.

From the red cliffs to the west point of St. Modeste bay, the course is N. 38° E. distant 7 miles, then N. by E. ½ E. 1 mile to St. Modeste island, which is a small low island, within which small craft may anchor, but is a bad place.

Ship head lies 1¾ mile to the N. by E. from St. Modeste island. Round this head to the northward, is Black bay, in which there is tolerable good anchorage in 10 fathoms water.

From the west end of Red cliffs, to the west point of Red bay, the course is N. 47° E. distant 6 leagues. This is an excellent harbour, and may be known by Saddle island, which lies at the entrance of this bay, and is high at each end, and low in the middle, and by a remarkable round hill on the west side of the bay, opposite the west end of Saddle island; the land on the west side the bay is high, and on the east side rather low. At the head of this bay it is high and woody.

There is no danger in sailing into this bay, passing to the westward of Saddle island, and taking care to avoid a small rock that lies near the west point on the main (which shews above water at a ¼ ebb) and a shoal which stretches off about a cable's length from the inner side of Saddle island. The Western bay lies in to the northward of the west point, in which is very good anchorage from the westerly winds, but open to the eastward. There is no passage, except for boats to the eastward of Saddle island. In coming from the eastward, care must be taken to avoid a small rock, which lies 1 mile from the Twin islands (which are two small black rocky islands, lying off the east end of Saddle island) and near 1 mile off shore. The aforementioned high round hill on the west side of the bay, on with the saddle on Saddle island, will carry you on this rock; the sea generally breaks on it.

Two leagues and a half to the eastward of Red bay, lies Green bay, in which is tolerable good anchorage for small vessels, in 12 fathoms water, but open to the S. E. winds. From Saddle island to Barge point, the course is E. N. E. distant 10 miles, and from thence to the entrance of Chateaux bay, is N. E. by E. distant 5½ leagues.

At Red bay, the tide flows, full and change, at ½ past 9 o'clock.

At Forteaux bay, at 11 o'clock.

At Bradore, at ½ past 11 o'clock.

In all which places it flows up and down, or upon a perpendicular, spring tides, 7 feet; neap tides, 4 feet.

Description of the Coast of Labrador *from* Cape Charles *to* Cape Lewis.

[N. B. The Bearings hereafter mentioned are the true Bearings, and not by Compass; the variation was 27° W. in the year 1770.

Cape Charles island lies E. distance 1¼ mile from Cape Charles, and is of a moderate height, with several small rocks to the eastward and westward of it.

From the north point of Cape Charles island into Alexis harbour, the course is W. N. W. 4 miles. This island is very small and rather low. Within this island is an excellent harbour, formed by several high islands and the main; in this harbour is very good anchorage from 17 to 22 fathoms water, muddy. You may sail into it on either side of Centre island, but to the northward of it is the best passage.

From Cape Charles island to the Battle islands, the course is N. N. E. 5½ miles. This course will carry you to the eastward of the rocks, which lie 1 mile to the eastward of the northernmost Battle island. This island is high and round at the top.

From the northernmost Battle island to the River islands, the course is N. 76° W. distance 7½ miles. To the westward of the easternmost River island, is anchorage for vessels in 30 or 35 fathoms water, muddy bottom. Vessels may pass to the southward of these islands, up the river St. Lewis.

From the south point of the easternmost River island to Cutter harbour, the course is S. 50° W. distant 1 mile. In this harbour there is tolerable good anchorage for small vessels.

From the northernmost Battle island to the entrance of the river St. Lewis the course is N. 61° W. 7½ miles; from thence the course up the river is W. by N. 5 miles; then N. 58° W. 8 miles to Woody island. (The north point of the river is low land for about 2 miles up, then the land is rather high on both sides and woody; at the head of the river is very fine wood of different kinds, such as birch, fir, juniper, and spruce: this river seems to be well stored with salmon.) At about 4 miles up the river is very good anchorage, and continues so till you come up as high as Woody island; but above this island there are several shoals.

One mile to the northward of the north of St. Lewis' river, lies the entrance of St. Louis' sound, which runs up W. by N. 1 league, at the head of which is very good anchorage, in taking care to avoid a shoal which stretches off from a sandy beach on the larboard side at about 2 miles within the entrance.

From the northernmost Battle island to the entrance of Deer harbour, the course is N. 51° W. distance 3 leagues. This is a very good harbour, in which you anchor from 18 to 10 fathoms water, secure from all winds. To sail into this harbour there is not the least danger, and the best anchorage is at the back of Deer island.

From the northernmost Battle island to Cape St. Lewis, the course is N. N. W. ½ W. 5 miles. This cape is high, ragged land; 1½ mile to the N. W. of the cape lies Fox harbour, which is but small, and only fit for small vessels, but seems to be very convenient for a fishery.

Description of the coast of Labrador, *from* St. Michael *to* Spotted Island.

[N. B. The Bearings hereafter mentioned, are the true Bearings, and not by Compass; the variation was 32° W. in the year 1770.]

Cape St. Michael lies in the latitude of 52° 46′ N. is high land and steep towards the sea, and is to be known by a large bay which forms to the northward of it, having a number of large and small islands in it; the

largest of these islands, called Square island, lies in the mouth of the bay, and is 3 miles long, and very high land.

The best anchorage for large vessels in St. Michael's bay, is on the south side; that is, keep Cape St. Michael's shore on board, then keep along the south side of the first island you meet with, which is called Long island, till you come near as far as the west end of it, and there anchor from 12 to 20 fathoms; you will there lay land-locked, and may work out again to sea on either side of Long island.

From Cape St. Michael to the entrance of Square island harbour, the course is N. 63° 30′ W. distance 3½ miles; in the entrance lies a small island, of a moderate height; the best passage is to the westward of this island, there being only two fathoms water in the eastern passage.

The N. E. point of Square island is a high round hill, and makes (in coming from the southward) like a separate island, being only joined by a low narrow neck of land, N. 54° W. distance 1 league. From this point lies the entrance into Dead island harbour, which is only fit for small vessels, and is formed by a number of islands; there is a passage out to sea between these islands and the land of Cape Bluff.

Cape Bluff lies N. by W. distance 8 miles from Cape St. Michael, and is very high land, ragged at top, and steep towards the sea. These capes form the bay of St. Michael, in which are several arms well stored with wood.

Cape Bluff harbour is a small harbour, fit only for small vessels. To sail into it, keep Cape Bluff shore on board till you come to a small island, and then pass to the westward of it and anchor.

From Cape Bluff to Barren island, the course is N. ½ E. distance one league. From the south point of this island to Snug harbour, the course is W. distance 1½ mile. This harbour is small, but in it there is very good anchorage, in 26 fathoms water, and no danger sailing into it.

One mile to the northward of Barren island lies Stony island. On the main within these islands lie Martin and Otter bays, in the northernmost of which is very good anchorage, with plenty of wood, and no danger but what shows itself.

On the west side of Stony island is a very good harbour for small vessels, called Duck harbour. Large vessels may anchor between the west point of Stony island and Double island, in 20 or 24 fathoms water, and may sail out to sea again on either side of Stony island in great safety.

Hawke island lies 1 mile to the northward of Stoney island. Within Hawke island lies Hawke bay, which runs to the westward 2 leagues, and then branches into 2 arms, one running to the S. W. 2 leagues, and the other W. 5 miles; these arms are well stored with wood. After you are within Pigeon island, there is very good anchorage quite to the head of both arms.

On the south side of Hawke island lies Eagle cove, wherein is very good anchorage for large vessels in 30 or 40 fathoms water. Small vessels may anchor at the head in 7 or 8 fathoms.

On the main, within Hawke island, about 5 miles to the N. E. of Hawke bay, lies Caplin bay. Here is very good anchorage in this bay, and plenty of wood at the head.

Partridge bay lies 5 miles to the northward of Hawke island. In it is very good anchorage, but difficult of access, unless acquainted, by reason of a number of small islands and rocks which lie before the mouth of it. The land hereabouts may be easily known. The south point of the bay

is a remarkable high table hill and barren ; all the land between this hill and Cape St. Michael being high, the land to the northward of it low.

From Cape St. Michael to Seal islands, the course is N. ½ E. distance 9 leagues.

From Seal islands to Round hill island, the course is N. ¾ E. distance 13 miles. This island is the easternmost land on this part of the coast, and may be known by a remarkable high round hill on the west part of it.

From Round hill island to Spotted island the course is N. 36° W. distance 2 league. From Spotted island the land tends away to the N. W. and appears to be several large islands.

From Seal islands to White rock, the course is N. by W. ½ W. distance 2 leagues. From this rock, the course into Shallow bay is S. W. distance 2 miles.

Here is tolerable good anchorage in this bay, and no danger, except a small rock which lies off a cove on the larboard hand, and about ½ of the bay over ; this rock showeth above water, at low water. There is very little wood in this bay.

From White rock to Porcupine island, the course is N. 52° W. distance 2 leagues. This island is high and barren. You may pass on either side of this island into Porcupine bay, where is very good anchorage, but no wood.

Sandy bay lies on the S. E. part of the island of Ponds, and N. W. by N. ½ W. distance 5 miles from White Rock. In it is very good anchorage in 10 fathoms water, sandy bottom, and seems very handy for a fishery, except the want of wood. Between this bay and Spotted island are a great number of islands and rocks, which makes this part of the coast dangerous.

Remarks made between the Island of Groias *and* Cape Bonavista.

The island Groias lies 2 leagues from the main, is about 5 leagues round. The north end of it lies in the latitude of 51° N. off from which at 1½ mile distance are several rocks, high above water, also off from the N. W. part ; otherwise this island is bold too all round. Between it and the main is from 20 to 40 fathoms water.

The harbours of Great and Little St. Julien's and Grandsway, lie within the island of St. Julien, which bears N. W. ¾ N. distant 8½ miles from the north end of Groias. The S. W. end of it is but very little separated from the main, and is not to be distinguished as an island, till you are near it. There is no passage at the S. W. end but for boats. To sail into these harbours, you may keep close to the N. E. end of the island, as you pass which the harbours will appear open to you. There is no danger in the way to Great St. Julien's, which is the easternmost harbour, until you are within the entrance, then the starboard side is shoal near ⅓ over ; when you are past the first stages, you may anchor from 8 to 4 fathoms water : to sail into Little St. Juliens, you must (to avoid a sunken rock, which lies directly before the mouth of the harbour) first steer directly for Great St. Julien's, till you are abreast of the entrance of Grandsway : then you may steer directly into Little Julien's, and anchor in 4 or

5 fathoms water. Ships in both these harbours commonly moor head and stern.

Grandsway is not a harbour for ships : but very convenient for fishing craft.

Croque harbour lies 4 miles to the southward of St. Julien's island, and has been before described.

Four miles and a half to the southward of Groias lies Belle isle, which is above 20 miles round ; there is a little harbour at the south part of this island fit for fishing craft, but it is too difficult for shipping. There are some other coves about this island, where shallops may shelter occasionally.

S. S. W. 7 miles from Croque harbour lies Carouge harbour, which bears W. ½ N. from the south end of the island Groias. Immediately within the entrance of this harbour it divides into two arms, one to the N. W. the other to the S. W. Directly in the middle of the S. W. arm is a shoal, on which is only 7 or 8 feet water at low water ; you may pass on either side of it, and anchor from 20 to 8 fathoms water, in good holding ground : There is also good anchoring in the N. W. arm ; but, in general is not so good as in the S. W. arm.

S. S. W. 3 miles from the south point of Carouge harbour lies Fox head, round which, to the N. W. lies Conch harbour, in which is good anchorage, well up to the head of it, in good holding ground, in 11 fathoms water. It is open to the S. S. E.

About 2 leagues to the S. W. from Conch, is Hilliard's harbour, by the French called Botitot ; this is but a very indifferent place for shipping, but convenient for fishing craft.

Four miles and a half further to the S. S. W. is the harbour of Englée. This harbour is situated on the north side of Canada bay. To sail into this place, you must pass a remarkable low white point on Englée island, which forms the north entrance of Canada bay ; then keep near the shore, until you are abreast of the next point which makes the harbour ; then haul round to the S. E. taking care not to borrow too near the point, it being shoal a cable's length off ; and you may anchor from 15 to 7 fathoms, very good holding ground ; but this is well up in the cove, which is too small to lie in, unless moored head and stern. In Bide's arm, which runs up north from Englée, near 2 leagues, there is no good anchorage, it being very deep water : Within the south end of Englée island there is a good harbour for shallops ; but there is no passage even for boats, from thence to the place where the ships lie, except at high water, or, at least, half tide.

Canada bay lies up N. N. W. from Point Canada, (which is the south point that forms the entrance of Canada bay) upwards of 4½ leagues. This bay cannot be of any use for shipping, otherwise than as a place of shelter in case of necessity. On being caught near the shore in a hard gale of easterly wind, ships may, with the greatest safety, run up and anchor in this bay, free from all danger. In such case, when you are above 2 small rocky isles, which lie near Bide's head, called the Cross islands, you will observe a low white point, and another low black one a little above it. Off the latter a sunken rock lies about 2 cables' length ; therefore keep the middle of the bay, and you will meet with no danger, except a rock above water, which lies a mile below the point of the narrows ; leave this rock on the larboard hand, keeping the middle of the water, and you will carry 18 fathoms through the narrowest part ; soon after you are above which, the bay widens to upwards of a mile across ;

and you may anchor in 18 and 20 fathoms water, good holding ground, and secure from all winds.

Three miles south from Canada point is Canada head. It is pretty high, and very distinguishable, either to the northward or to the southward; but when you are directly to the eastward of it, it is rather hid by the high lands, in the country, called the Clouds.

Upwards of 4 miles to the S. W. from Canada head is Hooping harbour, by the French called Sansford. This place has 2 arms, or rather bays, the one lying up the northward, and the other to the westward. There is very deep water in the north arm, until you approach near the head; it is a loose sandy bottom, entirely open to southerly winds, and not a place of safety for shipping. In the westward arm a ship may safely anchor in a moderate depth of water.

About 4 miles to the southward of Hooping harbour is Fouchee. There is no anchorage in this place until you approach near the head, where there is a cove on the north side. The land is extremely high on both sides, and deep water close to the shore. This cove is about 2 or 3 miles from the entrance, in which there is anchorage in 18 fathoms water, but so small, that a ship must moor head and stern. There is another arm, which runs near 2 miles above this; it is extremely narrow, and so deep water, that it is never used by shipping.

Three leagues to the S. W. from Fouchée, is Great harbour deep, by the French called Bay Orange: It may be known from any other place, by the land at its entrance being much lower than any land on the north side of White's bay, and bears N. W. ½ N. from Partridge point. This is a large bay. A little within the entrance there is a small cove on each side, generally used by the fishing ships, though very dangerous for a ship to lie in: They always moor head and stern; notwithstanding, if a gale of wind happens to the eastward, they are in the greatest danger. Near 3 miles within the entrance of this bay, it branches out in 3 arms. In the north arm, which is much the largest, there is so deep water, you will have no anchorage until you approach near the head; the middle arm is the best place for ships to anchor, in 7 fathoms water, and a good bottom.

From Orange bay, 2 leagues to the S. W. is Grandfather's cove, by the French called l'Ance l'Union. This is an inlet of about 2 miles, directly open to the S. E. winds; it may be known when near the shore, by the north point of it appearing like an island, and bears N. W. by W. ½ W. from Partridge point. It is but an indifferent harbour for shipping. Scarcely 2 miles further, is another inlet, called Little harbour deep, by the French, la Vache. This is also directly open to the S. E. winds; off the north point of this inlet, are some rocks, ½ a mile from the shore, which always shew above water, about which is good fishing ground; the water is not very deep in any part of this inlet, and when you are half way from the entrance to the head, it becomes quite shoal.

About 2 leagues further to the S. W. is Little cat arm, which is an inlet that lies up west 2 miles. This inlet is about 2 miles from Great cat arm. Off the north head there are some rocks, which shew above water; to avoid which, in sailing in, keep nearest to the south side; but you will find no anchorage till you approach near the head of this arm, where you will be securely land-locked.

Upwards of 3 leagues to the S. S. W. from Great cat arm, is Coney arm head. This is the most remarkable land on the west side of White bay: it bears W. S. W. distance 3 leagues from Partridge point. The land, all the way, runs nearly straight, until you come to this head, which pro-

jects out nearly 1½ mile, forming a deep bight, which is called Great Coney arm. There is no kind of shelter for shipping at this place. N. W. from the head, is Little Coney arm, which is a convenient little place for fishing craft, but at the entrance it is too shallow for a ship.

From Coney head, about 4 miles further up the bay, is a cove called Frenchman's cove, in which a ship might safely anchor.

From Frenchman's cove, about a league further to the south, round a low ragged point, is Jackson's arm, in which is pretty deep water, except in a small cove on the starboard hand, where a ship may moor head and stern. This place affords the largest timber in White's bay.

From Jackson's arm, 4 miles further to the southward, is the north end of Sop's island, which bears S. W. ½ W. distance about 10½ miles from Partridge point. This island is 11 miles in circuit, by which, and Goat island, is formed a long passage, or arm, called Sop's arm; in the north of which a ship may safely anchor, just within the north end of Sop's island. The best passage into this arm is by the north side of Sop's island. There is also anchorage between Sop's island and the main, before you come the length of Goat island, but the water is deep; there is a cove at the north end of this island, called Sop's cove, and 2 other small coves opposite on the main, called Hart's coves, in all of which a fishery is carried on, but ships generally anchor in the upper part of the arm, within Goat island.

From the north end of Sop's island, to the river at the head of the bay, the distance is upwards of 6 leagues. This place is called gold cove. Here the river branches out into several small streams of water.

Near 5 leagues down from the river head, and nearest the S. E. side of the bay, lies Granby's island, by some called Mid-bay island. This island affords no cove nor shelter for boats. On the S. E. part, about 2 cables' length off, there is a shoal, whereon is not above 1½ fathoms water. Nearly abreast, or rather below this island, on the S. E. side of the White bay, is Purwick cove, in which shipping may safely anchor, and good conveniencies for the fishery. About 5 miles to the N. E. of this cove, and W. by S. ½ S. from the north end of Sop's island, lies Westward arm. This arm lies up about S. E. 4 miles, in which ships may safely anchor, in about 18 fathoms water: there is a cove on each side of this arm, at its entrance: that on the N. E. side, called Bear cove, is much the best, where small ships may securely moor, sheltered from all winds, in 12 fathoms water; the other cove, which is called Wild cove, is but an indifferent place, being open to the N. W. winds, and a foul rocky bottom; the point on the N. E. side of Western arm, is called Hauling point.

Two leagues to the N. E. of Hauling point, is another arm, lying up about S. E. by S. 3 or 4 miles, called Middle arm. At the entrance of this arm is a rocky island, from which, quite home to both shores, is a shoal, whereon is from 1 to 2, and in some places 3 fathoms water. The best passage into this arm is, to keep the larboard shore on board; but this is not proper for large shipping. Between this arm and Hauling point lie the Pigeon islands, about which is good fishing ground.

About 1½ mile to the N. E. from Middle arm, is another, called Southward arm, in which a ship may safely anchor in 17 fathoms water, entirely land-locked; here she will be nearly 3 miles within the heads, but there is good anchorage in any part below, from 20 to 25 fathoms, before you are near so far up. A little above the inner point, on the north side, is a mussel bank entirely across the arm, which is nearly dry at low water; and above this bank you will again have 11 and 12 fathoms, and continues

deep to the river head. This arm is nearly 5 leagues above Partridge point, and may be known, when sailing up the S. E. side of the White bay, by its being the first inlet, and bears W. by S. from Coney arm head, which lies on the other side of the bay, and which head is always very conspicuous.

Near a league from Southward arm, towards Partridge point, is Lobster Harbour. This is a small round harbour, with a shoal narrow entrance; at low water, at some places in the entrance, there is not above 8 or 9 feet water, but after you are in, you will have 12 and 13 fathoms all over the harbour. Small ships may enter at proper times of tide.

It flows on full and change days, nearest E. by S. and W. by N. in all places in White bay. From Canada head the current generally sets up the White bay, on the N. W. side, and down the bay on the other side; and between Partridge point and cape John, it generally runs about S. E. by E. It is observed that the flood or ebb, scarce ever makes any alteration in the course of the current.

From Canada head to Fleur de Lys, the course is south nearly 10 leagues. This harbour is situated about 4 miles to the S. E. from Partridge point, and bears S. W. by W. ½ W. distance about 10 miles from the west end of the westernmost of the Horse islands. The entrance of this harbour is not distinguishable, until you come pretty near the shore: but it may be known at a distance, by a mountain over it appearing something like the top of a fleur de lys, from which it takes its name. There is no danger in sailing into this harbour, until you come within 2 cables' length of the harbour island, which is on the south side, at which distance there lies a rock, whereon there is not above 6 feet at low water; it is shoal from this rock home to the island; to avoid which keep the starboard or north shore on board, and you may come too in any part of this harbour above the said island, in 4½ and 5 fathoms water, sheltered from all winds.

The two Horse islands are situated between Partridge point and cape John. The west end of the westernmost Horse island bears E. ¾ N. distance 10 or 11 miles from Partridge point; and the S. E. part of the easternmost island bears N. W. by W. from cape John, distance near 5 leagues. These islands are about 6 leagues in circuit, and tolerable high; there are 3 rocks above water, lying to the northward of the easternmost, and on the east side of the said island are sunken rocks, at some places near a mile from the shore. There is a small harbour, fit for shallops, at the S. E. part of this island.

Bay Verte and Mynx lie to the S. E. from Fleur de Lys, are small places not fit for shipping. At Mynx it is impossible for more than one ship to lie, which is between a small rock island and the main, moored head and stern. Between these places is bay of Verte or Little bay, which runs up S. E. full 3 leagues; and towards the head there is plenty of good timber. Bay of Pine, or Mynx, is an inlet of about five miles, affords no anchorage, except at Mynx, which is at the entrance as before mentioned.

Near 5 leagues to S. E. from Fleur de Lys, is the harbour of Pacquet, at ½ a mile within the entrance. This harbour divides into 2 arms, the one extending to the N. W. and the other to the S. W. The N. W. arm is a very good place for shipping to lie in entirely land-locked; the S. W. arm is a mile long, but narrow, yet is a safe snug harbour. This harbour is not very distinguishable until you approach pretty near; it bears S. ½ W. from the passage between the Horse islands, and may be known by the south head, it being a high rock mountain; the north point is rather low, off

which lie 3 rock isles; both shores are bold too. Steer directly in, and anchor in the N. W. arm, in about 14 fathoms water.

About 2 leagues from Pacquet, to the S. E. is Great round harbour. This is a convenient little harbour for fishing ships; there is no danger in sailing into it; both shores being bold too, you may anchor within the two inner points, in 4 and 5 fathoms, entirely land-locked. Little round harbour, which is about 1½ mile round a point to the N. E. from this, is not fit for shipping; it is only a cove, wherein is but 2 fathoms, and a loose sandy bottom.

About 4 miles to the S. W. from cape John, is the small harbour of La Cey. This place is open to the N. N. W. There is no danger in sailing in; you may anchor in any depth you please, from 8 to 3 fathoms water.

Cape John is a lofty ragged point of land. It lies in the latitude of 50° 6′ N. and may be known by the Bull isle, which is a small, high, round island, bearing nearly east, about 4 miles from the pitch of the cape.

From cape John to the bay of Twilingate, the course is S. E. by E. distance 11 or 12 leagues. This is but an indifferent place for shipping, it being directly open to the N. E. winds, which heave in a very great sea. N. ½ W. about 4 miles from the entrance of this bay, there is a bank, on which, in the winter, the sea has been seen to break, between which and the shore there are from 50 to 80 fathoms water.

Wire cape cove, which lies on the west side of the westernmost Twilingate island, that makes Twilingate bay, is a place for fishing craft only.

From Cape John to Fogo head, the course is E. by S. ¼ S. distance 17 or 18 leagues. Immediately to the eastward of this head is Fogo harbour. This is a pretty good harbour for fishing ships, &c. but the entrance is intricate and dangerous. To sail into this harbour with a westerly wind, and coming from the westward, keep close on board of Fogo head; it is very bold too, and nothing to fear until you open a narrow entrance, scarcely half a cable's length wide. Steer directly in, keeping right in the middle, and you will carry from 8 to 4 fathoms water through. When you are through this passage, which is commonly called the West Tickle, if you intend to anchor in the westward bight, steer to the S. E. till you bring the point between the bights to bear W. by N. to avoid the harbour rock, which is a sunken rock, that scarcely ever shows but at dead low water spring tides; then you may haul up to the westward, and anchor from 6 to 5 fathoms, good holding ground, and sheltered from all winds.

Coming from the westward, you must not be afraid to make bold with Fogo head, otherwise you will miss the West Tickle: and as there is generally (more particularly with a westerly wind) a strong current running to the eastward, ships making that mistake, seldom can work up again; Coming from the eastward, and bound into Fogo, to avoid Dean's rock, (which is a sunken rock, in the passage between Joe Batt's point and Fogo harbour) when abreast of Joe Batt's point, you must steer W. N. W. (by compass) until a remarkable round hill, called Brimstone hill, appears in the hollow of the harbour. Then you may steer directly for the East Tickle, which may be known by the lantern on the top of Sim's isle, which makes the west side of the Tickle; as you approach, you will discover the entrance. Give birth to the point on the starboard hand, which is that on Sim's isle, and steer directly up the harbour, keeping nearest the south side, and you will carry from 5 to 3 fathoms water through: immediately when you are round the point, steer S. S. W. to avoid the

harbour rock, and follow the above directions for anchoring. As there are 2 entrances to this harbour, and both narrow, you may choose according to the wind. The middle Tickle is only fit, and even intricate, for shallops, though it appears the widest.

About 7 miles to the N. E. from the entrance of Fogo harbour lies Little Fogo island; from which, above 2 leagues distance, to the northward, eastward, and westward, lie a great number of small rocks, above and under water, which makes this part of the coast exceeding dangerous, especially in foggy weather.

Between the bay of Twilingate and Fogo head, nearly midway, lies the isle of Bacalean. To the S. W. from this island, near 3 miles, is the harbour of Herring neck, which is a fine harbour, sufficient for any ships.

From the round head of Fogo, which is the N. E. part of the island, to the outermost Wadham's island, the course is S. E. by E. distance 14 or 15 miles. There is a very good passage between these islands, often used by shipping. This passage is above a mile wide, and is between the second and third island; that is, you are to leave 2 of the islands without, or to the northward of you. Those islands are about 5 leagues in circuit, and lie near 2 leagues from the main land.

From the outermost of Wadham's islands, that is the N. E. isle to the Gull isles off Cape Freels, the course is S. E. distance 10 leagues. Gull isle is a small rock island, and lies about a mile and a half from the pitch of Cape Freels, which is a low point of land; between this cape and Green's pond island are several small islands and sunken rocks along shore. There is no passage from the cape towards Green's pond for shipping within the Stinking isles, without being very well acquainted.

The Stinking islands lie S. S. E. 2 leagues from Gull island, and N. N. W. 13 leagues from Cape Bonavista.

N. ¼ E. from Cape Bonavista, and N. 27° E. about 10 leagues from Cape Freels, lies Funk island. This island lies in the latitude of 49° 52′ N. it is but small and low, not to be seen above 4 or 5 leagues in clear weather. There are 2 small isles, or rather rocks, at a small distance from the N. W. part. This island is much frequented by sea birds of various kinds.

About W. N. W. distance 7 leagues from Funk island, lie the dangerous rocks, called Darel's ledge, upon which the sea almost always breaks.

Green's pond harbour is situated on the west side of Bonavista bay, and bears from the Stinking isles, S. 63° W. distance upwards of 4 leagues. It may be known by the Copper islands, which lie to the southward of the harbour, and are pretty high, and sugar-loaf topped. This harbour is formed by several islands, that are detached about half a mile from the main land, the largest of which is called Pond isle, and makes the north side of the harbour. This island is tolerable high, and near 5 miles in circuit. The other islands, making the south side, are but small. This is but a small harbour. Towards the upper part 2 ships can scarcely lie abreast. There is no danger in sailing into this harbour, until you approach its entrance, where you must be careful of a shoal; it is but of very small extent, whereon is not above 6 or 7 feet at low water; you may pass on either side of this shoal; but the north side is the widest and best passage.

S. 70° W. about 4 miles from the Copper island is Shoe cove point. About 2 miles to the northward of this point lies New harbour, in which ships may safely anchor, though it is but a small harbour.

Indian bay runs up west about 4 leagues above this harbour; at the head of which there is plenty of good timber.

From Copper island to the Gull isle of Cape Bonavista, the course is S. E. ½ S. distance 10½ leagues; and S. 20° W. distance 2 leagues from Gull island, lies Port Bonavista. It is a very unsafe place for ships to ride in, being directly open to the winds between the N. and W. and a loose sandy bottom.

Barrow harbour bears W. ½ N. 8 leagues from Port Bonavista. This is a very good harbour.

From Port Bonavista, W. ¼ S. about 10 miles, lies the little harbour of Keels, which is only fit for fishing craft.

Directions for navigating from Cape Race *to* Cape Bonavista, *with remarks upon the Fishing Banks.*

From Cape Race to Cape Ballard, is N. N. E. about 3½ or 4 leagues, between which, about half way, is Clam cove, which is only for boats: and near to Cape Ballard is another cove, called Chain cove, where are several rocks lying before it (but there is no harbour, or bay, for ships to ride in) and fish between the two capes.

But to the northward of Cape Ballard is another cove for boats; and about 4 miles from the cape is Freshwater bay, near half way between Cape Ballard and Renowes, Renowes being the southernmost harbour the English have in Newfoundland.

From Cape Ballard to the south point of Renowes, the course is N. N. E. about two leagues. Renowes is but a bad harbour, by reason of sunken rocks going in, lying off the fairway, besides other rocks on each side, but it is a good place for fishing.

Those who go in there should be very well acquainted; when you are in, where ships usually ride, you have not above 15 feet water, and but small drift, by reason of shoals about you, and a S. S. E. wind brings in a great sea, so that it is very bad riding, and only used in summer time: the harbour lies N. W. about a league in; but you must keep the south side going in, for that is the clearest.

Off the south point of the entrance of the harbour is an island, a small distance from the shore; and off the said south point of the harbour, S. E. by E. about half a league, is a great rock high above water, called Renowes rock, which you may see at least 3 leagues off in fair weather, but the rock is bold to go on either side.

From Renowes point to Fermowes is 1½ league N. E. by N. N. E. and N. tending about, but being a little without Renowes, the course will be N. N. E. till you come open of the harbour of Fermowes. Between the said two harbours is a cove, called Bears' cove: a place only for boats to stop at if the wind be contrary, but no inhabitants.

Fermowes is a very good harbour, and bold going in, no danger but the shore itself; it lies in N. W. and N. W. by W. Being past the entrance, there are several coves on each side of the harbour, where ships may and often do ride; the first cove on the starboard side (going in) or north side, is called Clear's cove, where ship's seldom (but may) ride; the next within it, a little distance on the north side, is the Admiral's cove (where

lives a planter ;) in this cove you lie land-locked from all winds, and ride in 7 or 8 fathoms, good ground.

The Vice Admiral's cove (so called) is on the south side, farther in, or more westerly, and is a very good place to ride in for many ships, good ground, and above the said cove, on the south side, farther in, is another arm or cove, where also you lie secure. You have about 20 fathoms water in the entrance of the harbour ; but within you have from 14 to 12, 10, 9, 8, 7, and 6 fathoms, as you please, and the head runs up at least 4½ miles.

From Fermowes to Augua fort, the course is N. by E. about a league, between which are two heads, or points of land, about a mile from each other, the southernmost, or next to Fermowes, is called Bald head, about a mile from the harbour's mouth of Fermowes ; between which is a pretty deep bay, but all full of rocks, and no safety for boats to come on shore at in a storm ; it is but a mile from the harbour, which is safe for ships or boats, and not above 2 miles to the entering of Agua fort.

The next head to the northward of Bald head is Black head, lying N. and S. one from the other, about a mile asunder ; and from Black head to the point of Agua fort harbour, is N. W. by N. 1 mile, which harbour is very good, and safe, for ships ; it lies in W. N. W. There is a great rock above water going in on the south side, which is bold too ; you run up about 2 miles within the harbour's mouth, and ride on the north side, and lie land-locked, as it were a pond, like to Ferryland pool, but larger, where, with a piece of timber, you may make a stage from your ship to your stage on shore, being an excellent harbour, and water deep enough.

From Agua fort to Ferryland head (the south part of the head) the course is east, about 3 miles. Crow island, being about a mile from Agua fort, lies E. N. E. from the harbour's mouth, and from the S. E. end of Crow island lies a shoal about a cable's length.

From the north part of Ferryland head to Ferryland, the course is W. by N. about 2 miles ; to go into Ferryland port or harbour, you must sail between the north part of Ferryland head and Buoy island ; it is not very broad, but there is water enough, and clean ground ; being within the said Buoy island, you may run in and anchor where you please, it being of a good handsome breadth ; or you may go into the Pool, which is a place on the larboard side (going in) with a point of beach, where you ride in 12 feet water at low water, and where the admiral's ships generally ride (the stages being near, several planters, inhabitants, live in this place.) From Buoy island, almost in to the land to the westward, are small islands and rocks, which make Ferryland harbour, or port, and divide it from Caplin's bay ; between the said rocks, in some places, is a passage for boats, and the water rises hereabouts 3½, 4, and sometimes 5 feet, and sometimes 3 feet, and so it does generally in all the harbours of this land.

From Ferryland head to Cape Broyle head, is N. by E. almost 4 miles, between which are three islands, which lie before Caplin's bay ; there are channels to sail between them to Caplin's bay, that is, between Buoy island, which is the sternmost and greatest, and Goose island, which is the middlemost, and is the second in bigness next to Buoy island ; also you may sail through between Goose island, which is the middlemost, and stone island, which is the northernmost ; but these passages are large enough for ships to sail or turn in or out ; but between Stone island and the north shore (that is, Cape Broyle) there is no passage for a

ship, only for boats, there being a great rock between Stone island and the north shore.

Caplin's bay is large and good, and runs in a great way W. N. W. at least 6 miles within the said islands, where many ships may ride in good ground, and where sometimes the Newfoundland ships meet that are bound with convoy to the Streights, but generally rendezvous at the bay of Bulls.

From Cape Broyle head (the north part of it) which lies in the bay or harbour of Cape Broyle, W. N. W. and N. W. by W. about 7½ miles, and from the south point of the entrance to the north point or head, is about 2 miles broad, and lies N. by W. and S. by E. one from the other.

Cape Broyle is the most remarkable land on all the south coast of Newfoundland, for coming out of the sea either from the southward or northward, it makes a swamp in the middle and appears like a saddle. E. S. E. from the north point of Cape Broyle, about ¼ or ¾ of a mile, lies a sunken rock called Old Harry, on which is but 18 feet water; the sea breaks upon it in bad weather, but between the shore and it, is water enough of 12 and 13 fathoms, and without it is a ledge of about the same depth, where they used to fish, but off the ledge is deep water of 40 or 50 fathoms and deeper. In very bad weather the sea breaks home almost to the shore from Old Harry, by reason of the current that sets strong generally to the southward.

From Cape Broyle to Brigus by south (so called to distinguish it from another Brigus in the Bay of Conception) is a league, but from the north head of Cape Broyle bay to Brigus is but a little more than a mile, and lies in N. W. and N. W. by W. Brigus is a place only for small ships of not above 7 or 8 feet draught of water to ride in the cove, which is not altogether safe neither; it is a place for fishing, where live two planters; there is an island so called, where they build their stages, and make their fish upon, who come there fishing, but the water comes not quite round, unless in a great storm or rage: it is a place of little consequence.

From Cape Broyle to Cape Neddick, the course is N. by E. northerly, 5 leagues; and from Brigus point to Cape Neddick, is N. E. almost 1½ mile between which is Freshwater bay, but of no note. Cape Neddick is a high point, flat at top, and straight down to the water.

From Cape Neddick to Baline head is about ½ a league N. E. by E. between which is Lamanche. Lamanche is only a cove in the bay, where is no safe riding for any ship.

From Baline head to Baline cove is near ¾ of a mile; it is a place where ships use to keep 2 or 3 boats with a stage for fishing, where one planter lives; the place is not for ships, only small vessels may come in to lade, and lie within the rock called the Whale's Back, which rock breaks off any sea, and there are 2 rocks above water, one on each side going in, and the Whale's Back in the middle but without the said rocks that are above water.

Against Baline cove lies Goose island, about a mile, or half a league to the seaward of Baline. Goose island is a pretty large island, ¾ or near a mile long.

From Baline head to Isle de Spear is N. N. E. a mile within the greatest of the said islands, which is the northernmost. Ships every year fish there; on this island is a stage on the inside, that is, on the west side, and good riding in summer season, the island being pretty large, but the northernmost island is only a round hill fit for no use.

The next to the Isle de Spear is Toad's cove, where a planter lives, a place for boats to fish, but not for ships to ride.

A little without Toad's cove (or to the eastward) is Boxes island, between which and it is no passage, but only for boats to go through at high water.

From Baline head to the Momables bay is N. by E. about 4 miles, and lies N. W. near 2 miles; it lies open to the sea, yet is a good place for fishing.

From Baline head to the north point of Momables bay (which is the south point of Whitless bay) the course is N. N. E. northerly 4 miles off, which point is a shoal of rocks that lie a great way off, so that men must be well acquainted to go with ships between the said point and Green island, which is a small island right off against the said point, a little more than a mile; for if you intend to come through between them, then it is best to keep the island side, which is clearest.

From the said shoal point or south point of Whitless bay, the land on the south side of the bay lies in, first part N. N. W. and after more westerly.

From the south point of Whitless bay to the north point of the said bay is N. E. by N. about a league, so that it is a large going into the bay, and about a league within Gull island to the head of the bay, there is turning in or out, but about half way into the bay on the north side (where the planters live and the Admiral's stage is) there is a ledge of rocks which you must avoid: the most part of them may be seen above water: you may lie but little without the outermost, which appears dry. This is a far better bay than Momables, by reason of the Gull and Green island lying without before it; you may sail between the islands, or between Green island and the south point of Bay Bulls, yet ships, after the beginning of September, will not care to ride in Whitless bay, but rather come to Bay Bulls, which is but 1½ league by sea to it, and not above 2½ miles over land.

From Cape Broyle to Bay Bulls is N. N. E. half easterly, 5 leagues from the south head of Bay bulls to the north head, called bull head, the course is N. E. northerly, 1¼ mile, or thereabouts, between which 2 heads go in the Bay Bulls, lying W. N. W. for at least two miles, and after that N. W. for about a mile, to the river head. In this bay is good riding, from 20 fathoms at the first entrance between the heads, to 18, 16, &c. after you are shot within Bread and Cheese point, which is a point half the bay in, on the north side, where there is a cove in which the Admirals keep their stage. You must give this point a little birth, for a sunken rock that lies off that point not ½ a cable's length, else all the bay is bold too, and nothing to hurt you but what you see. Being past that point, run up and anchor (or turn up) against the high hills called Joan Clay's hill (bring it N. E.) in 13 or 14 fathoms, which you will have there almost from side to side, but merchantmen run farther in, and anchor, some in 10, 9, or 8 fathoms, not above a point open, and others not above ½ a point. Men of war ride not 3 points open. Here, generally, the fleet is made up; that is, here they meet ready to sail (commonly for the Streights) by the 15th or 20th of September. It is from side to side against Joan Clay's hill as aforesaid, 430 fathoms, so that it wants but 10 fathoms of half an English mile broad.

From Bay Bulls to Petty harbour, the course is N. E. by N. 3½ or 4 leagues, between which is nothing remarkable of bays or coves, but a steep dead shore only. About midway is a place called the Spout, being

a hollow place which the sea runs into, and having a vent on the top of the land, near the water side, spouts up the water in such a manner that you may see it a great way off, especially if there be any sea, which causes the greater violence.

The entrance to Petty harbour is a large bay, for from the south point to the north point is a league distance, N. N. E. and S. S. W. and it is a league in, where the ships ride that fish there, being but a little cove. It lies in W. N. W.

From the north point of Petty harbour to Cape Spear, the course is N. E. by N. 2 miles, or thereabouts, and from thence the land tends into the N. W. to Black head, and so to the harbour of St. John's.

From Cape Spear to the harbour of St. John's is N. W. by N. 4 miles; between which are three bays; the first is from Cape Spear to Black head, and is called Cape Bay; the second is from Black head to Low point, and is called Deadman's bay, several men and boats being formerly lost in that bay; the third is from Low point to St. John's harbour, and is called Fresh water bay.

The harbour of St. John's is an excellent good harbour, (though narrow in the entrance) and the chief in Newfoundland, for the number of ships used and employed in fishing, and for smacks; as also for the number of inhabitants here dwelling and remaining all the year; it is narrow going in, not above 160 fathoms broad from the south point to the north point, but bold to the very rocks, on shore itself, and you have 16 or 17 fathoms, the deepest between the two heads; it lies N. N. W. but it is yet more narrow after the first entrance, by reason of two rocks lying within, on each side, but above water, between which you are to sail, it being just 95 fathoms broad between them. But being past them you may run in boldly, (it being then wider by a great deal,) and can take no hurt but from the shore, only within the aforesaid rock. On the south side of it, a point within Ring-noon (which is a small bay) there lies a sunken rock about 30 fathoms off the shore, which has not above 8 feet water on it. Being in the harbour, you may anchor in 8, 7, 6, 5, or 4 fathoms, as you please, and be land-locked from all winds, for it lies up W. S. W. You must observe that you cannot expect to sail in, unless the wind be at S. W. or to the southward of it, and then the wind casts in between the two hills, till you are quite within the narrow, and there you have room enough. But if it be W. S. W. or more westerly, the wind will cast out, and you must warp in.

But be sure, if unacquainted, that you mistake not the harbour of St. John's for a place called (Quiddy Viddy or) Kitty Vitty, which is within a mile of it, and shews an opening like a good harbour, as St. John's, but is not so, being a place only for boats to go in; it is narrow and dangerous, even for boats, at low water; you may know it by a round bare hill (head like) in the form of a hay-cock, which is called Cuckold's head, and is just at the south part of the entrance of this Kitty Vitty, and to the northward of St. John's $\frac{3}{4}$ of a mile, or more: but besides this your course from Cape Spear will guide you.

From St. John's to Torbay, the course is between N. by E. (being at a little distance without the harbour) and N. About $2\frac{1}{2}$ leagues between St. John's and Torbay, are several points which have names given them, that is, from St. John's to Cuckold's head, going into Kitty Vitty; the next is Small point, which lies N. E. by N. about 2 miles from St. John's; the third is Sugar-loaf point, and lies N. by E. from Small point, $\frac{1}{2}$ a league; the fourth is Red head, and lies north from Sugar loaf; about 2

miles between which, that is, Sugar loaf and Red head, is a bay, called Logy bay; and the fifth point is the south point of Torbay, and lies N. by W. ½ a point westerly, from Red head, about 2 miles. The point of Torbay is lower than all the rest. From the said south point of Torbay to the anchoring place where ships usually ride, the course is W. by N. 2 miles and more, where you anchor in 14 fathoms against Green cove. But if you are open of the bay, the course is W. S. W. for the bay is large, and at least 1 league from the south point to the north point, which north point is called Flat rock; so that if you come from the northward by Flat rock (which is a low black point, with a flat rock lying off it, and breaks on it) your course then into Torbay is S. W. a league. There live 2 planters at Torbay. It is a bad place for ships to ride in with the wind out at sea, for being open to the ocean there falls in a great sea.

From the north point of Torbay (called Flat rock) to Red head by N. the course is N. by W. about ½ a league; but from Flat rock to Black head by N. the course is N. by W. ½ W. 2 leagues.

From Black head to Cape St. Francis is N. W. 5 miles; Cape St. Francis is a whitish point, and low in comparison to the other land, but at sea the high land over it is taken for the cape. Within the point of the cape to the southward of it is a cove, called Shoe cove, where boats used to come a tilting (using the fisherman's expression) that is, to split and salt the fish they catch, when blowing hard and is bad weather, cannot get the places they belong to in time. In this cove you may haul up a boat to save her, if the wind be out, for with northerly, westerly, and southerly winds you will lie safe. There is a good place off it to catch fish.

About ½ a league off, triangular-ways, from Cape St. Francis, lie sunken rocks; the outermost lie E. N. E. from the cape, about 1¾ mile. There are also great rocks above water, like small islands, the outermost of which lies about ¾ of a mile east from the cape; and the innermost not half a mile off shore, between which rocks (or island) and the sunken rocks you may go (as has been done) with boats, and find water enough for any ship; but men are unwilling to venture, there being no advantage in the case. These great rocks make the aforesaid Shoe cove the better and more safe.

There is also another cove to the northward of the point of the cape, for boats when the wind is off the shore, but else not safe.

From Cape St. Francis to Belle Isle is S. W. and S. W. by S. 5 or 5½ leagues, being a large island, not above a league from the shore, against which island, on the main, is a cove called Portugal cove, where they used to catch and cure fish in summer time, and lies to eastward. Belle isle is about 2 leagues in length, and about 3 miles broad, and the ships that fish there lie in a little cove on the south side of the island, which will contain 5 or 6 ships, according to the rate as they lie in Bay Verds.

From cape St. Francis to the island of Bacalieu, is N. by E. about 10 leagues. Bacalieu is an island 2 leagues long, and above ½ a league broad, about which boats used to fish; there are no inhabitants on it, but abundance of fowls of several sorts, which breed there in the summer time. Between this island and the main is about a league, where you may sail through with ships, if you please. Bay of Verd's head and the S. W. end of Bacalieu lie E. by N. and W. by S. one from the other about 1½ leagues.

From Cape St. Francis to the bay of Verd's head, is N. about 8½ leagues; and from the head, to the bay or cove where ships ride, is about ¾ of a mile to the westward of the head; the place where ships ride is

not above a cable's length from one point to the other, which lie N. and S. one from the other; you lay your anchors in 10 fathoms, and your ships lie in 5 fathoms, with a cable out; your stem then is not above ½ a cable's length from the stages. The ships that ride there, are forced to seize their cables one to another, and you cannot ride above 7 or 8 ships at most; it is a bad place, and hazardous for ships to ride, except in the summer time, by reason of the great plenty of fish, and they being so near them, make fishing ships desire that place the more, although there are several inconveniences in it, as being a very bad place for wood and water, &c.

The ships lie open to the S. W. in the bay of Consumption. There is a cove also on the east side of the bay Verd's head, about a musket shot over from bay Verds itself, called Black cove, where stages are, and boats kept to catch fish.

Bay Verds is easily to be known by the island Bacalieu, and also by another head within Bacalieu, shooting out, called Split point, and also Bay Verds head itself, which is the westernmost; these 3 heads shew very bluff, and very like one another, when you come from the southward; there is no danger in going into Bay Verds but what you see. Here dwell several planters.

From Bay Verds head to Split point, which is against Bacalieu island, your course is E. N. E. about ½ a league.

From Bay Verds head to Flamborough head, is S. W. by W. about 2 leagues, Flamborough head is a black steep point, but no place of shelter for a boat, but when the wind is off the shore, neither is there any safety between Bay Verds and Carbonera (which is about 10½ leagues, and lies S. W. by S.) only 2 places for boats, the one in the S. W. cove of Green bay, which is but an indifferent place, and lies S. W. about 4½ leagues from Bay Verds; the other in Salmon cove, which is about 3 leagues to the northward of Carbonera.

From Bay Verds head to Green bay is S. W. about 4½ leagues. This bay is above a league over, but has nothing considerable in it, only the aforesaid S. W. cove, and a place in the bottom of the bay, where the Indians come every year to dig ochre, to ochre themselves.

From the south point of Green bay to Black head is S. W. a league; and from Black head to Salmon cove is S. W. by W. 4 miles; it is a place of shelter for boats, an island lying in the middle; a river in the said cove runs up, in which are plenty of Salmon.

From Black head to Carbonera is S. W. ½ S. between 4 and 5 leagues.

From Salmon cove to Carbonera, the course is S. W. about 3 leagues. The south end of Carbonera island is low, upon which is a fort of 20 guns, which the merchantmen made for their defence. The harbour of Carbonera is very bold on both sides, so is the island, between which and the main are rocks, which are just under water. This is a good place for ships to ride in, and for catching and curing fish, having several inhabitants, with good pasturage, and about 100 head of cattle, which afford good milk and butter in the summer time. There is very good anchoring, in clear ground, fair turning in or out, being a mile broad, and 3 miles in the river, riding in 5, 6, 7, and 8 fathoms, or deeper water, if you please. But to the northward of this point of Carbonera, are two coves, where planters live, and keep boats for fishing; the northernmost of these two coves is Clown cove, not good for ships, but boats, being about 2 miles from Carbonera; the other is called Crocket's cove, where

live two families, and is but a little to the northward of the entrance of Carbonera bay or port.

If you are bound or intend for Carbonera, you may go on which side the island you please, which lies without the bay (or entrance) about a mile from the shore; but if you go to the southward of the island, you must keep the middle between the point of the island and the south point of Carbonera, because it is foul off the S. W. end of the island, and off the south point of the main, therefore your best going in is to the northward of Carbonera island, and so is the going into Harbour Grace, to the northward of Harbour Grace island; Carbonera lies in W. S. W. 2½ or 3 miles, and from Carbonera to Harbour Grace S. S. E. a league or more.

Carbonera and Harbour Grace lie N. N. W. and S. S. E. one from the other, above a league; but Harbour Grace lies from the entrance W. S. W. at least 8 miles, and is a mile broad. But between Carbonera and Harbour Grace is Musketa cove, where ships may ride, but seldom use it. Here live two planters. It is not so convenient for fishing ships as other places, although clean ground, water enough, and large.

You may turn into Harbour Grace all the bay over, from side to side, and come off which side you please of the rock, called Salvages, which is almost in the middle of the channel. But there is another rock on the north side, called Long Harry, something without Salvages, near the north shore, where you go between the main and it with boats, but needless for ships, although water enough. Both the rocks are a great height above water. Being within, or to the westward of the rock Salvages, you may turn from side to side, by your lead, till you draw towards a mile off the point of the beach (within which the ships ride;) you may then keep the north shore, because there is a bar or ledge shoots over from the south side, almost to the north shore.

To know when you are near the said bar, or ledge, observe this mark: you will see two white rocks on the land, by the water side, in a bank on the north side; which shews whiter than any place else, and is about a mile below, or to the eastward of the beach, which is good to be known, being a low point, nothing but beach for some distance; keep the said north shore pretty near, where you will have 3½ fathoms on the bar, and presently after 4, 5, 6, and 7 fathoms; but if you stand over to the southward till you are got within the said bar or ledge, you will not have above 7, 8, and 9 feet water: this sand tends S. E. from athwart the aforesaid two white rocks, and runs over close to the south side, but being past that as aforesaid, you may turn from side to side, till within the beach, and ride land-locked in 4, 5, or 6 fathoms, or higher up in 7, 8, 9, or 10 fathoms, as you please. The harbour or river runs up S. W. by W. at least two leagues above the beach, navigable.

Being bound to Harbour Grace, be sure to go to the northward of Harbour Grace islands, which lie before the harbour, above a mile off, for the southward of the islands, between it and the south shore of the harbour, is foul ground: the harbour lies in W. S. W.

From Harbour Grace to Cape St. Francis, is E. northerly, 7½ leagues.

From Harbour Grace to Bryan's cove, is S. W. about ½ a league, but is no place where ships use: one planter lives there, it being a good place for catching of fish. In the entrance of this cove lies a rock in the middle, but above water. You may go in on either side with a ship, and have 4 or 5 fathoms, and anchor within it in clean ground.

From Harbour Grace to Spaniard's bay, is S. S. W. about 3 leagues.

This bay is deep and large, almost like Bay Roberts: but there are no inhabitants, neither do men use this place for fishing, but there is good anchoring all over the bay; it is but a small neck of land over Bay Roberts.

From Spaniard's bay to Bay Roberts is S. E. by E. southerly, about 2 miles. This bay is about 2½ miles broad, from the north point to the south point, which lie N. W. and S. E. one from the other; there is very good turning into the bay, and no danger but what you see. You may borrow on either side, and go close to the island, which lies on the starboard side going in. The bay is at least 3 leagues long from the first entrance; it runs up with two arms, after you are a league in, the one lies up W. N. W. and is the deepest, and the other S. W. Being past the island, or to the westward of it, which is bold too, you may run up about a mile and lie land-locked in 9 or 10 fathoms, within the island.

From Bay Roberts to Port Grave is 3 or 4 miles about the point; this bay is large, deep and very bold, as the other bays are; there is a cove on the starboard side going into this bay, called Sheep's cove, where you may moor your ship by head and stern, and ride in 4½ and 5 fathoms, but your anchor to the S. W. lies in 22 fathoms, about a cable and one quarter length from your ship.

From Sheep's cove to Port Grave, is W. by S. a mile, or somewhat more, but ships ride not within the small islands which are by Port Grave, it being shoal water within them, but ride off without them.

From Sheep's cove to Cupid's cove the course is S. S. W. about 4 miles: it is a good place for a ship or two to ride in, in 4, 5, or 6 fathoms, and not above a point open; the cove lies in S. W. and the south side of the bay to Burnt head lies N. E. by E. and S. W. by W. one from the other, about a league; for Sheep's cove, and Cupid's cove are in the same bay of Port Grave; but Cupid's cove is on the south side, and the other on the north side; the bay runs up W. S. W. and is about 3 leagues long.

Burnt head, which is the south point of the bay, and Port Grave, lies S. E. by E. and N. W. by W. 2½ or 3 miles. Burnt head is so called by reason the trees that were on it are burnt down.

From Burnt head to Brigus is S. by W. 1 league. The south point of Brigus is a high ragged point which is good to know it by; the bay of Brigus is not above half the breadth of Port Grave bay, and you run up S. W. by W. and W. S. W. about half a league, and anchor on the north side, where two planters live in a small bay. Only small ships use this place, it being so far up the bay of Conception.

From Brigus to Collier's bay is S. S. W. 2½ or 3 miles: and from Collier's bay to Salmon cove is S. about 2½ miles, but no considerable place. It is sometimes called Salmon pool.

From Salmon cove to Harbour main the course is S. S. E. about 2 miles. It is a good place for fishing, but ships seldom go so high up in the bay.

From Burnt head to Harbour main is about 3½ leagues: and from Harbour main to Holy-road is S. E. by S. about 2 miles; then the land tends about to the eastward towards Belle-isle. Holy-road has 11 fathoms water, good ground.

From Bay Verds head to Split point the course is E. N. E. ½ a league.

From Split point to the point of the Grates, N. N. W. 2 leagues.

From the point of the Grates to the N. W. or north end of the island Bacalieu, the course is E. by S. 4½ or 5 miles.

From the Grates to Break heart point, N. N. W. W. N. W. and W. tending about two points. Between the Grates and this point is a bay, where boats may lie with a wind off the land of Break heart point; there is a ledge of rocks, but above water.

From Break heart point to Sherwick point, going into Old Perlican, the course is S. W. by S. 5 or 6 miles. To the southward of Break heart point is a small island some little distance off the shore, called Scurvy island; between the said island and Sherwick point runs in a pretty deep bay, and lies in S. E. from Sherwick point, about ¾ of a mile.

Sherwick point is bold, off which is a rock above water; this point is the north point of Old Perlican. Those who are bound to Old Perlican, cannot go with a ship to the northward of the island, that is, between the island and Sherwick point. Although it seems a fair passage, yet it is altogether foul ground, and a shoal of rocks from the main to the island (which island is about a mile and ¼ round, and about ½ a mile in length;) therefore whoever intends for Old Perlican with a ship, must go to the southward of the island, between that and the main, and run in within the island, and anchor in 4 or 5 fathoms. But there is a rock just even with the water, and some under water, that lie about the middle of the bay, within the island, or rather nearest to the main. Old Perlican is but an indifferent road; if the wind comes out at W. N. W. you are forced to buoy your cables for the badness of the ground, and the boats go a great way to catch fish about 5 or 6 miles, unless it be in the very middle of summer. In this place live several planters.

From Old Perlican to Sille cove is W. S. W. southerly, about 7 leagues; Sille cove is but an indifferent place for ships such as Bay Verds.

From Old Perlican to New Perlican, the course is W. S. W. 8 leagues. This is a good harbour, where you may lie land-locked in 5, 6, 7, 8, 9, or 10 fathoms. It is very bold and large going in, so that if you can see the point before night, you may safely run in, nothing to hurt you but the shore itself; the easternmost point going in is called Smutty-nose point, and the westernmost Gorlob point, between which is the entrance, which is almost 2 miles broad, and has about 20 fathoms water; and as you sail in, it grows narrower and shoaler, lying in first W. S. W. after runs up to the westward in a bite, where you lie land-locked and above half a mile broad, so that you may turn in or out, and anchor in what depth you please, from 12, 10, 8, 6, 5, or 4 fathoms, very good ground. From New Perlican it is about 5 leagues over to Random head, and they lie nearest N. W. and S. E. one from the other. In the river or bay of Random are several arms and harbours, for Random and Smith's sound come all into one, but it is 9 or 10 leagues under the head of each where they meet, and there is a little island at the head, where is 4 and 5 fathoms; only at the island going through you have not above 12 feet water, and it is not a mile broad there. Smith's sound runs in W. S. W. about 15 leagues from Bonaventure to Tickle harbour, the bottom of Trinity bay; but there is a bay called Bay Bulls, which runs in 3 or 4 leagues, and is not over from thence to Placentia bay (the back or west side of the land) about two miles; and the islands of Placentia bay are about 9 or 10 leagues long each, and 5 broad, on which are many deer; they lie N. W. and S. E.

From Bonaventure to Ireland's eye is S. W. 2 or 2½ leagues.

From Bonaventure head to Bonaventure, the course is N. W. ½ a point westerly, about 2 miles, or more; but being got a mile from the head,

then the harbour lies N. W. by N. about a mile to the Admiral's stage. The port Bonaventure lies within two small islands, between which you sail in, but you may go on either side of the island between that and the main, if you have a leading wind no danger, and have 4 or 5 fathoms at least, and run within the said islands, and anchor in that depth, in good ground. You have there a very secure place for boats in bad weather, running in within a point behind, or to the northward of the Admiral's stages, like a great pond, leaving the planter's house on the larboard side; this place will contain above 100 boats in security.

There is an island which lies off the west point of the harbour, called Gull island, off which they used to fish; from the said island the harbour lies in N. about a mile. There are several islands which are without, off Bonaventure, the one is from the port S. S. W. 5 or 6 miles, called Green island, which is a pretty large island, and you see it as soon as you come out of Trinity harbour, in fair weather; another island lies S. W. by S. 3 miles, and another island without that, about 4 or 5 miles from Bonaventure: the course is S. W. by S.

From Bonaventure head to the Horsechops is E. N. E. 3½ leagues.

From Bonaventure head to Trinity harbour, is N. E. by N. about 3 leagues: between which are some bays, but not for ships to ride in, unless the wind is off the shore.

The Horsechops and Sherwick point (being the north point of Trinity harbour) lie W. N. W. and E. S. E. one from the other, 2 leagues. Between the Horsechops and Trinity harbour are two places where ships used to fish; the one is English harbour, and is W. N. W. from the Horsechops 2 miles, and after you are about a point, tends E. N. E. again; it is a clean bay, and you ride in 4 or 5 fathoms water: a planter or two live here.

From English harbour to Salmon cove, the course is N. W. by W. westerly about half a league; it is a place for fishing, and there is a river which runs up about 2 miles to the northward.

Without Salmon cove is a headland, called Foxes island, yet joins to the main by the neck of beach. To the northward of the said island, or headland, between it and Sherwick point, runs in a bay, called Robin Hood's; and in the said bay behind a point which lies out, small ships ride, and fish there.

From the Horsechops to Trinity harbour, the course is W. N. W. about 2 leagues. Trinity harbour is the best and largest harbour in all the land, having several arms and coves, where many hundred ships may all ride land-locked: It is a place which you may turn in or out, being bold too on either side, neither is there any danger but what you see, only going into the S. W. arm, where the Admiral's stage usually is, lies a shoal called the Muschel bank, which shoots off from the point, within the small island, on the larboard side going in, and lies over N. W. about a third of the breadth of that arm which you must avoid: Being within that bank, which will discover itself by the colour of the water, you may edge close to the south shore, if you please, or keep your lead going, to avoid the Muschel bank, giving it a little distance; you may anchor in 14, 12 or 10 fathoms, and you may come so near to the stage on shore, as to make a stage with topmasts to your stage on shore, to lade or unlade your ship. It is a most excellent harbour; for after you are in this S. W. arm, there is another runs up W. N. W. near 2 miles, and near the head of that another runs up S. S. W. but there is a bar or ledge, at the entrance of this S. S. W. arm, but the former W. N. W. is a large place, and good

anchoring for 500 sail of ships. You have besides these aforementioned arms, the main harbour, turning or lying up N. N. W. and being within the harbour's mouth, you may ride in a cove, large and good on the starboard or east side, and land-locked in good ground, where planters live; and over against that cove, on the larbourd or west side, are two other coves; the northernmost of them is called the Vice Admiral's cove, for the conveniency of curing fish; and above, or to the northward of this, is a large cove or arm, called God Almighty's cove, where there is room enough for 3 or 400 sail of ships to ride, all in clear ground, neither winds nor sea can hurt you, nor any tide, in which place ships may lay undiscovered, until you run up so far as to bring it open. Several other places there are in this excellent harbour, good clean ground, tough clay in all the arms and coves of Trinity, and have 4 and 5 fathoms water, within two boat's length, off the shore, any where, and 6, 7, 8, 9, 10, 12, and 14 fathoms, and some places more, in the middle of the arms and channels, as you please; you may turn in or out as aforesaid, observing your tide, which rises there about 4 feet, sometimes more. For not only Sherwick point is bold, which is the northernmost, but also Salvages which is the southernmost.

From the Horsechops to the south head of Cattalina bay, is N. E. by N. and N. E. 5 leagues. About a league to the northward of the Horsechops, is Green bay which runs pretty deep in, but no place where ships use to ride or fish. Being past Green bay, there is no place or cove for boats, till you come to Ragged Harbour, or Catalina.

From the south head of Cattalina bay to the north head, is N. N. E. 3 leagues, between which two heads is Ragged harbour and Cattalina harbour. Cattalina harbour lies from the south head N. by E. northerly about two miles.

Ragged harbour is so called by reason of the abundance of ragged and craggy rocks, which lie before and within the harbour; there is no going into the southward, with ships, but only for boats, and that you must be well acquainted with, for there are very many rocks above and under water.

Those who intend for Ragged harbour, with a ship, must go to the northward of all the aforesaid ragged rocks or islands, that lie before it (which make the harbour) and run so far to the northward till they bring ragged harbour open; then sail in between a round island which lies close to the main, and a great black rock, which lies off the north end of all the ragged islands; sail in till they are about the middle of the aforesaid islands, which will be to seaward of them and anchor there. There is a river of fresh water at the head of the harbour, but no inhabitants.

Two miles to the northward of Ragged harbour, is the harbour of Cattalina, which is a very good and safe harbour, and good ground, not above 8 fathoms, from 3 to 4, 5, 6, 7 or 8 fathoms, as you please. You may, with a leading wind, sail between the small island, which is a little to the southward of the harbour, and have 4 or 5 fathoms at the least going through, but it is not above a cable's length broad; or you may go without the said island, to the eastward of it, giving the island a small birth, and so sail in with the middle of the harbour; for about a mile distance from the south point of the harbour, E. N. E. is a shoal, upon which, if there be ever so small a sea it breaks; but you may sail between the island and the shoal, or you may go to the northward of it, between the shoal and the north shore, and borrow off the north side of the main, off Little Cattalina, a bay which lies in.

Being off Little Cattalina, all the way to the harbour, you have not above 10 fathoms, and from 10 to 8 and 7 fathoms, then 8 and 9 fathoms again. It is reported there is a rock which lies about $\frac{3}{4}$ of a cable's length from the south point of the entering into the harbour, which has but 9 or 10 feet water on it; however, it is easily avoided, if any such, by keeping something nearer to the north shore, till you are shut within the said point; for all the harbour over is good sounding. Close to the shore within the harbour, you may anchor in 5 fathoms, land-locked. In the S. W. arm the harbour lies in W. S. W. or you may anchor in $3\frac{1}{2}$ fathoms within, to the southward of the little small green island, within the said harbour, or run up 2 miles towards the river head, where fresh water runs down. In this harbour you may anchor in 7, 6, 5 or 4 fathoms. There is a kind of a boar rises in this place very often, that will cause the water to rise 3 feet suddenly, and then down again, and you have it 2 or 3 times in 3 or 4 hours at certain seasons. It is a very good harbour, and abundance of herb Alexander grows on that small island in the harbour. Here is store of salmon to be caught at the head of the harbour, if you have nets; and near a small cove in the W. N. W. within the small island, is a fire stone, of a glittering colour, a kind of mineral; excellent good wheel-locks growing in the rocks.

From Cattalina harbour to Little Cattalina is N. N. E. about half a league; it seems to be a good sandy bay.

From Cattalina harbour to the north head of the bay, is N. E. Easterly $1\frac{1}{2}$ league.

From the north head of Cattalina bay to Flower's point, the course is N. by E. $1\frac{1}{2}$ league, off which point are sunken rocks, called Flower's rocks: the sea breaks upon them in a swelling (or great) sea, and they discover themselves plain, they lie about half a league off shore; you may go between the point of the Flower's (which has some rocks lying off it) and the said sunken rocks: you have a mark, if in the day time, to go without them, which is to keep Cape Larjan open to Bird's island, and that will carry you clear without, to the eastward of them, with any ship.

From Flower's point to Bird's island the course is N. by W. about $3\frac{1}{2}$ miles. Within the said Bird's island is a large bay, one arm within the south point of the land, which runs up W. S. W. a good distance, where ships may ride; there is another arm also runs up within some rocks, which are above water; the bay runs to Cape Larjan. Bird's island abounds with willocks, pigeons, gulls, &c. which breed there in summer.

From Bird's island to Cape Larjan, the course is north easterly, between 2 and 3 miles.

From Flower's point to Cape Larjan is N. half a point westerly; Cape Larjan is but a low point, off which lies a great rock, above water.

From Cape Larjan to Spiller's point is N. N. W. a small league; between which cape and Spiller's point runs in a pretty deep bay, over which point between that and Cape Larjan, you will see the high land of Port Bonavista, when you are a good distance off at sea, being high land. Spiller's point is indifferent high, steep up and bold too.

From Spiller's point to Cape Bonavista, the course is N. N. W. about a league, between which is a very great and deep bay, so that men unacquainted, would judge that there went in the harbour of Bonavista. It is but a small distance of $2\frac{1}{3}$ miles over, from the bottom of the bay to Port Bonavista, by land, and is but a mere neck of land. From Red head bay to this bay is not above half a musket shot. The head of Cape Bonavista

appears at a distance of a sky colour. About $\frac{3}{4}$ of a mile N. by W. from the cape is a small island, called Gull island, easy to be known, being different heights, and highest in the middle, and makes something like the form of a Fleur de Lys, or a hat with great brims; you may see it 4 or 5 leagues off, in clear weather; and N. E. about a league from Cape Bonavista, is a ledge of about 10 fathoms water on it, where boats use to fish. Cape Bonavista lies in lat. 49° 10′.

From Cape Bonavista, to Port Bonavista, the course is S. W. about 5 miles. If you come from the southward, and intend for Bonavista, you may sail between Gull island and the cape, they being bold too, and about $\frac{3}{4}$ of a mile asunder, but you must leave Green island on your larboard side, going to Bonavista, for between it and the main is but narrow, and some places shoal rocks, not safe for ships to pass through; but you may sail between the said Green island and the Stone island, with any ship without danger, being safe and bold; or you may go to the westward of Stone island and run to the southward till you open the bay or harbour of Bonavista and are past Moses point, and so to the southward of the rocks, called the Sweeres, which are high rocks, within which you ride (for there is no passage to the northward of them) and lie in 11, 10, 9, 8, 7, 6 or 5 fathoms, as you please, and must always have a good anchor in the S. W. and another fast in the Sweeres, or anchor in the N. W. for westerly winds blow right into the road. It flows generally to the northward about Bonavista, and the places adjacent, W. N. W. that is, a W. N. W. moon makes the highest water, which most masters of ships using these parts have observed.

With small vessels you may go between Green island and the main (but not with great ships) and so to Red head; but the bay between the points (over against Green island) and Red head, is all foul ground to anchor in. A little distance, about a cable's length from the shore, is a sunken rock, but with boats you may go between the shore and it; the sea breaks on it. Being past Red head, you sail S. W. to Moses point; between which 2 points is a large bay or cove, called Baylis cove, where you may anchor on occasion. There is a stage kept generally for fishing every year, on the larbour or north side of the bay.

From the east part of the Grand Bank of Newfoundland, in latitude 45° 06′ to the east part of the bank Queco, in lat. 44° 16′ is considered by those who have run it, 120 leagues distant. The north part of the bank Queco, in lat. 45° 06′—the S. W. of Queco, in 44° 16′ and the Isle of Sables, in the latitude 44° 16′, and about 14 leagues to the westward of bank Queco; the N. part of Queco, on a west course, is about 18 leagues in length; from the N. W. part of Queco, to the harbour of Causo, is N. W. by W. $\frac{1}{2}$ W. 39 leagues, after you have lost soundings off Queco, on which is commonly about 35 fathoms, unless on the S. E. part, where (and on a certain spot near the middle) there is but 18 fathoms after you are to the westward of Queco, and also before you have 100 and 95 fathoms black mud; there is a small narrow bank, about 2 leagues to the N. W. of the middle of Queco, but it reaches not so far to the northward as the north part of Queco: about 20 leagues W. N. W. from the N. W. point of Queco you will strike ground on Frenchman's bank, which is a narrow bank, that stretches E. S. E. and W. N. W. athwart the harbour of Causo, about 9 leagues off; you must keep your lead going when you reckon yourself nigh this bank, or else on the N. W. course you will soon be over it, being not past 3 leagues broad, and when over it you will have 100 and 95 fathoms, black mud; it is the best way to fall to the

westward of Causo, because on the French coast you have no soundings, and the winds in the summer are generally S. W. and W. S. W. and very often foggy.

The ground to the westward of Causo rises very sudden from 100, 95, 70 to 40 fathoms, hard ground; then you are not past 2 or 3 miles off the land; be careful of sailing in with Causo in foggy weather, for S. E. and E. S. E. from it lie sunken rocks, which in fair weather seldom appear at high water.

Courses and distances on the coast of Newfoundland, between Cape Race and Cape Spear.

☞ These courses set by a Meridian Compass, with allowance for Variation.

	Courses.	Leagues.
From Cape Race to Cape Ballard	N. N. E.	3½ or 4
Cape Ballard to the south point of Renowes	N. N. E.	2
Cape Ballard to Renowes rock, which is high above water	N. E. ½ Northerly	2
Cape Ballard to Ferryland head,	N. E. by N. ½ N.	5
Renowes point to Fernowes, N. E. by N. and N. N. E. and N.	N. N. E. ½ E.	1½
Renowes to Ferryland head	N. E. by N. ½ N.	3½
Fernowes to Bald head	N. N. E.	½
Bald head to Ferryland head	N. E. by N. ½ Nly.	1½
Bald head to Black head	N.	½
Black head to Ferryland head	N. E. by E.	1
Black head to Agua Fort	N. W. by N.	1½
Agua Fort to Ferryland head, the south part of the head	East Northerly	2
Agua Fort to Crow island	E. & N. E. by E.	1½
Crow island to Ferryland head	E. by S.	½
Ferryland head to Cape Broyl head	N. by E.	1¾
the East end of Buoy island to Cape Broyl head	N. N. E.	1
Ferryland head to the S. of Gull island, which is off Whitless bay	N. N. E.	5⅔
Ferryland head to Cape Spear	N. N. E. ½ E.	11
Cape Broyl head the bay or harbour Cape Broyl lies in	W. N. W.	2½
Cape Broyl head to the N. head of Cape Broyl harbour, or Brigus point	N. by W.	½
the said N. point of Cape Broyl harbour into Brigus, is	N. W. ½ W.	½
Cape Broyl head to Cape Neddick	N. by E. Northerly	⅔
Cape Neddick to Baline head	N. E. by N.	½
Cape Broyl to Baline head	N. N. E. ½ Nly.	2 1-6
Baline head to Baline, is N. W. and N. W. by W. ¾ of a mile	N. W. by W.	½
Baline head to Isles de Spear, the body of them	N. N. E.	½
Baline head to the S. E. end of Spear island	N. E.	½
Baline head to the S. E. end of Goose island	E. by N.	½
Baline head to Green island	N. E. ½ Northerly	1½
Baline head to Gull island	N. E. by N.	2
Baline head to Bay Bull's head	N. E. by N.	3½
Baline head to the N. point of Momable bay, or S. point of Whitless bay	N. N. E. ½ Nly.	1
the North point of Momable's bay, or South point of Whitless bay, to Bay Bulls, South point	N. E. by N.	1
the said point of Momables to Green island	S. E.	⅔
the said point of Momables to the N. W. end of Gull island	N. E.	⅔
be said point to the South end of Gull island	E. N. E.	½

	Courses.	Leagues.
From the south point of Bay Bulls to the N. point of Bay Bulls	N. E. northerly	1-6
Bay Bulls to the south point of Petty harbour, the Spout between	N. E. by N.	3
the south point of Petty harbour to the north point of Petty harbour	N. N. E.	1
the north point of Petty harbour to Cape Spear	N. E. by N.	1
Cape de Spear to St. John's harbour	N. W. by N.	1⅓

The courses and Distances on the Coast of Newfoundland, from Cape Spear to Bay Verds, Bacalieu, and several Ports and Headlands in the Bay of Consumption or Conception.

	Courses.	Leagues.
From Cape Spear to Cape St. Francis, N. and N. by W. and N. W. by N.	N. by W.	7½
Cape Spear to St. John's	N. W. by N.	1⅓
Cape Spear to Sugarloaf	N.	2 1-5
Cape Spear to Red head	N.	2½
St. John's to Small point	N. E. by N.	⅔
Small point to Sugarloaf	N. by E.	½
Sugarloaf to Red head	N.	⅔
Red head to the South point of Torbay	N. by W. ½ westerly	½
the south point of Torbay to the Green cove, or anchoring place	W. by N.	1
the south point of Torbay to the north point, called Flat rock	N. E.	1
the north point of Torbay, or Flat rock, to Red head	N. by W.	½
Flat rock to Black head (by north)	N. by W. ½ westerly	2
Black head to Cape St. Francis	N. W.	1⅔
Cape St. Francis to Bay Verds head	N.	8¾ or 9
Cape St. Francis to island Bacalieu	N. by E.	9
Cape St. Francis to Belle Isle, in the bay of Consumption	S. W. & S. W. by S.	5¾
Cape St. Francis to Green bay, in the bay of Consumption	N. W. ½ N.	6⅔
Cape St. Francis to Black Head, in the bay of Consumption	N. W.	6
Cape St. Francis to the north point of Carbonera	W. ½ N.	7
Cape St. Francis to Spaniard's bay	W. S. W. ½ S.	9
Cape St. Francis to Port Grove	S. W. by W.	9¾ or 10
Cape St. Francis to Holyhead, which is the bottom of Consumption bay	S. W. by S.	12½ or 13
Holy road to Harbour Main	N. W. by W.	⅔
Harbour Main to Salmon Cove	N. W.	¼
Salmon Cove to Collier's bay	N.	⅔
Collier's bay to Brigus (by north)	N. N. E.	⅔
Brigus to Burnt head (which is the south point of Porto Grove Bay)	N. by W.	1
Harbour Main to Burnt head	N. ¼ E.	3¼ or 4
Burnt head to the south part of Great Belle Isle	E. by N.	3
Burnt head to the north part of Great Belle Isle	N. E. by E. ½ E.	4
Burnt head to Cape St. Francis	N. E. by E. Nly.	10
Burnt head to the south point of Bay Roberts	N. by E.	1⅓
Burnt head to Cupid's Cove	W. S. W.	1
the south point of Bay Roberts to the north point of Bay Roberts	N. W.	¾
the south point of Bay Roberts to the south point of Belle Isle	E. S. E. easterly	4
the north point of Bay Roberts to the north point of Spaniard's Bay	N. by W. northerly	3
Spaniard's Bay to the south point of Harbour Grace	N. N. E.	1
the north point of Harbour Grace to Carbonera	N. by E.	1¼

	Courses.	Leagues.
From Carbonera to Bay Verds, N. E. by N. and N. E.	N. E. northerly	10½
Carbonera to Black head (N. E. northerly)	N. E. northerly	4½
Bay Verds to Flamborough head	S. W. by W.	2
Bay Verds head to the S. W. end of Bacalieu	E. by N.	1½
Bay Verds head to Split point, which is against Bacalieu island	E. N. E.	½

Courses and distances from Split Point, which is 1½ mile from Bay Verds head in Newfoundland, to several places in the Bay of Trinity.

	Courses.	Leagues.
From Split point to the Grates	N. N. W.	2
the point of Grates to the N. W. or N. end of Bacalieu	E. by S.	1¾
the Grates to Break Heart point, N. by W. and W. by N.	N. W. by W. north	1¼
Break Heart point to Sherwick point, near Old Perlican	S. W. by S.	1½
Sherwick point is about a mile or more into the road, but no passage for a ship to the northward of the island	S. S. W.	½
the Grates to the south head of Catalina bay	N. by E.	10
the Grates to the Horsechops	N. W. by N.	9
the Grates to Bonaventure harbour is N. W. by W. ½ westerly, and	S. E. by E. ½ easter.	11 or 12
the north end of Bacalieu to Catalina harbour, N. N. W. northerly	N. N. W. ½ norther.	13
Sherwick point, at Old Perlican, to the south head at Catalina	N. a little easterly	12
Sherwick point to the middle of the highland of Green Bay	N. by W. westerly	9½
Sherwick point to the highlands of the Horsechops	N. N. W. northerly	9
Sherwick to Bonaventure head (the high land of it)	N. W. northerly	9½
Sherwick to Salvages point	W. by S.	3½
Sherwick or Old Perlican to New Perlican .	W. S. W.	8
Old Perlican to Silly Cove	W. S. W. southerly	7
Silly Cove to Random head	N. W.	5½ or 6
Silly Cove to Bonaventure head . . .	N. by E.	9
Bonaventure head to Bonaventure, N. W. by W. & N. W. by N.	N. by W.	1
Bonaventure head to Ireland's Eye . .	W. S. W.	2
Bonaventure head to Trinity harbour . .	N. N. E.	2½
Bonaventure head to the Horsechops . .	E. N. E.	3½
the Horsechops to Sherwick point, being the north point of Trinity harbour	W. by N.	2½
the Horsechops to the South head . .	N. W. by N.	4
the south head of Catalina bay to the northward	N. N. E.	2½
the south head of Catalina bay to Catalina harbour	N. N. E.	1½
the north head of Catalina bay to Flower's point	N. by E. northerly	1½
the Flowers rocks sunken are about a mile and a half from off the shore	E.	½
Flower's point to Bird's island . . .	N. by W.	1½
Flower's point to Cape Larjan . . .	N. ½ westerly	2
Cape Larjan to Spiller's point . . .	N. N. W.	1
Cape Larjan to Cape Bonavista . . .	N. N. W. ½ norther.	2
Cape Bonavista to Moses point, entering Port Bonavista	S. W.	1¾
Cape Bonavista to Gull island . . .	N. by W.	½
Cape Bonavista to Cape Freels . . .	N. N. W.	10 or 12
Cape Bonavista to Salvages	W. N. W.	9
Cape Bonavista to Stone island, over the north end of Green island	W.	
Port Bonavista to Keel's point W. 5 leagues, Salvages lying to the northward of Keels about 3 leagues		

Depth of Water on the Bank, and off the south part of the Coast of Newfoundland.

Cape Race West, and Cape Spear N.W. by W.	Cape Race W. 43 leagues, and Cape Spear N.W. by W. little westerly, 39 leagues, you have	40 faths. rough fishing ground, small stones, sand and shells.
Renowes & Cape Spear	Renowes W. by N. 68 leagues, and Cape Spear W. N. W. northerly 65 leagues, you have then 95 fathoms on the outer edge of this main bank	95 fathoms fine whitish sand with some black specks.

Places and Latitudes.		*Bearings of the Places.*	*Dist. Leagues.*	*Faths.*	*Lat. of Vessel.*	*What kind of Grounds.*
Renowes and	46° 45′	W.	44	44	46° 45′	Sand.
Cape Spear	47° 22′	W. N. W.	30			
Fernowes and	46° 48′	W.	37	62	46° 48′	Fine white sand.
Cape Spear	47° 22′	W. N. W. N.ly	33			
Ferryland head	46° 50′		31		46° 59′	
Cape Spear and	47° 22′	W. by northerly	30		46° 48′	Fine sand.
Bay Bulls	47° 11′		29	63		
Ferryland head and	46° 50′	W. by N. N.ly			46° 17′	
Cape Spear	47° 22′	W. N. W. ½ N.ly	26	85	46° 45′	
Ferryland head	46° 50′	W. by N. N.ly	28		46° 30′	
Cape Broyle	46° 54′				46° 34′	
Bay Bulls and	47° 11′	W. by N. N.ly	28		46° 51′	
Cape Spear	47° 22′			80	47° 02′	
Ferryland head and	46° 50′	W. by N. N.ly			46° 33′	Oozy ground.
Bay Bulls	47° 11′		24		46° 54′	
Ferryland head	46° 50′	W. by N.	17	55	46° 40′	Fine sand.
Cape Broyle	46° 54′	W. by N.	13	52	46° 46′	
Ferryland head and	46° 50′	W. by N.	13	58	46° 42′	
Bay Bulls	47° 11′				47° 03′	
Cape Broyle	46° 54′	W. by N. N.ly	12	80	46° 45′	
		W. N. W.	10	85	46° 43′	
Cape Broyle and	46° 54′	W. S. W. W.ly	6½	95	47° 42′	
Bay Bulls	47° 11′	N. W. by W.	4½		47° 03′	[stones.
Bay Bulls	ditto	W. by N. ½ N.ly	65	64	46° 14′	Black sand and some small
	ditto	W. by N. N.ly	60	57	46° 27′	Rough ground.
	ditto	W. by N. N.ly	50	50	46° 34′	Fine sand and stones.
Whitless Bay and	47° 08′	W. N. W.	55	45	46° 05′	Fine sand.
Cape Spear	47° 22′	N. W. by W.	34		46° 45′	
Torbay	47° 33′	W. N. W.	66	64	47° 17′	Rough ground.

The Virgins are rocks lying about 23 leagues east from Cape Race; they lie E. N. E. about 4 miles in length, and the shoalest is about 20 feet water. Sometimes the sea breaks very high upon them, which renders them very dangerous, besides a very strong current often sets about them. Ships sometimes anchor on them a fishing, in about 12 and 14 fathoms.

As to the bank of Newfoundland, there are soundings from the outer edge of the main bank to the height of the ground, where generally ships lie to catch fish, and which is about 40 leagues distant from the land, and then the soundings in along are uncertain. The bank goes quite to the land to the northward of Cape Ballard, where the bank falls more to the eastward, and the water is deeper, and so increases along to the northward. To the southward of Cape Race, and to the westward, is shoal water, 2 leagues off the shore, not above 20 or 22 fathoms; and to the westward of Cape Pine it is still shoaler, at the same distance.

The outer or false bank is about 110 or 115 leagues from the land, and is thought to be about 14 or 15 leagues broad in the middle; and from the inner edge of it to the main bank are near 30 leagues and no soundings between them. In the spring of the year many islands of ice lie between these banks, very dangerous, when foggy. The best part for fishing is from 100 to 140 miles off the shore, which is the shoalest part of the bank.

From Mistaken point to the Powles, or entering of Trespassy, is W. N. W. 5 leagues; there is a deep bay on the back side or east side of Powles, and a neck of beach, so that you see the ship's masts over it, but very dangerous to be embayed in that place, the sea commonly falling in there, and no current to help you out; therefore, if you intend for Trespassy, stand over to Cape Pine till you see the harbour open, and then bear into the harbour according as you have the wind, Cape Pine being safe and bold to sail along that side, &c.

Directions for navigating the Bay of Placentia, *on the South Coast of* Newfoundland, *from* Cape Chapeaurouge *to* Cape St. Mary's.

[N. B. The Bearings and Courses are true Bearings and Distances, and not by Compass, the variation of the Compass being 19° 30′ W.]

CAPE St. Mary's to the east, and Cape Chapeaurouge to the west, form the entrance of Placentia Bay; They lie east and west of each other, in latitude 46° 53′ N. distant from each other 16 leagues.

Cape Chapeaurouge has already been described: From it to Sauker head (which is a high hill in the shape of a sugar loaf) the course is E. N. E. distant 3 miles; between them lie the harbours of Great and Little St. Laurence which have also been described.

From Sauker head to Small point (which is the lowest land hereabouts) the course is N. 63° E. 2 miles: And from Small point to Corbin head, (which is a very high bluff head) is N. E. 2½ miles: There are many high head lands between them, which form several coves, the bottom of which may be seen in sailing along shore. The coast is clear of rocks, and 30 fathoms close to the shore, but no shelter for any thing. From Corbin head to Shalloway point, the course is N. N. E. ½ E. 4¼ miles. Between them, and nearly on the same course, lie 2 very high round islands, called Corbin and Little Burin. Corbin island has very much the appearance of Chapeaurouge, when coming in with the land, and seen through the fog. These islands are high, and are little more than a cable's length from the shore.

From Corbin head to Cat island, the course is N. E. 4 miles nearly; this is a high round island near the south end of Great Burin island.

About a mile to the northward of Corbin head, in a bight, lies Corbin harbour, which is very good for small vessels. The best anchorage is in the N. arm, at about a quarter of a mile within the entrance, opposite a cove on the starboard side. One quarter of a mile to the eastward of this harbour, and two cables' length from the shore, is a sunken rock, on which the sea breaks in bad weather, and has not depth sufficient at low water for a boat to go over it. Vessels bound for this harbour must avoid a shoal which lies one quarter of a mile to the east of the south point of the entrance to the harbour, on which is only 2 fathoms water. Between the two high round islands, aforementioned, and the main, there is from 7 to 15 fathoms, and no danger but what may be seen: In case ships should fall in close with the land in the fog, they may occasionally sail within them, although the passage is little more than a cable's length wide.

Great Burin island lies nearly N. and S. is 2½ miles in length, and high land: near the north end is another high island, about ¾ of a mile in length, called Pardy's island. On the main, within these islands, lie the harbours of Great and Little Burin.

Shalloway island lies N. W. ½ W. 1 mile from Cat island, and N. E. by N. ½ E. one quarter of a mile from Little Burin island: the passage into Burin harbours, from the southward, is to the westward of Shalloway island, between that and the Neck point: take care to give Poor island a birth on your larboard hand: After you are within Shalloway island, you may anchor in safety between that and Great Burin island, from 12 to 18 fathoms water. The best anchorage in Great Burin harbour, is in Ship cove. The course up to it, after you are within Neck point, is north about 1½ mile, and is better than one quarter of a mile wide: to sail up to

it, keep the west shore on board, in order to avoid a sunken rock on the eastern shore at about half the way up, and about half a cable's length from the shore, directly off, is a remarkable hole in the rock on the same side, and a remarkable gully in the land, from the top to the bottom, on the western shore. There is another rock, on which is only 2½ fathoms water; it lies better than a cable's length to the southward of Harbour point, which is a round green point, of a moderate height, joined to Great Burin island by a low narrow sandy neck.

After passing Little Burin island, 1 mile north, you come into Burin bay, which is a clear bay, about a mile broad every way, and where ships may occasionally anchor safely, being almost land-locked. The course into this bay from Little Burin island is north. All the land about this bay is very high. In it are two islands, one a low barren island, called Poor island; the other which runs to the north, is high and woody, and lies before the mouth of Burin inlet, on the other side of which vessels may pass up the inlet. A little within the entrance, on the east side, half a cable's length from the shore, is a rock covered at ¾ flood, at 1¾ mile from the entrance; near the middle is another rock, to the west of which is very good anchorage.

The S. W. entrance into Burin harbour, which is one quarter of a mile wide, is formed by Shalloway island and the Neck point, in which there is no danger giving a birth to Poor island on the larboard side. When in Burin bay, the course through the S. W. entrance into the harbour is E. N. E. and when past the points that form the entrance, the course is north up the harbour, which is better than one quarter of a mile wide, and 1½ mile long up to Ship's cove, where it is half a mile wide every way. This is the best anchorage.

There are only two dangers within Burin harbour that do not appear above water: the first is a small shoal on the starboard side, about half way up the harbour, directly off a remarkable hole in the cliff on the starboard side, going up, called the Oven, and about half a cable's length from the shore; there is also on the other side, directly opposite, a remarkable gully in the land, from the top to the bottom. The long mark to keep to the westward of this rock is, not to bring Little Burin island to the eastward of Neck point. The other shoal, on which there is 8 fathoms, is very small, and lies about a cable's length S. S. W. from Harbour point.

The east passage into Burin harbour is not very safe to sail in without a commanding gale, and that between the N. N. E. and S. E. To sail into this passage, and coming from the westward, come not within 2 miles of the shore on the east side of Burin island, (because of several clusters of rocks) till you bring the north point of Pardy's island open to the northward of Iron island; then sail right in for Iron island, leaving it on your larboard side going in; then steer for the said point of Pardy's island, and that will avoid all danger. It must be observed, with the aforementioned winds there is commonly a great swell sets to the shore on the starboard side going in; therefore, in case of little winds, (which often happens when you are past Iron island) endeavour to borrow on Pardy's island, except the wind be from the N. E.

At the bottom of Burin bay there is an inlet, which runs inland 5 miles; there is a small woody island just before the entrance; ships may sail on either side; the east side is the widest. A little within the east head that forms the entrance, and half a cable's length from the shore, there is a sunken rock, which is dry at low water; therefore, in sailing into the in-

let, keep the west shore close on board, for about a mile up; it lies north, and is about 2 cables' length wide, then N. N. W. for a mile, and is there half a mile wide with a sunken rock right in the middle; to the westward of that rock there is good room and good anchorage, from 7 to 12 and 15 fathoms water in the entrance, and in the middle, 2 miles up, is from 15 to 23 fathoms, and from thence up to the head is from 10 to 5 fathoms.

Iron island is a small high island, lying N. N. E. ½ E. 1 league from the S. E. point of Great Burin island, and S. S. W. ½ W. 1 mile from Mortier west head, and E. 1½ mile from the north part of Pardy's island. Vessels bound for the harbours of Burin may pass on either side of Iron island, the only danger passing to the northward is the Brandys, which almost always break; they lie near a quarter of a mile to the southward of a low rock above water, close under the land of Mortier west head. If the wind should take you a-head after you are within Iron island, take care to keep Mortier west head open to the westward of Iron island, in order to avoid Grigory's rock, on which is only 2 fathoms water. The mark to carry you on this rock is, to bring the flag-staff on St. George's island (in the centre of the passage between Great Burin and Pardy's islands and Mortimer west head) on with the west side of Iron island; this rock almost always breaks: Vessels may pass with safety between this rock and Iron island, taking care to give Iron island a birth of one cable's length.

On the main within Pardy's island, are two remarkable white marks in the rocks; the northernmost of these marks brought on with the north part of Pardy's island and Iron island, N. by E. ½ E. will carry you on the Galloping Andrew, a shoal on which is 5 fathoms water.

S. W. 1 mile from Iron island lies a shoal on which is 8 fathoms water, called the White Horse.

Dodding rock lies about one quarter of a mile from the easternmost part of Great Burin island.

Mortier bank lies E. by S. 2 leagues from Iron island, and N. 25° E. 5 leagues from Cape Jude: the shoal part of this bank is about 1 league over. On it you have not less than 7 fathoms water, but, by the fisherman's account, there is not more than 4 fathoms on one part of it; in bad weather, the sea breaks very high on it.

About 3 miles to the N. N. E. from Iron island is the opening of Mortier bay, at the entrance of which is a round island, called Mortier island, lying a third of the distance from the west side. Ships may sail in on either side of it. It is bold too all around. Close to the first point beyond the island, on the larboard side going in, is another little island, scarcely perceptible, as it lies close under the land; and, two cables' length from it, in a direct line towards the outer island, is a sunken rock, on which the sea breaks in bad weather; there is no other danger in this bay. At the bottom of it, 1½ mile from Mortier island, on the east side, there is a cove, called Fox cove, wherein is good anchorage, and room for 1 ship to moor in 9 fathoms, good holding ground. They will lie two points open to the sea, that is from S. S. E. to S. E. A ground swell tumbles into the cove in bad weather, but no anchor was ever known to come home here. Fishing ships sometimes ride here the season. On the west side of the bay is the harbour, which is small and narrow, but a very good one for small vessels, where they lie moored to the shore. There is 7 and 8 fathoms through the entrance, and 2 fathoms when in the harbour, and sufficient room for 50 shallops at the head of it. Off the starboard point going in, is a rock, which at high water is always covered.

Croney island lies N. by E. nearly 2 miles from Mortier east point. This is a round island, and lies close to the shore.

Two miles and a half from Croney island is the entrance into Mortier bay; at the entrance on the west side is a small harbour, called Boboy; in it is 9 feet water at low water. The course into Mortier bay is north, for about 2 miles, and is $\frac{3}{4}$ of a mile wide, in which you have from 50 to 70 fathoms water, the land on each side being high: it then runs to the westward about 2 miles, and is near 2 miles wide. In the S. W. corner of the bay is a river, which runs to the S. W. about 7 miles. On the east side, at about 3 miles from the entrance, is an exceeding good harbour, called Spanish room, in which you may anchor from 4 to 6 fathoms water, good bottom, and lie secure from all winds. There is not the least danger in sailing into this harbour, giving the low rocks above water at the entrance on the larboard hand, a birth of one cable's length.

Two miles to the N. E. of the entrance into Mortier bay lies Rock harbour, fit only for boats by reason of the infinite number of rocks in it, both above and under water.

From Mortier east point to John the bay point, the course is N. 25° E. distance 8 miles. Between John the bay point and Rock harbour, lie 2 sunken rocks, half a mile from the shore.

Two miles to the N. W. of John the bay point lies John the bay, in which is tolerable good anchorage, in about 8 fathoms water, with sandy bottom.

The Saddle back is a small island lying N. 47° E. 8 leagues from Corbin head, and N. 55° E. from Mortier west point, and N. 83° E. 3 leagues from John the bay point. Between it and the main are a great number of rocks and islands, which render this part of the coast very dangerous. There is a chain of rocks lying $1\frac{1}{2}$ mile to the N. E. by N. of the Saddle back.

Cape Jude is an island about $2\frac{1}{2}$ miles in length, and 2 in breadth; it lies $1\frac{1}{2}$ miles to the N. N. W. of the Saddle back; on the south end of it is a remarkable round hill, which is called the Cape. Between this island and the main are a cluster of islands and low rocks, with a great number of sunken rocks about them, called the Flat islands, the innermost of which lies about 1 mile from the main.

Audearn island lies half a mile to the northward of Cape Jude island, on the west side of which is a tolerable good harbour. Vessels bound for this harbour may pass between Cape Jude island and Audearn island, and between Crow and Patrick's island, which are two small islands, lying off the S. W. point of Audearn island. About a cable's length from Audearn island, to the southward of the harbour, is a sunken rock; the mark for avoiding it in coming from the southward, is, not to haul in for the harbour till you open a remarkable green point on the south side of the harbour. The best anchorage is on the north shore, just within a small island. There is a spit of rocks stretches just off the Green point on the south shore, which are covered at high water.

Off the east point of Audearn island is a small island, called Ford's island, on the west side of which is a sunken rock about a cable's length from the island, and another on the east side, which almost always breaks.

Broad cove lies on the main, W. $\frac{1}{4}$ N. $5\frac{1}{2}$ miles from Ford's island; in this cove is exceeding good anchorage, in 8 or 9 fathoms water.

Cross island lies 3 miles to the N. W. of Ford's island, is about $1\frac{3}{4}$ mile in length, and 1 mile in breadth; is high woody land; between this island and the main are several other islands. Bane harbour lies on the

main. Within these islands is an exceeding good harbour for small vessels, the passage into it is very narrow, and hath in it 2 fathoms water, but when in, there is sufficient room to moor in 3 fathoms, good bottom.

Boat harbour lies about 1 mile to the northward of Cross island, and runs up N. N. E. 1 league, with deep water to about half a mile of the head; close round the eastern point of Boat harbour lies Bay de Leau, which runs in N. N. E. ¼ E. better than a league.

Long island is about 4 miles long, and not half a mile broad, is high land making in several peaks; the south point of it lies N. 37° E. 2 leagues from the Saddle back, and E. by S. 3 miles from Ford's island.

N. W. 2 miles from the south point of Long island, and N. E. by E. 1½ mile from Ford's island, lies a small Green island, which has a shoal all round near 1 cable's length.

From Green Island N. W. 2½ miles, and N. 19° E. 3 miles from Ford's island, lies Great gallows harbour island, which is high land. Vessels may pass on either side of this island into Great gallows harbour, which lies 1 mile to the N. E. of the island. In this harbour is exceeding good anchorage in 7 fathoms water on the starboard side, just within a low stony point, taking care to give the point a small birth, in order to avoid a rock, which is covered at high water.

Little gallows harbour lies close round to the eastward of Great gallows harbour, and is only fit for small vessels, which must lie moored to the shore. Above a rock above water, on the larboard hand, Little gallows harbour island lies before the mouth of the harbour.

Cape Roger harbour lies close to the westward of Cape Roger, which is a high round barren head, lying N. 15° W. 3½ miles from the south point of Long island. There are several low rocks and islands lying off the east point of the entrance. In the harbour, 1¼ mile within the entrance, on the west side, lies a small island; to the northward of it, between that and the main, is very good anchorage in 7 or 8 fathoms water; or you may run further up, and anchor in 6 or 7 fathoms.

One mile and a quarter to the eastward of Cape Roger harbour lies Nonsuch; there are several islands lying in the mouth of it, and no safe anchorage till you get within all of them.

Petit fort is a very good harbour, having in it from 14 to 7 fathoms water, good bottom. The entrance into it is better than one quarter of a mile wide, and lies N. N. E. 5 miles from the south point of Long island, and N. by W. 2½ miles from the north point of Long island. There is not the least danger in sailing into this harbour; the best anchorage is on the starboard side, the S. E. winds heaving in a great swell on the west shore when they blow hard.

One mile to the eastward of Petit fort lies the entrance into Paradise sound, which runs up N. E. by E. 4½ leagues, and is about 1 mile broad; in it is very deep water, and no safe anchorage till you get near the head of it. Just within the entrance on the east side, is a cove (in which are several rocks above water) is 10 fathoms water, but not safe to anchor in, the bottom being rocky.

From Corbin head to Marticot island, the course is N. 48° E. 11½ leagues, nearly; this course will carry you just without the Saddle back. Between Marticot and the main is Fox island; there is a safe passage for vessels between these islands, with not less than 9 fathoms water, but no passage between Fox island and the main. On the main, within Marticot island, lie the harbours of Great and Little Paradise. The harbour of Great Paradise is only fit for boats. The harbour of Little Paradise lies

one mile to the northward of the east point of Marticot island: the only safe anchorage is in a cove, at the head, on the larboard side; here they lie moored to the shore and are entirely land-locked.

One mile to the eastward of Little Paradise lies La Perche, in which is no safe anchorage, the ground being bad, and lies entirely exposed to the S. E. winds.

E. N. E. 2 miles from Marticot island is a rock above water, called the Black rock; one quarter of a mile within this rock lies a sunken rock; N. N. E. ½ E. 2 miles from this rock lies Presque; in it is very deep water, but no safe passage into it, by reason of a number of rocks, both above and under water, lying before the entrance.

East 4 miles from Presque, and N. E. by E. 6 leagues from the Saddle back, lies the west point of Merasheen island. This island is high, and runs to the N. E. by N. better than 6 leagues, and is very narrow, the broadest part not being more than 2 miles. At the S. part of the island, near the west end, is a very good harbour, but small, in which is from 6 to 10 fathoms water. To sail into it keep the starboard shore on board, in order to avoid a sunken rock that lies one cable's length off a ragged rocky point on the larboard hand going in.

Indian harbour lies on the east side of Merasheen island, at about 3 leagues from the south point; this harbour is formed by a small island, on either side of which is a safe passage into it; the only anchorage is to the westward of the island, and between it and the main, and here the ground is uncertain.

N. 20° W. 2½ miles from the west point of Merasheen island is the Little isle of Valen; this is high and round, and lies within about half a mile of the main; one quarter of a mile from Little isle of Valen lies the Great isle of Valen, on the S. E. part of which is a small harbour.

On the main, within the Great Isle of Valen lies Clatise harbour; the entrance into it is about half a mile wide: in it is 40 or 50 fathoms water. The best anchorage is in the west cove, which is a mile long, but not a quarter of a mile broad; in it is from 17 to 20 fathoms water, good bottom.

Grummer's rocks are low rocks above water, and lie 1½ mile from the north end of Great isle of Valen.

Little Sandy harbour lies on the main, and is a tolerable good harbour; in it you have 6 and 7 fathoms water, good bottom; in the mouth of which is a low rock above water. Vessels bound for the harbour must pass to the northward of this rock. This harbour may be known by the island called Bell island which lies E. S. E. ½ E. 1½ mile from the mouth of it, and N. by E. ¼ E. 13 miles from the west point of Merasheen island; off the south point of the island is a remarkable rock, resembling a bell with the bottom upwards.

Great Sandy harbour lies ¾ of a mile to the northward of Little sandy harbour; the passage into it is narrow, but in it you have 6 or 7 fathoms water. There are two arms in this harbour, one running to the S. W. which almost dries at low water: the other runs to the N. E. in which is tolerable good anchorage. There are several low rocks and islands lying before this harbour.

Barren island is about 3½ miles long, and 1 mile broad, is high land and lies better than one league from the north part of Merasheen island, and about half a mile from the main. On the east side of this island, near the south end, is a cove in which is tolerable good anchorage, from 10 to 16

fathoms water. Along the west side of this island, between it and the main, is very good anchorage.

On the main, opposite the north end of Barren island, lies La Plant, a harbour only fit for boats.

From Barren island are a string of islands quite to Piper's hole, which lies 3 leagues from the north part of Barren island. These islands are about half a mile from the main, having from 17 to 7 fathoms water, good anchorage all the way to Piper's hole.

Cape St. Mary's is the east point of the entrance into Placentia bay, and lies in the lat. of 46° 52′ N. is a pretty high bluff point, and looks much like Cape St. Vincent on the coast of Portugal; a little to the northward of the cape is a small cove where fishing shallops shelter from the easterly and southerly winds. The land from Cape St. Mary's to Placentia is pretty high and even. S. by W. 7½ miles from the cape, lie St. Mary's keys, which are two rocks just above water, and on which the sea almost always breaks.

From the Virgin rocks to Cape St. Mary's the course is south, distance 3½ leagues; between Green point and Cape St. Mary's there is no shelter for ships or vessels. The land from Placentia road to Cape St. Mary's is of a moderate, and appears nearly of an equal height all the way; but over Placentia, and to the northward of it, the land is very high and uneven, with many pecked hills.

Bull and Cow rocks are a cluster of rocks above water, lying S. E. by E. 2 leagues from Cape St. Mary's, about 1 mile from the main, and S. W. by W. from Point Lance, which is a low ragged point, and is the west point of the entrance into St. Mary's bay; at about ⅓ of the distance from the main to the Bull and Cow rocks is a sunken rock which shews above water at half ebb.

From Cape St. Mary's to Point Breme the course is N. by W. ½ W. 8 miles.

From Point Breme to the Virgin rocks, the course is N. N. E. distance 10 miles; these rocks show above water, and lie about 1 mile from the main.

Three leagues south from Green point, and a league from the shore, lie the Virgin rocks, which are a cluster of rocks above water. A little to the southward of these rocks there are some whitish cliffs in the land, by which that part of the coast may be known, on coming in with it in thick weather.

From Virgin rocks to Point Verd, the course is N. 38° E. distance 5½ miles. This is a low green point, and is the south point of the entrance into the road of Placentia.

Placentia road and harbour is situated on the east side of the great bay of that name, at 11 leagues distance from Cape St. Mary's. To sail into the road, and coming from the southward, you must keep a league from the shore to avoid the Gibraltar rock, which lies W. S. W. from Point Verd, till you bring the Castle hill open to the northward of Green point. The Castle hill is on the north side of the road on which stands the castle, and is distinguishable far out at sea. Green point is a low level point, which forms the south side of the road. The Gibraltar rock has 16 feet water upon it, and lies W. ½ S. distant 2¼ miles from Green point, and 2 miles from shore. The mark afore-mentioned will carry you ¼ of a mile without it, and when you have the said mark open, you may steer in for the Castle, keeping your lead going; there is regular sound on both sides. Along the south side is a flat, to which you may borrow into 4 fa-

thoms. The best anchorage is in 6 or 7 fathoms water, under the Castle hill, at $\frac{3}{4}$ of the distance over from that side, where you lie in good ground, and open about 4 points to the sea. At the bottom of the road is a long beach, which terminates to the north in a point, on which stand the inhabitants' houses and a fort. Between this point and Castle hill is the entrance into Placentia harbour, which is very narrow, in which is $3\frac{1}{2}$ fathoms water, but within the narrows it widens to $\frac{1}{3}$ of a mile broad, and runs up N. N. E. above $1\frac{1}{2}$ mile, where ships may lie in perfect security, in 6 or 7 fathoms. To sail in you must keep nearest to the starboard side.

Near the bottom of Placentia road, on the north shore, at the top of a hill, stands a castle; when you have this castle open to the northward of Point Verd, you may haul in for the road in safety, taking care to give Point Verd a birth of near 2 cable's length. The best anchorage in the road is under the Castle hill, in about 6 fathoms water. The entrance into the harbour is very narrow; in it you have $3\frac{1}{2}$ fathoms water; after you are within the narrows it is about $\frac{1}{3}$ of a mile broad, and about $1\frac{1}{2}$ mile long; here you may anchor in perfect safety, in 6 or 7 fathoms water.

The coast is easily known in clear weather, by the Chapeaurouge, and other remarkable head lands. The best directions that can be given in coming in with it in thick weather, are to observe that between Burin and Laun there are no islands except Ferryland head, which is very near the main, so as not to be distinguished as an island till very close to the shore; also, that the islands about Burin are large and full as high as the main land; those about Laun are small, and scarce half the height of the main land, and the Lamelins are 2 low flat islands. There are several small rocks just above water between Laun and Lameline, and there are none such any where else along the coast. The land from Mortier head up the bay, is high, rocky, and uneven, with several islands near the coast, which form many capes and ragged points.

From Mortier head to Red island, the course is N. E. by E. distance 16 leagues. This island is high, and may be seen in clear weather 12 leagues from the deck. The south end of it bears from Placentia road N. W. distance $4\frac{1}{2}$ leagues.

Red island is high barren land, about 5 miles long and 3 miles broad. The south point lies N. W. 11 miles from Placentia road. On the east side near the north end is a small harbour, which is only fit for shallops.

Point Latina lies about 5 miles to the northward of Placentia road; between these places the land is low and even near the sea, but just within it high and ragged; there are several sunken rocks lying along the shore about half a mile off.

Point Roche lies more than a mile to the eastward of Point Latina; there is a shoal stretches off Point Roche more than $\frac{1}{4}$ of a mile.

S. E. by S. $\frac{1}{2}$ E. $1\frac{1}{4}$ mile from Point Roche is the entrance into the harbour of Little Placentia, which runs up S. W. by W. $\frac{1}{2}$ W. about $1\frac{1}{2}$ mile, and is near half a mile broad; there is exceeding good anchorage in this harbour, in a cove on the north shore; this cove may be known by the west point being woody, and the land to the eastward being barren; off the east point of the cove lies a shoal for near $\frac{1}{3}$ the distance over to the south side of the harbour; in this cove is 7 and 8 fathoms water.

From Point Latina to Ship harbour, the course is E. N. E. distance $5\frac{1}{2}$ miles. This harbour runs up north $2\frac{3}{4}$ miles, and is about $\frac{1}{4}$ of a mile

broad ; the best anchorage is in a cove on the west side in about 10 fathoms water, at about 1 mile from the entrance.

Fox island is a small round island, lying N. by E. ½ E. 3 miles from Point Latina, and W. by N. 1 league from Ship harbour point, which is a low stony point, lying about 1½ mile to the westward of Ship harbour ; between Fox island and this point are a range of rocks, which in bad weather break almost quite across.

N. W. 1½ mile from Fox island, is a steep rock above water, called Fishing rock ; north 1½ mile from Fishing rock lies a sunken rock, which almost always breaks.

The Ram islands are a cluster of high islands, lying about 3 miles to the N. N. E. ½ E. of Fox island. E. N. E. 3 miles from the south point of Ram islands is the entrance into Long harbour ; there is not the least danger in sailing into it ; the best anchorage is on the north side to the eastward of Harbour island, between it and the main ; here you will lie secure from all winds in 7 or 8 fathoms water.

From Ram islands to Little harbour is north about 5 leagues ; there are several low islands and rocks along shore ; between these places there is not the least shelter for vessels, or scarcely for boats, along that coast. Little harbour is small, with 7 fathoms water ; the ground is bad, and lies entirely exposed to the S. W. winds, which heave in a very great sea.

From Point Latina to the south point of Long island, the course is N. by W. ½ W. 4½ leagues ; this island is near 3 leagues long, is high land, the south point being remarkable high steep rocks. On the east side of the island, about 1 league from the south point, lies Harbour Buffet, a tolerable good harbour ; the entrance into it is narrow, but has 13 fathoms water in it. There are 2 arms in this harbour, one running to the westward, the other to the northward ; the best anchorage is in the north arm, in about 15 fathoms water. This harbour may be known by the islands that lie in the mouth and to the southward of it, and by Harbour Buffet island, that lies E. N. E. ½ E. 1 mile from the entrance. To sail into it you must pass to the northward of the islands in the mouth.

About 4 miles from the south point of Long island, on the west side, lies Muscle harbour ; vessels bound for this harbour may pass between Long island and Barren island, which is a high barren island, about a mile long, and about ⅓ of a mile from Long island. The entrance into the harbour lies opposite the north end of Barren island, and is between a low green point on your starboard hand, and a small island on your larboard hand ; this harbour is near 2 miles long, and 1 broad ; in it is from 10 to 22 fathoms water, rocky bottom.

Little south harbour lies 1 mile to the westward of Little harbour ; before the mouth of it are several rocky islands : in sailing into the harbour you must leave all the islands on your starboard hand, except one, on either side of which is a safe passage of 15 fathoms water. On the east shore, within the islands, is a sunken rock about one cable's length from the shore, which generally breaks : nearly opposite, on the west shore, are some rocks about half a cable's length from the shore, that shew at one third ebb. This harbour is about 1½ mile long, near half a mile wide, with 7 fathoms water, good bottom.

Great South harbour lies about 1 mile to the northward of Little South harbour ; there is no danger in sailing into it ; near the head is very good anchorage in 6 or 7 fathoms water.

One mile to the westward of Great South harbour is Isle au Bordeaux, a high round island near the main.

The entrance in Come-by-chance lies north 4 miles from Isle au Bordeaux, and runs up N. E. by N. 3 miles; in it is from 20 to 3 fathoms water, sandy bottom; is entirely exposed to the S. W. winds, which heave in a very great swell.

North harbour is N. W. 2½ miles from Come-by-chance, and S. E. by E. 2½ miles from Piper's hole; about 2 miles from the entrance is good anchorage in 7 fathoms water, and no danger sailing into it.

Directions for navigating part of the Coast of Newfoundland, *from* Cape St. Mary's *to* Cape Spear, *including* St. Mary's *and* Trespassy Bay.

[N. B. All Bearings and Courses hereafter mentioned, are the true Bearings and Courses, and not by Compass.]

The entrance of St. Mary's Bay is formed by Cape Lance on the west, and Cape Pine on the east side. The land from Point Lance lies E. by N. ½ N. 3 leagues, to a high bluff cape, from which the land along the west side of the bay lies N. E. by N. and S. W. by S. 10 leagues up to the head of the bay. From the afore-mentioned bluff cape to Cape English, on the east shore, the course is S. E. ½ E. distance 5 leagues.

Cape St. Mary's is a very high bluff point, makes, in all directions, much like Cape St. Vincent on the coast of Portugal, and the land along shore from it, for a considerable distance, appears even, and nearly of equal height with the cape itself, which lies due west, distance between 17 or 18 leagues from Cape Chapeaurouge, and is in latitude 46° 52′ N. A little to the northward of this cape is a small cove, where fishing shallops shelter with southerly and easterly winds.

From Cape St. Mary's S. E. by E. distance 5½ miles, lie the Bull and Cow rocks, which are two flat rocks, and very near together, with several smaller rocks about them, all above water; they may be seen 4 leagues from the deck, when open, from the land, but when shut on with the land, they are not distinguishable so far. They bear west, distant 3 miles from Point Lance, which is a low ragged point, which forms the entrance on the west side of St. Mary's bay. The Bull and Cow lie 1 mile from the nearest part of the main land; at ⅔ of the distance from them to the main, is a small rock that appears above water at half tide; there is 10 fathoms between this rock and the main, and 15 fathoms between it and the Bull and Cow. Ships may safely pass within the Bull and Cow occasionally.

St. Mary's rocks lie S. by W. distant 7½ miles from Cape St. Mary's, and S. W. by W. from Point Lance, and S. W. ½ W. from the Bull and Cow. These are two rocks which appear just above water, upon which the sea almost always breaks very high. They lie S. E. and N. W. from each other, distance about 3 cable's length; in the middle, between them, is a channel of a cable's length broad, in which is 15 fathoms water; there is also 15 fathoms at a cable's length all round them, except to the S. E. at two cable's length; distance is 6 fathoms. Between these rocks, and Cape St. Mary's, is 25 and 30 fathoms water, and all about Cape St. Mary's, at 2 and 3 leagues distance, is the same depth of water.

Point Lance is a low point near the sea, but the land within it is high,

and is the west point of the entrance into the bay of St. Mary's. It lies in latitude 46° 50′ N.

From Point Lance to the eastern head of St. Shot's (the east point of the entrance into St. Mary's bay) the course is S. E. by E. ½ E. distant 22 miles. This bay runs 9½ leagues to the N. E. with several very good harbours in it, the land on each side being moderately high, and mostly barren.

From the eastern head of St. Shot's to the western head, the course is N. 41° W. distance 2 miles: this bay is entirely open to the sea, and about 1 mile deep.

From the western head of St. Shot's to Gull island, the course is N. 20° W. distant 4 miles. This island is small, of the same height with the main land, and so near it that it cannot be distinguished, unless you are close in shore.

From Gull island to Cape English, the course is N. 7° W., distance 2 leagues; this cape is high table land, terminating in a low rocky point, forming a bay about a mile deep to the southward of it; at the bottom of this bay is a low stony beach within which is a pond, called Holy Rood pond, running to the N. E. for about 7 leagues, and is from half a mile to 2 or 3 broad; this pond makes Cape English appear from the southward like an island.

From Cape English to False Cape, the course is N. 20° E. 1 mile.

From Cape English to Point le Haye, the course is N. E. 3 leagues. This is a low point off from which there runs a ridge of rocks of ¾ of a mile to the sea, and above a mile along shore, on which the sea breaks in bad weather. This is the only danger in all St. Mary's bay, that will take a ship up.

From Point le Haye to the south point of the entrance into St. Mary's harbour (called Double road point) the course is N. E. distance 1½ mile; the land between these points is low and barren.

From Point le Haye to the low point on the starboard side going into St. Mary's harbour, called Ellis' point, the course is N. E. by E. 2 miles, and from Point Lance to St. Mary's harbour, is E. ¾ N. distance 9 leagues. The entrance to this harbour is above a mile wide. Within the points that form the entrance, it divides into two branches, one to the E. S. E. the other to the N. E. When you are past Ellis' point, haul in to the southward, and anchor abreast of the fishing stages and houses, upon a flat, in 4 or 5 fathoms. Here you will lie land-locked. This flat runs off about half a mile from the shore, without it is from 15 to 40 fathoms water over to the other side; but the best anchorage in this harbour is about 2 miles above the town, where it is above half a mile wide, opposite Brown's pond, which is on the starboard side, and may be seen over the low beach; here you will lie land-locked in 12 fathoms, and excellent ground all the way up to the head of the harbour. One mile above the said point on the opposite shore, is a beach point, close to which is 4 fathoms, where ships may heave down; and here is plenty of wood and water. The N. E. arm of St. Mary's harbour runs up 2 miles from the entrance; about half way up it is a mile broad, and above that it is half a mile broad, where ships may anchor, but being open to the sea, this place is not resorted to by ships.

Two leagues above St. Mary's harbour, lie two islands, the largest of which is about 2 leagues long. There is a good passage for ships between those islands, also between them and each shore. The passage on the west side is 2½ leagues wide. Above those islands, are many good an-

choring places on each shore, and at the head of the bay is a fresh water river, which is navigable 2 or 3 leagues up.

Mall bay lies to the westward of North East point, and is about 1 mile broad and better than 2 miles deep. There is no good anchorage in this bay, being open to the sea, and generally a heavy swell setting into it: vessels may occasionally anchor near the head in 5 or 6 fathoms water. good ground.

From Cape English to the south part of Great Colinet island, the course is N. 10° W. distance 3 leagues. This island is of a moderate height, about 1 league long, and 1 mile broad. On either side of this island is a safe passage up the bay, taking care to give Shoal bay point a birth of a quarter of a mile, there being several sunken rocks lying off this point.

Shoal bay point lies 1 mile distant off the east side of Great Colinet Island. On the north side of Great Colinet Island, is a stony beach, from off which lies a bank for about ¼ of a mile, on which is from 7 to 17 fathoms water, rocky bottom.

Little Colinet island lies 1½ mile from Great Colinet island, is about 1 mile long, and half a mile broad.

The entrance into Great Salmon river lies N. 50° E. distance 2 leagues from the north point of Little Colinet island, is about ¾ of a mile broad, and runs to the N. E. 7 or 8 miles; in it is very good anchorage; the best is about 3 miles from the entrance on the north side, in a sandy cove, in 5 or 6 fathoms water.

North harbour lies N. by W. ¾ of a mile from the north part of Little Colinet island, is about a mile broad at the entrance, and runs to the northward about 3 miles; in it is very good anchorage, in about 6 or 7 fathoms water, at about 2 miles from the entrance, where it is not above half a mile wide; or you may run up the narrows, which are formed by two low sandy points, about half a cable's length asunder, taking care to keep the starboard point close on board, and anchor close within the point on the starboard shore.

Colinet bay lies N. N. E. ½ E. 5½ miles from the north part of Little Colinet island; in it is very good anchorage from 5 to 12 fathoms water.

From the eastern head of St. Shot's the land to the eastward tends away E. by S. ½ S. for about 1 mile, then E. ¼ S. 1 mile to Cape Freels.

From Cape Freels to Cape Pine, the course is E. N. E. 1½ mile. The land about Cape Pine, to the eastward and westward, is moderately high and barren.

From Cape Pine to Mistaken point, the course is E. ¼ N. distance 4½ leagues. Between these points lies Trepassey bay, in which is Trepassey harbour.

The entrance of Trepassey harbour lies 2 miles to the N. E. of Cape Pine, is about ¾ of a mile wide, and runs nearly the same breadth for about 2½ miles and is here little more than a quarter of a mile wide, but afterwards increases to ¾ of a mile wide; here vessels generally ride. The dangers in sailing into this harbour are a small rock that lies on the east shore, about a mile within the entrance and is about ⅓ of a cable's length from the shore; and on the west shore, within the harbour, off a stony beach, lies a shoal, and runs along shore, up the harbour, to a low green point. Baker's point, on with a low rocky point in the entrance of the harbour will carry you clear of this shoal. When you are nearly up with the low green point, you may borrow more to the westward, and anchor either in the N. W. or N. E. arm, where you will be very handy for wooding and watering.

From the Powles (the east point of the entrance into Trepassey harbour) to Cape Mutton, the course is E. $\frac{3}{4}$ N. distance 1 mile. Between these points lies Mutton bay, and is about 2 miles deep; in it is from 12 to 3 fathoms water, rocky bottom. The N. W. part of the head of this bay is separated from the harbour of Trepassey by a low, narrow, stony beach, over which may be seen the vessels in the harbour.

Biscay bay lies about $1\frac{1}{2}$ mile to the eastward of Mutton bay, the entrance of which is about 1 mile wide, and about 2 miles deep; in it is from 9 to 3 fathoms water, sandy bottom, but is quite open to the sea.

From Mistaken point to French Mistaken point, the course is N. 80° W. distance 2 miles.

From French Mistaken point to the Powles, the course is W. N. W. distance 8 miles.

The land from Mistaken point to the eastward tends away E. N. E. 1 league, then N. E. by E. $1\frac{1}{2}$ mile to Cape Race, which is table land of a moderate height, having a high black rock lying close off the cape, with several small low rocks to the northward of it. This cape lies in the latitude of 46° 42′ N.

From Cape Race to Cape Ballard, the course is N. E. by N. distance 3 leagues; nearly 1 mile to the southward of Cape Ballard, lies a high black head, called Chain cove head. Between these points is a cove, and to the westward of Chain cove head lies Chain cove, before which lies a black rock above water.

Due east from Cape Race, and S. by E. $\frac{3}{4}$ E. from Cape Ballard lies a fishing bank, called New bank, about 5 miles long, and nearly 2 miles broad; on it is from 9 to 25 fathoms water.

From Cape Ballard to Renowe's rocks, the course is N. 20° E. distance 2 leagues. These rocks are small, of a moderate height, and lie 1 mile from the main land, and are bold too.

From Renowe's rocks to the harbour of Renowe, the course is N. by W. $\frac{1}{2}$ W. distance $2\frac{1}{2}$ miles. This is but a small harbour, and hath not above 15 or 16 feet at low water; it is but an indifferent harbour, having several rocks in the entrance, and the S. E. winds heave in a great sea. To sail into it, you must keep the north shore on board.

Fermouse harbour lies about $3\frac{1}{2}$ miles from Renowe's; between these harbours lies Bear's cove, off which lies a sunken rock, about a cable's length from shore. Fermouse harbour is an exceeding good harbour, there being no danger in sailing into it. The entrance is not more than a cable's length wide: just within the entrance, on the north shore, is a small cove in which a fishery is carried on but no safe place for anchoring, about a quarter of a mile farther in, on the same side, lies another cove, called Admiral's cove; in this cove the merchant's ships generally ride, in 7 or 8 fathoms water, land-locked. About 1 mile farther up the harbour is a cove, called Vice-Admiral's cove. On the south side is the best anchorage for large ships, in 12 or 15 fathoms water, muddy ground; here you will be handy for wooding and watering. Farther up on the same side lies a cove, called Sheep's head cove. Directly off this cove, near the middle of the passage up the harbour, lies a shoal, on which is only 9 feet water. This is the only danger in this harbour.

Bald head lies N. 30° E. 1 mile nearly from Fermouse harbour.

From Bald head to Black head, the course is N. by W. 1 mile.

From Black head to the entrance into the harbour of Aqua fort, the course is N. W. by N. 1 mile nearly; in the entrance is a high rock above water. The passage into the harbour is to the northward of this rock in

which you have 15 fathoms water. This harbour lies in west about 5 miles; at about 2½ miles from the entrance it is very narrow, where you have 4 fathoms water; but just within the narrows, on the north shore, is a small cove, in which you will have 7 fathoms water; this is a good place for vessels to heave down, the shore being steep. To sail up through the narrows, take care to give the stony beach on the north shore, without the narrows, a birth, it being a shoal along that beach, except at the point of the narrows, which is bold too.

Ferryland head lies E. N. E. ½ E. distant 2 miles from Aqua fort, and N. 30° E. distant 3¾ miles from Fermouse. Ferryland head is moderately high, having 2 high rocks above water lying close off the head, called the Hare's ears. This head is not easily distinguished by reason of the main land within it being much higher. The entrance into Ferryland harbour lies to the northward of Ferryland head, between it and Isle Bois, and is little more than half a cable's length wide; but after you are within Isle Bois, it is better than a quarter of a mile wide, and tolerable good anchorage, in 8 or 10 fathoms water; but the N. E. winds heave in a very great sea over the low rocks that run from Isle Bois to the main.

From Isle Bois to Goose island the course is N. ¾ E. distant ½ a mile: and from Goose island to Stone island, the course is N. 5° W. distant half a mile.

Caplin bay runs in N. W. by W. distant 2½ miles from Goose island, is a tolerable good bay, with a safe passage into it on either side of Goose island. To the northward of Goose island, between it and Stone islands, there is not the least danger, the island being bold too. If you pass to the southward of Goose island, between it and Isle Bois, be sure to keep the point of Ferryland head open to the eastward of Isle Bois, in order to avoid a sunken rock, on which is only 2 fathoms water, and lies nearly midway between Goose island, and Cold East point; after you are within this rock, there is not the least danger in sailing up the bay. The best anchorage is abreast of a cove on the larboard hand, about ½ a mile within Scogin's head in 16 or 17 fathoms water.

From the Hare's ears off Ferryland head, to Cape Broyle, the course is N. ¼ W. distant 2¾ miles. This cape is high table land, and makes in a saddle, either coming from the northward or southward. From the north part of the cape E. S. E. ¾ of a mile, lies a small rock, called Old Harry, on which is only 3 fathoms water; but between it and the main is upwards of 20 fathoms water. About ¾ of a mile to the N. E. of the north part of Cape Broyle lies a ledge of rocks, called Horse rocks, on which you have from 7 to 14 fathoms water. In bad weather the sea breaks very high on these rocks. The mark for these rocks is a white house on Ferryland downs, open with Stone islands, and the head of Cape Broyle harbour open will carry you on them.

From the north part of Cape Broyle to the south part of Brigus head, the course is N. W. by N. distance 1½ mile. These points form the entrance into Cape Broyle harbour, which runs 3¾ miles up. About 1¼ mile within the entrance on the north shore, is a cove, called Admiral's cove, in which you may anchor in about 12 fathoms water good ground; but here you will lie open to the south east. The best anchorage is above the narrows, in about 7 fathoms water. The only danger in sailing up the harbour is a ledge, called Saturday's ledge, and lies about 1½ cables' length without the narrows, on the north shore; if you are coming in from the northward, keep the saddle on Brigus head open with the point of Admiral's cove, it will carry you clear off this ledge. After you are

above the narrows, you may anchor in about 7 fathoms water, good ground. Here you will be very handy for wooding and watering.

Brigus by south is a small harbour, only fit for boats, and lies close to the northward of Brigus head.

Cape Neddick lies N. 5 miles from Cape Broyle, and N. 2° W. distance 7¾ miles from the Hare's ears off Ferryland. This cape is table land, of a moderate height, and steep towards the sea.

From Cape Neddick to Baline head the course is N. 15° E. distance 1½ mile. Baline cove is about one quarter of a mile to the northward of Baline head. This is but a small cove, fit only for boats.

From Cape Neddick to the outer point of Great island, the course is N. 40° E. distance 2½ miles. This island is about ½ a mile in length, and of a moderate height.

From Baline head to Isle Spear, the course is N. ½ E. distance 1 mile. Nearly within this island a fishery is carried on, but no safe anchorage, the bottom being rocky.

Toad's cove is a small cove, about 1 mile to the northward of Isle Spear, and is only fit for boats.

About 1½ mile from Isle Spear, lies the south point of Momable's bay; from this point to the north point of the said bay, being the south point of Whitless bay, the course is N. E. by E. distance 1¾ mile. Momable's bay is an open bay, about one mile deep.

Green island is a small round island, about ¾ of a mile from the south point of Whitless bay. From this point lies a ledge of rocks, about ⅓ of the distance over to Green island.

The South point of Gull island lies about ¾ of a mile to the northward of Green island, and is about 1 mile long, and one quarter of a mile broad, and is pretty high land.

Whitless bay runs in about 2 miles from Gull island. In it is a moderate depth of water, good ground but open to the sea. About half way up on the north shore, lies a ledge of rocks; part of these rocks shew above water at about half tide.

One mile and a half to the northward of Gull island lies the south point of the entrance into the bay of Bulls; from this point to the north point of said bay, called Bull head, the course is N. E. ½ E. distance 1 mile. The best anchorage in this bay for large vessels is about half a mile from the head in about 14 fathoms water; but small vessels may anchor higher up, and moor to the north shore, and will then lie land-locked. The only dangers in this harbour are, a small rock off Bread and Cheese point, but is not above 20 yards off, and a rock on which is 9 feet water lying off Magotty cove, about half a cable's length off shore.

From Bull's head to the south point of Petty harbour, the course is N. N. E. distance 8½ miles. From this point runs a ledge of rocks for about one quarter of a mile.

From the south point of Petty harbour to the north point, the course is N. by E. ½ E. distance 2½ miles. Between these points lies Petty harbour bay, which runs in about 2 miles. At the bottom is a small cove, where a fishery is carried on.

From the north point of Petty harbour to Cape Spear, the course is N. N. E. ¼ E. distance 2 miles. This point is rather low and ragged, and may be known by the land to the northward tending away to the W. N. W.

Sailing directions for the Gulf of St. Lawrence.

From Cape North, in the island of Cape Breton, to Cape Ray, in Newfoundland, the course is E. N. E. 19 or 20 leagues.

From Cape North to the middle of the island of St. Paul, the course is E. N. E. ¾ N. distance 4 leagues.

From St. Paul's island to Cape Ray, the course is E. N. E. ½ E. 16 leagues.

[All these bearings are by compass and the variation 16 or 17° W.; and the distances are found by trigonometrical calculation by several bearings taken, &c.]

From Cape North to the Bird islands, the course is N. 9° W. 17 or 18 leagues.

From St. Paul's island to the Bird islands, the course is N. 24° W. distance 15½ leagues.

From Cape Ray to the Bird islands, the course is W. 26° N. distance 22 leagues.

From the Bird islands to the north part of Isle Brion, is W. ¾ S. 5 or 6 leagues.—All the above courses are by compass.

REMARKS.

The Bird islands are but small and not far asunder; the passage between is a rocky ledge. They are of a moderate height, and white at top, the northernmost being the largest, from the east end of which runs a small ledge of rocks.

The passage between Little Bird island and the Isle of Brion is about 5 leagues.

SOUNDINGS.

Body of the Island Brion, S. and S. ½ W. 4 leagues, 35 fathoms, brown sand.
N. end of ditto, S. W. by S. 36 fathoms, same ground.
N. W. end of ditto, S. 40 fathoms, rocky with small shells.
Body of ditto, S. by E. 7 or 8 leagues, 45 fathoms, sand and stones.

From Island Brion to Cape Rosiere, the course is N. W. by W. 39 leagues. Here the variation is 17°.

From Cape Rosiere to the N. W. end of Anticosti, the course is N. N. W. 20 leagues. Here the variation is 17° 30′.

REMARKS.

The channel between Anticosti and the main land of Nova Scotia is about 14 or 15 leagues, and in the middle is very deep water, sometimes no ground with 180 to 200 fathoms line. To the westward of Anticosti is a bank, the extent of which is not known.

LATITUDES.

Cape North	47°	6′ N.
St. Paul's island	47	14
Cape Ray	47	40
Bird island	47	52
North part of Brion island	47	50
Cape Gaspee	48	44
N. W. end of Anticosti	49	46

The islands of Mingan are 10 leagues N. E. from the island of Anticosti, in latitude 50° 15′ N.

REMARKS.

The harbour of Mingan is very secure for ships in all weathers; there is good anchorage all within the Parekett and other islands, and great plenty of codfish. It appears to be very convenient for the cod, seal, and salmon fishery, and has the additional advantage, of a level good soil, and profitable Indian trade. The tide flows here full and change, at 3

o'clock, and rises about 10 or 12 feet; but much of the tides depend on the weather.

The bay of Seven islands is on the north side of the river St. Lawrence, being a very secure harbour for a number of ships in any wind. It lies in latitude 50° 20′ N. and lies N. from Mount Lewis, and W. N. W. 25 leagues from the N. W. end of Anticosti, by the compass.

N. B. The tide flows S. S. W. rises 18 or 19 feet spring, and 10 at neap tides.

Directions for sailing up the River St. Lawrence.

From the N. W. end of Anticosti to Cape Chat, the course is W. S. W. 36 or 38 leagues.

REMARKS.

From Cape Chat it is best never to stand so far northward as Mid Channel, particularly when abreast of Manicouagan shoal, where are some very strong and irregular eddies that will set you on that shoal. Several sail of men of war have been caught in them in a fresh breeze of wind, when not a single ship could answer its helm; some of them drove on board each other, and it was not without much difficulty that very great mischief was prevented by their running foul of each other, and the danger of driving on the shoals of Manicouagan.

From Cape Chat to the island of St. Barnaby, the course is W. S. W. ½ W. distance 28 leagues.

SOUNDINGS.

N. W. end of Anticosti, E. ½ S. 6 leagues, and the Lady's Mountains, S. W. by W. ¼ W. in 58 fathoms.

N. W. end of Anticosti, E. by S. 7 or 8 leagues, 44 fathoms.

Mount Camille,	S. W. by W.
Uppermost of the Lady's Mountains,	S. E. ½ E.
Two little paps near the shore,	S. W. ¼ W.

About 2 leagues from the south shore, 93 fathoms, soft mud.

Mount Camille,	S. W. ½ S.
Westernmost Lady's Mountain,	S. 50° E.

170 fathoms, soft mud.

REMARKS.

This being the nearest to the north shore, the current was so strong, that it was with difficulty the ships were kept from driving on board one another.

About 2 leagues off the south shore, 80 fathoms, soft mud.

Mount Camille,	S. 50° W.
Westernmost Lady's Mountain,	S. 59° E.
Two little paps on the south shore,	S. 20° E.

Nearest the north shore, 160 or 170 fathoms, soft black mud.

Mount Camille,	S. 28° W.
River Manicouagan,	N. by W. ½ W.
West point of ditto, low land,	N. 65° W.

REMARKS.

A strong current here which sets towards the north shore, and is a demonstration that the south shore is most proper to keep on, as it is a clear coast, and no visible current there.

About a league from the south shore, 17 fathoms, muddy bottom.

Mount Camille,	S. E. ½ E.
East part of the isle of St. Barnaby,	S. W. by S.
Father Point	S.

38 fathoms, middle ground.

ANCHORAGE.

In 17 fathoms, muddy bottom, 4 or 5 miles from the shore, the bank shoals gradually to 10 fathoms, within 2½ miles of the shore.

Father point,	S. S. E.
East point of the isle of St. Barnaby,	S. W. ½ S.
Isle Bic,	W. by S.

The highest of Bic hills, in a line with the outer part of St. Barnaby's island, bearing W. ½ S. 7½ fathoms.

Ditto Mountain on the middle of the island about half a mile from shore, 6 fathoms.

The outer part of Bic high land, just without the island, 5 fathoms, all soft mud.

From St. Barnaby to the isle of Bic, the course by compass is W. ½ S. distance 3 leagues; in most places 16 fathoms water.

Anchorage at Bic in 12 fathoms water.

South end of Bic island,	W. by S.
North part of ditto,	W. by N.
St. Barnaby's isle,	E. ½ N.
Mount Camille,	E. ½ S.
East part of Bic hills,	S.

At the upper end of Bic islands, about 2 miles from the island, in 9 fathoms water.

Bicquet island,	N. ¾ E.
Westernmost rock of Bicquet in sight,	N. by W.
Rocks off the east end of Bic,	N. E. ¾ E.
West part of Bic island,	N. by E. ½ E.

REMARKS.

Bic is a low woody island, about 4 miles from the south main land and is 3 leagues W. ½ S. from the Isle of St. Barnaby; all the way is good anchorage in 14 and 16 fathoms water. Between Bic and the main land, is 10 and 12 fathoms. Off the S. E. end of Bic is a ledge of rocks which appear above water, and are very steep too.

To the north-westward of Bic lies a small island called Bicquet, from the west end of which lies a ledge of rocks that may be seen at least two miles, and perhaps they run further under water. Off the east end of this island are likewise rocks as there are to the westward of Bic; so that there can be no passage between these islands, except for boats or very small craft.

From the island of Bic to Basque, the course is W. S. W. 7 leagues. Between these islands are 2 very small islands near the south shore, called the Razade islands; they are about 5 leagues from Bic and 2 leagues from Basque.

Passing to the southward of Bic, steer W. by S. in 9, 10 to 16 fathoms, when almost abreast of the Razade islands, steer W. S. W. and you will have from 20 to 22, 24 and 26 fathoms at high water, till abreast of the Isle of Basque, distance 4 miles, all sandy bottom.

REMARKS.

Although the course from Bic to Basque is W. S. W. yet if you come to the southward of Bic (especially in little wind) you will run on the main land by steering that course; therefore you should at first steer W. by S. until you deepen to 18 and 20 fathoms, and then W. S. W. if you are not as high as the Razade islands, for if you are, you will then be too near the shore.

ANCHORAGE.

About 4 miles off Basque island, in 26 fathoms (high water) a sandy bottom.

Red island,	W. ¾ S.
East point of Green island,	S. W. ½ W.
North point of Green island,	S. W. by W.
Middle of Apple island,	S. S. W. ¾ W.
Entrance of Sagnenay river,	W. by N. ¼ N.
Westernmost rocks between Basque and Apple islands,	S. by E.
West end of Basque island,	S. S. E. ½ E.
East end of Basque island,	S. E. ½ E.
Western Razade island,	E. ½ S.
High land of Bic,	E. N. E. ½ N.

N. B. Basque island, Apple island, and the rocks between them, middle of Green island, and the outermost land in sight (when on Apple island) are in a line W. S. W. and E. N. E. by compass.

REMARKS.

The ebb tide runs here 4½ knots, and much stronger near the island, as in 17 fathoms water, at the same time it runs 6 knots an hour.

Although the ebb tide is so strong here, and the tide rises much by the shore, yet the flood is scarce perceivable.

Within a cable's length of Basque island is 10 fathoms, and very near the rocks that lie between Basque and Apple islands is 6 fathoms. These rocks are always above water.

Green island is about 3 leagues W. S. W. from the Isle of Basque; the ebb tides of Green island are exceeding strong, so that it requires a fresh gale of wind to stem it with all sails. The tide of ebb sets directly toward the island, as do the floods (which are but little here) towards the white island ledge; therefore great care should be taken to anchor here in time, in case it should fall calm, and you be near the island; for there is 25 fathoms almost close to the rocks, and foul ground.

REMARKS.

Off the N. E. end of Green island is a ledge of rocks about 1½ mile in length, which partly shew themselves; there is likewise a ledge of rocks off the west end of the island, which lie right out from it.

From a little below Green island, till you are near the length of Hare island, there is a constant and very strong ebb, occasioned by the great discharge of the waters from Sagnenay river; and even at the east end of Hare island, the flood is not more than 4 hours continuance, and runs so weak, that if it blows but a moderate gale westerly, the ship will not tend to it: in sailing up, it is necessary to keep well to the southward of Red island, and to the westward of it, before you cross over for the east end of Hare island, to avoid getting into the stream of Red island; for should it fall little wind, the ebb tide would set you on the shoals of that island, and there is no safe anchoring to prevent driving upon them.

Red island is a low flat island, and is about 2½ leagues N. W. by N. with the middle of Green island. There are great shoals off Red island, as yet not quite discovered. Being abreast of Green island, you will see the east end of Hare island and the Brandy Pot islands (which are 2 little islands a small distance from it) bearing about W. by S. or W. S. W. from you, distance about 4 leagues from the west end of Green island to the Brandy pots.

When past Green island you should steer for the Brandy Pot islands. There is likewise another small island off the N. E. end of Hare island, called White island; between these islands is a ledge of rocks that extend

at least 2½ leagues from the east end of Hare island; this ledge is dry at low water. Coming away from the upper end of Green island, and steering W. by S. you have 18 fathoms a little distance from Green island, and afterwards 16 and 14 fathoms. In passing White island, going towards Brandy Pot islands, you may go to 10 or 12 fathoms, far enough from all danger, and anchor, being all good holding ground, clayey bottom.

Anchorage in 11 fathoms, clayey ground.

White island,	N. N. W. ½ W.
Brandy Pot island,	W. S. W. ½ S.
East end of White island ledge in sight,	N. by E. ½ E.
Green island,	E. N. E. ¼ N.
East point of Hare island,	N. W. by W.
S. W. point of Hare island,	W. S. W. ¼ S.
North-easternmost Pilgrim island,	S. S. W. ¾ W.
Westernmost Pilgrim island,	S. W. ¼ S.

The Pilgrims are high rocky islands, abreast the upper end of Hare island and are near the south main land. Between Hare island and the south shore is a long bank near the middle of the channel, which is now called the Middle bank.

REMARKS.

The true extent of this bank is not yet known; there is in some places more water than in others; in one place, at the east end of it, there is no more than 10 feet at low water.

There is likewise a bank or shoal off the S. W. end of Hare island, which extends almost to the middle bank and makes the passage very narrow, in which there is depth enough at low water for a ship of great draught.

Passing by Brandy Pot islands, which have 10 fathoms very near them, and keeping along by Hare island, at about 1½ mile distance from it, is all along regular soundings, 14 and 16 fathoms, till you come to ¾ of the length of Hare island, and then coming over for the Pilgrims, you have shoal water all at once, from 7 fathoms to 6, 5½, 5, and 4¾: at one-third flood, you must heave the lead as fast as possible; White island will be almost in a line with the east end of Hare island (between it and Brandy Pot island, and a white house on the south shore, near the river side) almost shut in with the rocks off the east end of the N. E. Pilgrim.

Though the strong flood tide here will set you very fast towards the shoal off the S. W. end of Hare island, yet be very cautious how you steer your ship to the westward, because the water shoals very much, but haul up to the southward, and you will directly get into 5 or 6 fathoms water. The afore-mentioned white house being just in a line with the rocks off the east end of the N. E. Pilgrim, and White island just open of the east end of Hare island; it is shoal near the N. E. Pilgrim. therefore it is not proper to come too near it. Being above the N. E. Pilgrim, you may approach the others pretty near, and steer away for the great island of Kamourasca, which you will see about S. W. from you, and all along in this direction are regular soundings, from 10 or 12 to 14 or 16 fathoms, till near the greatest and N. easternmost Kamourasca; when abreast of it (and very near) you will have very deep water; but at some distance is a very good bank to anchor on, in any depth, from 9 to 14 or 16 fathoms, and good holding ground.

To escape the danger of the Middle Bank.

Coming away from Brandy Pot island (which you may pass very near too) steer along by Hare island in such a manner that you may see White island open within Brandy Pot islands, between them and Hare island. Keep along in this position until they bear about S. by W. ¾ W. and with this direction you may cross the bank with safety: then steer away for the Kamourasca islands, as before.

N. B. It is not safe to cross this bank with a large ship, till it is half flood.

Anchorage in 22 fathoms high water.

The Lower Pilgrim islands - - -	E. N. E. ½ N.
The Lower Kamourasca island - -	E. by N ½ N.
Cape Goose - - - - -	W. by S. ½ S.
Middle of Coudre island, about 6 leagues	W. by S. ¾ S.
Cape Torment - - - - -	W. S. W. ¾ S.

Anchorage in 14 fathoms, sand and clay bottom.

Pilgrim island - - - - -	N. E. by E.
Cape Goose - - - - -	W. ¾ S.
Lower Kamourasca - - - -	E. N. E. ¼ N.
Hare island - - - - -	N. E. ¼ N.
Cape Torment - - - - -	W. S. W. ¾ S.
Mal bay river - - - - -	N. N. W. ¼ W.
Middle of Coudre island - - -	W. by S. ½ S.
Upper Kamourasca island - - -	E. by N.

Anchorage in 24 fathoms.

Cape Goose - - - - -	W. N. W.
N. E. end of Coudre island - - -	W. by S.
S. W. end of do. - - - -	W. S. W.
Mal bay river - - - - -	N. ¼ W.
Hare island - - - - -	N. E. ¼ E.

Soundings in 39 fathoms.

When Cape Goose bears - - -	W. S. W. ¼ S.
Cape Torment - - - - -	S. W. by W.
Hare island - - - - -	E. N. E. ½ N.

When the land to the westward of Cape Goose is just open of it, and a little mountain on the south shore, near the east point of the westernmost Kamourasca islands, you have 25 fathoms.

When the land to the westward of Cape Goose is open about a sail's breadth of Cape Goose, Cape Salmon is just open of Cape Eagle, and the hill and island as before, you have 25 fathoms.

When the south mountain is quite open to the westward of the westernmost Kamourasca island, and the land to the north-eastward just open of Cape Salmon, you have 19 fathoms, soft ground.

When the west point of Mal bay river is just opening of Cape Grosse, and the south part of the isle of Coudre bears S. W. by W. you will have 41 fathoms.

When the north part of the island of Coudre bears W. by S. ½ S. about 2 miles off the island, you will have 35 fathoms.

When the south part of the island of Coudre bears W. by S. and Cape Grosse N. W. by W. you will have 14 fathoms.

When Cape Grosse is N. W. by W. 4 or 5 miles, and Mal bay river N by E. ½ E. you will have 10 fathoms.

When the south part of Coudre is W. by S. $\frac{3}{4}$ S. and Cape Grosse W. N. W. 2 or 3 miles, you will have 15 fathoms, the water deepening to the northward.

When the south part of Coudre is S. W. and the north part of it W. $\frac{3}{4}$ S. about 2 or 3 miles from the east part of the island, the great rock bearing N. N. E. $\frac{1}{2}$ E. 17 fathoms.

Anchorage in 25 fathoms, rocky ground.

Cape Torment - - -	S. W. by W.
South part of Coudre - -	W. S. W. $\frac{1}{2}$ S.
North part of Coudre -	W. by S.
Cape Grosse - - -	N. $\frac{1}{2}$ E.

BEARINGS BY COMPASS.

Cape Grosse and Cape Salmon - -	N. E. $\frac{1}{2}$ N. and S. W. $\frac{1}{2}$ S.
South part of Coudre and Cape Torment -	N. E. $\frac{1}{2}$ E. and S. W. $\frac{1}{2}$ W.

You may moor at Coudre in 17 fathoms, coarse sand. Cape Grosse just open of the land to the westward of it, bearing E. by N. $\frac{3}{4}$ N. a considerable fall of water on the north shore N. by W. $\frac{1}{2}$ W. and the east end of Coudre E. $\frac{1}{2}$ S. In this place the tide runs very strong, which causes the ship always to swing round with the sun.

You may also moor at Coudre in 17 fathoms at low water, sand and mud.

Cape Grosse - - - -	E. by N. $\frac{1}{2}$ N.
Cape Torment - - - -	S. W. $\frac{1}{4}$ W.
East point of St. Paul's bay - -	W. by N. $\frac{3}{4}$ N.
Water stream on the north shore -	N.

Five fathoms water, half a mile from Coudre, till almost close to the shore, and then $3\frac{1}{2}$ fathoms at low water mark, all clear ground.

The tides at Coudre, both ebb and flood, are very strong, yet at the Meadows is good anchorage, but not near the north shore. It is high water at Coudre, by the shore, at half past 4, at the full and change of the moon, and it runs off in the road an hour longer. There is a very long reef of rocks runs off the N. W. of the island, which are all covered at high water.

Bearings from the end of the Ledge that is dry at low water.

St. Paul's church (just open) - - - -	N. 41° W.
East bluff point of St. Paul's bay (called Cape Diable)	N. 27° W.
The water-fall on the north shore - - -	N. 27° E.
N. W. bluff point of the island - - - -	S. 22° W.
The N. E. bluff of do. off which is a reef of rocks,	E. 9° N.

N. B. The part of this reef which is dry at low water lies to the westward, about S. W. and N. E. and the eastward about east and west. Near the length of a cable, farther out, is 5 fathoms at low water.

The tide, both ebb and flood, sets into St. Paul's bay, which is shoal and rocky some distance off (from whence is given to it the name of the whirlpool) so that passing either up or down this river it is proper to go as nigh the reef as you can, to keep out of the contrary current; and for the greatest safety it is proper to buoy the end of the ledge, in about 5 fathoms, at low water, and it shoals out afterwards pretty gradually. If you pass it in about 8 fathoms (which is far enough off, with a breeze of wind to command the ship) you will be much nearer the island than the main land, and having passed the ledge, you will have 16 and 18 fathoms at a convenient distance from the island.

There is a shoal or ledge of rocks off the north shore, all the way from the west point of Paul's bay, or Cape Raven, to Cape Hog, which is about a league above Cape Maillard. This shoal lies not a great way off, but farther in some places than others. In coming away from Coudre, and sailing up the river, it is proper to keep three capes, which you will see to the westward, open one of another, all the way from Coudre, till you come past the little river settlement, or to bring the church of it to bear about N. W. by N. is a very rocky bottom, and then begins good ground.

Anchorage in 16 fathoms, sand and mud.

Cape Maillard, distance about 1½ mile - -	N. W. by N.
South part of Coudre - - - - -	N. E. ½ E.
Pillar island - - - - - - -	S. E. ½ E.

Anchorage about one mile from the north shore, in 9 fathoms, at low water sand and mud.

Pillar island, in one with a * rocky island - -	E. 4°-N.
Cape Grosse, almost one with the S. E. part of Coudre	N. 48° E.
Cape Torment, a little open with Burnt Cape -	S. 72° W.
The south part of Orleans island - - - -	S. 63° W.
Cape Race, just open of Cape Maillard - -	N. 30° E.
North part of Coudre - - - - - -	N. 36° E.

[*Observed the latitude here to be* 47.04.]

* *Bearings taken from the said rocky island.*

Cape Grosse, a sail's breadth open of the S. E. part of Coudre,	N. 50° E.
North part of Coudre - - - - - -	N. 40° E.
Cape Corbeau, or Cape Raven - - - - -	N. 35° E.
Cape Maillard - - - - - - - -	N. 22° E.
Cape Torment - - - - - - - -	S. 65° W.
South part of Orleans, in sight - - - - -	S. 55° W.
In one with the east end of rocky ledge.	
Pillar island - - - - - - - -	E. 1° N.

This rocky island is about half a cable's length, dry at low water, and very craggy; it is never covered, although the sea may break all over it in bad weather.

A white house, on the south shore, open of the east end of the Isle of Madame (and when it is quite shut in) being very near the north shore, you will have 11 fathoms.

A little mountain open of the west end of Rot island, being near the north shore, you will have 9 and 8 fathoms.

The same mountain on the east end of the Isle of Madame, about a quarter of a mile from the shore, you will have 10 fathoms; then haul over for the Traverse.

Directions for passing the Traverse.

BEING past Burnt cape, or when it bears N. N. E. from you, haul over for the Traverse, which ought to be passed in a very clear day. If the points of the shoals are not buoyed, which for greater safety should be done, because in hazy weather the land marks cannot be seen, which are three mountains very far inland, and a little round hill to the westward, may likewise be made use of, which after you are past Burnt cape, and crossing in the Traverse, must always be kept to the westward of

the east end of Madame, or otherwise you will certainly be on a sand shoal, which extends itself from Burnt cape ledge. This mountain, in clear weather, may always be seen, and keeping it a ship's length to the westward of the east end of Madame, is the best mark for the Traverse; and this course should be continued until two points on the south side of Orleans are opened a good ship's length off each other, that is, St. John's point, with the point of Dauphine river, and then you may bear up, and steer up along with the point of St. John, still a little less open, as you go farther up towards the island of Orleans, to avoid a little shoal that is off the east end of Orleans, on which there is not quite three fathoms, at low water, off which there is no danger for any ship, except it should be dead low water; yet St. John's point should not be shut in with Dauphine point (or else you may be on the shoal that reaches from the east end of Orleans) till you are almost abreast of Cape Torment, or until it bears N. There is another mark to know when you are far enough over from Burnt cape, and that you may bear up, observe on the south shore a little round mountain, (there being no other near) when you have brought this little mountain open to the westward of the Two-head island, you may bear up for Orleans, &c. As the Two-head island cannot be well distinguished by a stranger, from the other islands, so it may be supposed a stranger will not attempt to pass the Traverse, without first acquainting himself with it. This little mountain, when open of the Two-head island, will bear S. 69° E. there is no danger in standing farther to the southward, as the channel is pretty wide; but as there is a shoal between you and Rot island, on which is but 9 feet at low water, and uneven rocks; to avoid this shoal you should observe the point of Orleans for marks, as aforesaid.

There is a mark to know when you are coming on the edge of this shoal, which is, observe to the eastward, on the south main land, a mountain, which appears to have three points, of an equal distance; when this mountain is brought on the east point of Canoe island, you are coming on the edge of this shoal; there is likewise a little rocky island off Burnt cape, which, when you are on the end of this shoal, will be about 2 ship's length open of Cape Grosse. When you are on the shoal, the island will be nearly in a line with Cape Grosse, and the Three-pointed mountain with Canoe island.

To make use of the three mountains aforesaid.

In coming up past Burnt cape, when you have brought the west end of the westernmost mountain on with the east end of Rot island, you may steer over with them in one line, until you open St. John's point, as aforesaid. Nor is there any danger in bringing the east end of the westernmost mountain on with the east end of Rot island, but it should not be brought to the westward of it until you have open St. John's point. You might by this last mark go over near Rot island, and go up to the southward of the middle shoal, with St. John's church just open of the point; in this channel is deep water, but it is narrow; it is called the Old Traverse, and the other is called the New Traverse. It is not proper for the Old Traverse to be made use of, as the passage between the middle shoal and the sand off Burnt cape ledge is narrow, and you will be so much the longer going across the tide, which may carry you out of the way if you are not very attentive to the marks. The middle shoal reaches up the river until you have got Bellchase church a good deal open of the west end of Rot island, but as a mark of this kind is very deceiving, it reaches until you have brought the east end of the middle mountain on the west end of Rot isl-

and, and then you will be past it, and have the channel open from near the island of Orleans, to very near the west end of Rot island, and may anchor between Orleans and Madame islands, or proceed up the river, at pleasure. If it should be thick weather, and you would pass the Traverse, and the mountains cannot be seen, nor the ends of the shoals buoyed, it might be done by keeping one or two houses open of the east end of Rot island, or the third house may be brought in a line with it, but should not be opened; and these marks may be observed until you have opened St. John's point, as aforesaid.

But as these houses may be mistaken for others, even by a person who is acquainted with the Traverse, it is not safe to use them. It is certain, the greatest difficulty of the Traverse is in coming over from Burnt cape, to open St. John's point, as the channel is but narrow, and you are so long going across the tide; and at Burnt cape the channel is not above $\frac{3}{4}$ of a mile wide between the cape and the point of the ledge. You should likewise observe here, to keep clear of the ledge, to keep a part of the Butt (which is a high spot of land in the middle of St. Joachim's meadow, and appears like a platform or island) always shut in behind Cape Torment; that is, you must not open it all of the cape until Burnt cape bears N. of you, or you will certainly be on the ledge. The soundings at the edge of this ledge are very uncertain, for at one cast you will have 5 fathoms, and at the very next cast (heaving the lead fast) you may be on shore. It may be observed, that just as you have St. John's point opening, there is not any more water any where in the channel, between Orleans shoal and the shoal off Burnt cape, than 5 fathoms, at low water; but after you have bore up for Orleans there is 6 and 7 fathoms at low water, within a ship's length of the sands that dry.

Soundings in the Traverse.

Abreast of Burnt cape, a little round mountain to the westward, on with the E. end of Madame, 5 fathoms.

The same mountain between Rot island and Madame, 4 and $4\frac{1}{2}$ fathoms.

The E. end of the first W. mountain on the W. end of Grosse island, and the little one to the westward, a little to the westward of the east end of Madame, $5\frac{1}{2}$ fathoms.

The W. end of the second mountain on the W. end of Grosse island, and Little mountain on the east end of Madame, $2\frac{3}{4}$ fathoms.

Little mountain on the E. end of Madame, and the E. end of the second mountain on the W. end of Grosse island, $2\frac{3}{4}$ fathoms.

The little mountain, a little to the westward of the E. end of Madame, and the W. end of Grosse island in the middle, between the second and easternmost mountain 6 fathoms.

A white house just open of Madame, and the hill a little to the westward of the E. end of Madame, and the E. end of the third, and easternmost mountain on with the W. end of Grosse island, 6 fathoms.

The W. end of the first mountain on the E. end of Rot island, St. John's point well open, $5\frac{1}{4}$ fathoms. (Steer by it.)

The middle of the first mountain on the E. end of Rot island, the Little mountain just to the westward of the E. end of Madame, St. John's point well open, $4\frac{1}{2}$ fathoms.

N. B. Keep the Little mountain always to the westward of the E. end of Madame.

The E. end of the first mountain on the E. end of Rot island, two white houses open of Madame, the Little mountain just opening to the E.

end of Madame, 4¾ fathoms (never open the Little mountain.) The W. end of the first mountain on the Vista in Rot island, St. John's point well open, 5 fathoms.

The E. end of the first mountain on the Vista, St. John's point well open, 5 fathoms.

The second mountain on the Vista, and another little hill near the other, on the W. end of Madame, St. John's point well open, 6½ fathoms.

Marks on the little shoal near the E. end of Orleans.

The W. end of the second mountain on the W. end of Rot island shoal, and the west trees of Rot island, about the middle of the same mountain; the W. part of the three-pointed mountain on the E. point of Canoe island; St. John's point a good deal open of Dauphine.

The E. point of Orleans, on the Little Valley, at the W. end of the Saddle mountain.

Bearings on the east end of Orleans Ledge, in 4 fathoms at low water.

The Little Rocky island	N. 68° E.
Cape Torment	N. 2 E.
West end of Rot island	S. 30 W.
E. end of Rot island, and E. end of the Second mountain	S. 13¼ E.
W. end of Grosse island	S. 28 E.
W. end of the Two-head island, and the Little mountain, just to the westward of it	S. 69 E.
W. part of the Three-pointed mountain, on the W. part of Goose island	N. 83 E.
St. John's point a good deal open	S. 52½ W.
W. end of Madame	S. 40½ W.
E. end of Madame	S. 34½ W.
E. end of the First mountain, about one-fifth the distance of Rot island from the E. end	S. 6 E.
Cape Grosse	N. 52½ E.

Bearings near the edge of the Middle Ground.

E. end of Orleans	N. 63° W.
A buoy on a little shoal, near Orleans,	N. 54 W.
St. John's point	S. 53½ W.
St. Francis' church	S. 72½ W.
West end of Rot island	S. 6 E.

Bearings taken from the upper end of the land (off Orleans) dry at low water.

The W. end of Rot island	S. 3½° W.
E. end of Rot island, with the W. end of Grosse island	S. 55½ E.
Cape Torment	N. 31 E.
St. Joachim's farm	N. 12½ W.
St. Joachim's church	N. 52 W.
E. point of Orleans	N. 71 W.
N. point of Orleans	W.
The Little island	N. 60 E.

Bearings from another station, near the east end of the said sand, dry about 1½ mile N. 63° E. from the last.

W. end of Rot island	S. 22° W.
E. end of Rot island	S. 25½ E.
W. end of Grosse island	S. 36 E.
Little island	N. 63 E.
Burnt Cape	N. 29 E.
Cape Torment	N. 14 E.
E. end of Orleans	S. 64½ W.
Point of Dauphine's river	S. 52 W.
St. Joachim's farm	N. 53½ W.
The shoal to the eastward	N. 51½ E.

Bearings from the west end of Rot island.

Cape Torment	N. 18° E.
St. Joachim's farm	N. 3½ W.
E. part of Orleans	N. 38½ W.
S. W. end of Grosse island	S. 89 E.
Little mountain	S. 82 E.
E. end of the third	S. 27 E.
E. end of the second	S. 13 E.
Westward of the first mountain	S. 7 E.
Middle of Bellchase island	S. 19 W.

Bearings from the east end of Rot island.

St. Thomas's church	S. 53° E.
W. end of the first mountain	S. 2 E.
E. end ditto	S. 7 E.
E. end of the second ditto	S. 14½ E.
Bellchase	S. 27 W.
Middle of Bellchase island	S. 36½ W.
The mark windmill	S. 43 W.
St. Valier's church	S. 47 W.
N. E. part of Grosse island	N. 83 E.
N. E. part of Crane island	N. 80 E.
S. W. part of the Two heads	N. 78 E.
Little island	N. 33 E.
Houses below St. Joachim's	N. 28½ W.
W. end of the Butt	N. 51 W.
E. end of Saddle hill	N. 64 W.
Two points off Orleans	N. 75½ W.
St. Francis's church	S. 86½ W.

Bearings for the west end of Madame.

St. John's church	S. 71° W.
Port St. Lawrence	S. 68 W.
St. Valier's church	S. 28½ W.
The mark church	S. 17½ W.
St. Thomas's church	S. 86 E.
Bellchase church	S. 40 E.
The middle of Bellchase island	S. 25 E.
E. end of the first west mountain	S. 18½ E.
Dauphin river	N. 60 W.
Little mountain	E.
South part of Crane island	N. 79 E.
South part of Grosse	N. 70½ E.
S. part of St. Margaret, on the three pointed mountains	N. 73½ E.
Cape Raven	N. 40½ E.
Cape Torment	N. 29 E.
E. point of Orleans	N. 19 E.
St. Francis' church	N. 5 E.

From Point St. John to Point St. Lawrence there is no danger, and about a mile from the shore of Orleans you will have 7, 9, 10, 13, 16, and 18 fathoms, rocky ground.

At Point St. Lawrence you must (in order to avoid the shoals of Beaumont) keep the starboard shore till you have passed the falls of Beaumont, which are on the south shore, and then steer up in the middle of the stream, till near the west end of Orleans, when, to avoid the Moranda rocks, keep nearest to the south shore, and you may anchor at three-fourths of a mile from the south shore, in 9 fathoms water. Point Levy bearing W. S. W. and the west point of Orleans N. N. E. rocky ground, or you may proceed with the tide directly for Quebec, and anchor within 2 cable's length of the town, in 15 fathoms, muddy ground, Cape Diamond bearing S. W. ½ W.—N. end of the Barbet battery W. by N.

THE TIDE FLOWS FULL AND CHANGE.

At Quebec, half an hour after 8.
Isle Madam, at 8.
Cape Maillard, at 7.
Isle of Coudre, at 6.
The Kamourasca, at ¾ past 5.
The Pilgrims and Hare island, at 5.
Bic, ¾ past 3, but not regular.

N. B. From Coudre to Quebec the water falls 4 feet before the tide makes down. At Isle of Coudre, in spring tides, the ebb runs at the rate of 9 knots. The next strongest ebb is between Apple and Basque islands—the ebb of the river Sanguina uniting here, it runs full 7 knots in spring tides.

Directions for sailing from Quebec, *down the River* St. Lawrence.

From Point Levy to Point St. Lawrence, the course is E. ¼ N.

From Point St. Lawrence to St. John's, the course is N. E. by E.

From St. John's to St. Francis, N. E. ¼ N. keeping upon the island side, all the way having from 10 to 16 fathoms.

When abreast of St. Francis, steer N. N. E. until you bring St. John's point a handspike length open with Dauphin point; with that mark steer N. E. ¼ E. at which time a round rock will be right ahead of you; continue this course until a high hill on the south shore will be just on with the east end of Rot island, at which time the trees on the said island will be just abreast of you, and then steer N. by E. for Cape Torment; keep very near Burnt Cape, on account of Burnt Cape ledge, that lies opposite to it.

Anchorage on the edge of Burnt Cape ledge, in 4 fathoms.

East end of Rot island	S. 14° W.
West end of Grosse island	S.
West end of the first mountain, about a sail's breadth to the eastward of Grosse island	
Middle of Little island	E. 3 S.
Burnt Cape	N. 25 W.

REMARKS.

The Little Hummoc, or rising on the high land of Coudre, must never be open of Cape Maillard, till you are below Burnt Cape, nor all the Butt, by any means kept open of Cape Torment, if you would keep the channel, which is but three-fourths of a mile wide at Burnt cape.

Bearings taken from the west end of Little island, or Gooseberry island, which lies about N. 55° E.

West end of the Butt	S. 77½° W.
Cape Torment	S. 85 W.
Burnt Cape	N. 69¼ W.
Cape Maillard	N. 36½ E.
Cape Raven	N. 37 E.
Cape Grosse	N. 52 E.
Neptune Rock	N. 52¼ E.
The middle of Three-pointed mountain on the east end of Grosse island	N. 84 E.
The westernmost rock dry	S. 58 E.

The Little mountain	S. 57° E.
West end of Crane island	S. 30 E.
East end of the first mountain	S. 4 E.
West end of Grosse island	S. 15½ W.
East end of Rot island	S. 29½ W.
West end of Madame	S. 46 W.

You must then steer N. E. for Cape Maillard, keeping the north shore on board, which is very bold.

From Cape Maillard to go clear of Coudre Spit, N. E. by N.

In sailing from Cape Maillard to Coudre, with the tide of ebb, you must go as near as possible to the point of the shoal which lies off the N. W. end of the island, till you come in 8 fathoms water.

The first of the tide sets directly on Cape Diable from this point; so that if you have but little wind you must anchor before you get within 2 miles of the point. At half ebb the tide runs truer through the channel. The moment you get to the eastward of the point (if you intend to anchor) haul up for the meadows, otherwise you will not be able to get in good ground.

The course from Coudre to the Kamourascas and Pilgrims is N. E. by E.
From the middle of the Pilgrims to the Brandy Pots, the course is N. E. ¾ N.
From the Brandy Pots to the Isle of Bic, is N. E. by E. ¾ N.

Directions for the South Channel from St. John's Point *of* Orleans, *to the S. W. end of* Crane Island, *opposite the South River.*

There is a ledge of rocks lies off the S. W. end of Madame about S. 60° W. from it, and in a line for a point on the south shore; these rocks are very dangerous and dry at low water. To know when you are at the end of it, and that the channel is all clear, observe on the high land by the water side on the south shore, a windmill and 3 mountains, a great way back in the country (the same 3 mountains taken notice of for the Traverse;) when this windmill is brought in a line with the east end of the westernmost of the three mountains, you are just off and on of the west end of the shoal. But as it may be often hazy that the mountains cannot be seen, the windmill will then bear S. 22° E. St. John's church S. 85° W. St. Francis' church, N. N. E. Bellchase islands, E. 10° S. and the north part of Rot island about two ships' length open of the north part of Madame: therefore, to be quite clear of the ledge, the windmill should bear S. 30° E. then St. Valier's church (which is the next church to the westward of it) will bear about S. 12° E. and the middle of a little wood by the water side, on Orleans, N. W. Being below the end of the ledge, going down, a part of Rot island should always be kept open to the southward of Madame (as in the north channel Rot island should always be kept quite open to the northward of Madame, while you are between the ledge and Orleans island:) and if you have a fair wind, you may steer away directly for the South part of Crane island, the channel being clear and open until you bring St. Francis' church to bear N. 70° W. or the east end of Rot island, N. 38° W. for in that direction begins a shoal off the south shore, a little above a point called

Quail point. This shoal is very wide, and extends half the breadth of the channel of St. Thomas' church, and the south river; and to keep clear of this shoal, you should always see a part of the Grosse island open to the northward of Crane island. The channel is very near Crane island; here is every where good anchorage, clay bottom, and in the channel, in most places, 7 fathoms water. The south shore is every where else pretty bold too, and there is deep water very near Bellchase islands. In turning between St. Margaret's island and the shoal, you may stand to the southward until the Grosse islands are almost shut in by the N. part of Crane island, and to the N. until the Grosse islands are quite shut in (to the north) by the south part of Moiac island, or until Canoe island is almost all open to the northward of Moiac island, but not any farther, nor even so far with a large ship. The island St. Margaret is pretty bold, only a few rocks lie off it, and those not far; the farthest off is a single rock off the S. W. end, and therefore it is not proper to come too near the island here. There are likewise some few rocks off Grosse island, and not far off Rot island is a flat or sand bank, which lies above half a mile into the channel; it is likewise shoal to the southward of Madame, but not far off; but as it is bold towards the south shore, it is not proper to come too near those islands. Crane island is bold too, and the best of the channel is very near to it. On the N. W. end of Crane island (the South river falls, S. 4° E. St. Thomas' church, S. 22° W. Bellchase church, S. 60° W.—west end of Grosse island, S. 35° 30′ W.) a base line of 1 mile was measured to the south part of the island called La Point au Pain, or Bread point, by which the breadth of the channel and the extent of the shoal off the south river (on the edge of which a sloop was anchored) were determined as follows:

From the west part of Crane island to St. Thomas' church, 3 miles.

From ditto to the South river falls, 3½ miles.

From ditto to the edge of the shoal in a line with St. Thomas' church, 1½ mile.

N. B. For a greater certainty of keeping in the channel, you may keep a high mountain (at a pretty great distance on the south shore) in a line with the south part of Crane island or Bread point. This mountain bears with the said point N. 71° E. and S. 71° W. and then you will have all along about 7 fathoms water and exceeding good holding ground, clay bottom; nor are the tides near so strong as in the north channel.

☞ *As the Editor has now completed Directions relating to the* LABRADOR, *he begs leave to inform the public he has just published a complete Chart of that Coast, on a large scale, which for accuracy surpasses any extant, improved to* 1820.

Directions to go to the eastward of the island of Campo-bello, *between the said island, and the* Wolves' Islands.

If you are bound to the river of* Passamaquoddy, in a large vessel, your best way is to go to the eastward of Campo-bello, keeping your course N. E. by E. which will carry you to the Wolves, distant about 3

* There are three rivers which fall into Passamaquoddy bay; the largest is called by the modern Indians the Schoodick, but by De Mons and Champlaines, Etchemins. Its main source is near Penobscot river. The mouth of the river has 25 fathoms water, and the land is very bluff.

leagues from Campo-bello. The Wolves lie about E. S. E. from said island, and when the passage between Campo-bello and the White horse bears W. N. W. you must steer W. N. W. leaving the White horse on your starboard hand and keep Camp-bello island best on board. The White horse is a large white rock, which lies off the N. E. end of Campo-bello. You will see a fine harbour, called by the French, Harbour Delute, and will leave several islands on your starboard hand when you pass the White horse. As you pass here you will open a large bay to the W. S.W. which is sufficient for 100 sail of the line to lie in. There is very deep water between the Wolves and the island of Campo-bello, being from 50 to 100 fathoms. Bring Campo-bello island to bear S. S. E. or S. E. and you will have 20 fathoms water, where you may anchor and lie safe from all winds. Your course to Moose island is W. S. W. distance 2 leagues, where you may anchor in 8 or 10 fathoms, muddy bottom. Here is the best harbour in the United States for making dry docks, as you may have them either on the south end of Moose island, or 30 or 40 miles up Scuttoc river. Common tides rise here 25 feet. At full and change it is high water at half past 11 o'clock, at Moose island.

Macey's bay, between Point Lapreau and Beaver harbour, affords good anchorage. If bound to the westward, having passed Point Lapreau 7 miles, steer W. N. W. until a large island which lies N. W. from the point bears N. N. E. then run for the island, leaving it on the starboard hand, which will carry you into the harbour, in 7 fathoms water, good anchorage. There is also a small island off Point Lapreau, but you leave both on the starboard hand (between which there is no passage) while running into the harbour. Off the point which lies opposite the two islands, and which you leave on the larboard hand in running into the harbour, lies a rock, always bare, about two cables' length from the shore.

If you fall in with the Wolves, and wish to run for Macey's bay, run N. E. by N. 5 leagues, which will carry you to the same anchorage as before.

In crossing from the Wolves to Macey's bay, allowance must be made for the current, which sets very strong from E. by N. to W. by S.

Should you, after making Campo-bello, wish to run for the harbour of Latonge, bring Campo-bello to bear S. S. W. and run N. N. E. 5 leagues, which will carry you into good anchorage in 5, 6, and 7 fathoms water.

Directions for the Eastern Coast when you fall in with Grand Manan *or* Mount Desert Hills.

These places may easily be known from the western coast. Mount Desert hills may be seen 20 leagues at sea, and when within 4 or 5 leagues of them, you may see Scuttoc hills bearing about N. N. E. The tide of flood sets here E. N. E. and the ebb W. S. W. but as soon as you are 9 or 10 leagues from the land, the current runs, in general, to the S. W. westward.

If you fall in with Mount Desert rock, which lies S. 6 leagues from Mount Desert hills, you must observe the tide of flood sets W. S. W. along shore, till you come to the Fox islands; but the same flood runs

up to the northward into Blue-hill bay, Union river, and * Isle-au-haut bay.

The next remarkable land is Penobscot hills, which you will see over the Fox islands, bearing from the N. W. to N. N. W. of them. When you pass the Isle-au-haut, in steering W. S. W. you will leave Mantinicus islands and Mantinicus Seal islands to the southward of you. (If at night or thick weather it is adviseable to go to the southward of all these islands unless you are well acquainted.) When you pass to the westward of Mantinicus islands, the main passage from sea to Penobscot bay lies about N. by W. If you go into this passage you leave Mantinicus island on your starboard, and the two Green islands on your larboard hand, steering north westerly 4 leagues, and if bound up the bay, follow your directions for Penobscot bay.

If you come in from sea and make the island of Manheigin, when it bears N. or N. N. W. it appears like two islands ; but when it bears east or west, it appears in one island. Damiscove islands lie to the W. by N. of it, which are all bare of trees except the north part. The rocks called Bantam ledge, lie two miles from Damiscove, S. W. or W. S. W. When you are 6 or 7 leagues off at sea, you will have 70 or 80 fathoms water, with a S. W. current. In general, between Damiscove and Manheigin island, the flood-tide parts and sets E. N. E. to the eastward, and W. S. W. to the westward as far as the island of Seguine, and to the northward up to Broad bay, Sheepscut and Kennebeck rivers, and the ebb sets the contrary way.

Directions from Machais *to* †Passamaquoddy.

When you leave Machais and are bound to Passamaquoddy, bring Grass island to bear S. W. by W. and steer N. E. by E. distant 9 leagues to West Passamaquoddy light-house, near which is an ALARM BELL, which will, during foggy weather, strike ten times in a minute, the sound of which may, when calm, be heard five miles. But if the wind takes you to the eastward, there is a good harbour about two leagues to the N. E. of ‡Cross island. This harbour bears due west from the middle of Grand Manan island, and is called Little river, but you cannot see it except you are near the north shore. You must not run in for it before it bears N. W. or N. N. W. There is a bluff point of rocks on the starboard hand as you go in, and an island in the middle of the harbour. As you pass in leave the island on your larboard hand, and when you have passed it half a mile, you may anchor in 4 or 5 fathoms, muddy bottom, and remain safe from all winds. Your course from this harbour to West Passamaquoddy light is N. E. by E. distant 7 leagues. When you come from the S. W. and are bound into West Passamaquoddy, you must give the Sail rocks a

* The Isle-au-haut is remarkable land, which makes with a large bay on each side of it, and the highest part of the island is in the middle.

† Passamaquoddy light is situated on West Quoddy head. The lantern is elevated 90 feet above the level of the sea, and contains a fixed light, which may be seen at the distance of 7 leagues in clear weather.

‡ Cross island lies on the east side of Machias bay. A light-house will be erected on this island the present year (1821) as a law has passed making appropriations, when directions will be immediately published by the author of the Pilot, and delivered gratis to those who have purchased the 10th edition, unless it should be completed previous, in which case, it will be inserted in the Appendix, to which the reader is referred.

birth of three-quarters of a mile before you haul in for the harbour, as there is a whirlpool to the eastward of them. The bay is about 1 league from this point: it is high water here at full and change of the moon about half past 11 o'clock.

There is a good bay that lies about W. S. W. from this point, where you may anchor, if the tide does not suit to go over the bar; but if the tide suits, you may proceed, keeping to the westward till the bar bears N. N. W. which course you may steer till you get up to Allen's island. In steering this course you will see a house that has two doors in it on Allen's island, which house you must keep open with a little green island which lies in the middle of the passage. When you get over the bar this house must be brought open to the westward of the island, and you may go on either side of it, as the wind should favour you. If you go to the westward of it, with the tide of flood, and the wind fails you, the tide will carry you into a large bay on your larboard hand. The first island you come to is the Collector's, which lies on your larboard hand, and the next to this is Allen's island. When you come to the westward of the little island, you may anchor opposite the long house on Allen's island, or direct your course N. N. E. distant 3 miles to Moose island. In the passage of West Passamaquoddy, the tide sets N. N. W. over the bar, two hours before it rises one foot, and likewise sets S. S. E. two hours before high water. When up as far as Allen's island, if you leave it with the tide of flood, steer N. N. E. 3 miles, when you will have the tide against you 4 hours; and two hours before high water the tide sets S. S. W. till you come down to the Collector's island, when it sets over the bar S. S. E. The tide rises here 25 feet. There is a fine cove on the south end of Moose island, where a ship of 500 tons may lie, moored head and stern, safe from all winds, but the anchors are very much exposed with the wind to the eastward or E. N. E.

If you are bound up Scuttoc river from Moose island, as you pass Bald head, give it a birth of half a mile as there is a large ledge of rocks that lies off from it. When you have passed this point your course is N. N. W. distant 8 or 9 leagues to the Devil's head, or Oak point (so called) the Devil's head you leave on your larboard hand, which is very high land and may be seen 10 or 12 leagues. Your course from said head is W. N. W. 1 league, when you will come to a large ledge of rocks that you must leave on your larboard hand, which is bare at two hours ebb, and extends half way across the river. Keep your starboard hand on board, and when you pass this ledge your course is W. S. W. distant one mile to Pumroy's point, and from said point to the harbour your course is N. W. by N. distant 3 miles, and the next reach to the Falls is W. N. W. distant one mile; the tide flows here 25 feet, and there are only 6 or 7 feet in the channel at low water, with long flats of mud on both sides.

There are several good harbours on the west side of this river, and all the difficulty is the great depth of water, which is, in general, from 18 to 24 fathoms. There is also a good harbour on your starboard hand going into Deer island, which lies to the southward of St. Andrews, 2 leagues distant. It may be easily known as there is a large bay between the two islands, which lies N. E. from the river St. Croix, 3 leagues distant. St. Croix lies in lat. 45° 07′ N.

Directions for *Titmanan *light-house.*

In coming from the westward, bound to Pigeon hill or Bobeen harbour, bring the light to bear S. W. and run for it, giving it a birth of one-fourth of a mile, and then steer N. ½ W. 4 miles; in steering this course you will leave the Egg rock on your starboard hand, when you will make the westerly shore, giving it a birth of half a mile; then steer N. N. E. one mile, when you will be opposite Dyer's house, where you may anchor, safe from all winds, in 3 fathoms water.

In coming from the eastward, bound to Dyer's bay, give the island half a mile birth, leaving it on your starboard hand; bring the light to bear N. E. three-fourths of a mile distance, then steer N. by W. which will carry you into the mouth of the bay, leaving a large dry ledge on your larboard hand; when abreast of this ledge, which is bold too, give it a birth of 5 or 6 rods, then steer N. ½ E. 4 or 5 miles, where you may anchor, safe from all winds, in 4 or 5 fathoms, muddy bottom.

Goldsborough harbour lies N. N. W. from the light-house, two leagues distant, leaving one island, covered with trees, on your starboard hand, and two on your larboard hand; then your course is N. N. W. 1½ mile, then N. ½ E. 4 miles, which will bring you up with Goldsborough point, where you may anchor, safe from all winds, in 3 or 4 fathoms, muddy bottom.

In coming from the eastward, bound to Prospect harbour, give the island a birth of three-fourths of a mile, bring the light to bear E. S. E. and steer W. N. W. four leagues, which will bring you up with the western shore, or Birch head harbour. In running the above course, you will leave Cranberry rock point on your starboard hand, Moulton's ledge and the two black ledges on your larboard hand; your course from Cranberry rock point in, is N. W. by N. In case you should not make the point, continue your course W. N. W. until you make the western shore, giving it a birth of half a mile, then steer N. N. E. until you open the harbour, then steer N. W. which course will carry you safe in. If you fall in with Scuttoc island, and are bound to Prospect, give it a birth of three-fourths of a mile, then steer N. N. E. which course will carry you safe into the harbour. In running this course, you will leave the two black ledges on your starboard hand, giving them a birth of three-fourths of a mile.

Moulton's ledge bears from the light-house W. by N. four miles distance; this ledge is not bare except at low tides; strangers should not approach too near it; it lies due south from Goldsborough harbour. There is a sunken ledge that lies S. E. by E. from the light-house, 5 miles distant, on which there is but 7 feet at low water.

S. S. W. 4 miles distance from the light-house lies a sunken ledge, on which there are 12 feet at low water.

Directions from Mount Desert *to* Goldsborough *and* Machias.

In going from Mount Desert to Goldsborough, you must steer E. ½ N.

* Titmanan light-house stands on the S. E. part of Titmanan island. It is a stone building, 25 feet high, contains a fixed light from lamps fifty-three feet above the level of the sea.

for *Scuttoc point, 4 leagues, where is an island which you may pass either side of, but it is best to leave it on your larboard hand, and then steer N. E. about 3½ leagues, which will carry you up with Goldsborough harbour. You will see three islands which lie in the mouth of the harbour; you must leave them on your larboard hand, and go in the eastern passage. In standing in for this place you will see Titmanan's island, which has a light-house on it containing a fixed light, that you leave on your starboard hand. North from Titmanan one-eighth of a mile distant lies a ledge bare at half tide, which you keep within half a cable's length of, when going over the bar, which you pass on your starboard hand when bound eastward, at which, as you pass the bar, Scuttoc island will be a handspike's length open to the southward of Scuttoc point. When near the bar, and up with Titmanan, keep E. S. E. one half a mile distant, which will clear a ledge having 9 feet water at low water, that lies E. of the channel going over the bar, one-fourth of a mile distant. There is a bar that runs from the shore to this little island, which is about 1 league from the land. This bar has 3½ fathoms at high water, and 9 feet at low water. If you are bound to Machias or Passamaquoddy, your course from Mount Desert is E. N. E. distant to Machias about 17 leagues. In steering the above course and distance, you pass by nothing but islands on your larboard hand, with inlets and sundry good harbours, pleasant rivers, Moose Peck reach and Chandler's river, which are all good harbours, but too intricate to be described for strangers to attempt with safety. If you cannot steer your course as above directed, in standing to the E. N. E. there are three low islands to the S. W. of Grand Manan island, which lie due S. E. from Machias, distant 4 leagues, which you must be careful of in the night. You may see the island of Grand Manan 2 or 3 leagues before you come to it, and when it bears N. E. these islands run S. W. from Grand Manan about 2 leagues distant, and in thick weather if you make these islands, you may run for Machias, bringing Grand Manan to bear S. E. and then run N. W. for the entrance of Machias: or if you make the S. W. end of Grand Manan, bring it to bear E. by S. and steer W. by N. for Machias, 5 leagues distant, and when you have passed Cross island, which you leave on your starboard hand, you may steer north. In steering this course you will leave a large white rock on your larboard hand, and if you do not want to go into Machias harbour, you may haul to the westward. After you have passed this rock about half a mile, bring a high round island that is covered with trees to bear north, when you may anchor in 4 or 5 fathoms, muddy bottom. This is called Jones' harbour, but if you mean to go up to Machais, you must keep your course north till you pass a round high island on your larboard hand, when you may shape your course W. N. W. or N. W. by W. for a point that is covered with young birch trees, and a house on it, for on the starboard hand there is nothing but flats and shoals; you may keep your larboard hand after you pass this house until the river opens to the northward, when you may run up to Cross river, where you may anchor in four fathoms; but if you are bound up to the S. W. mills, you must haul away to the westward. When you get up with Mr. Parker's house and barn, which are on the starboard hand, you must leave the barn open to the southwestward of the Pott head: this Pott head is a large hill that you leave on your starboard hand.

* There are five hills on Scuttoc, remarkable from any hills in the eastern country—and at a distance they appear round.

Directions from Long Island *to the south west Harbour of* Mount Desert.

Your course is N. N. E. distant 3½ leagues. You must leave the two Duck islands on your starboard hand, and three islands on your larboard hand. It is not safe for a stranger to run here in the night, as there is a large ledge that is covered at high water, and bare at half tide. You leave this ledge on your starboard hand, which is about one mile from the harbour. There is a long ledge on the larboard hand which runs off half a mile, but there is a good turning channel between them. The S. W. passage is not fit to enter with a large vessel at low water, but at high water you may enter with any vessel, keeping nearest the starboard hand as you go in, for there is a long point that lies about half a mile off from the larboard hand. Off this point you will find 6 or 7 feet of water at low tide. When you pass the point on your larboard hand you have the harbour open, and must bear up N. W. or W. N. W. and anchor well up the harbour in 5 or 6 fathoms, muddy bottom, where you may lie safe from all winds. If you are in a large vessel and make the Isle-au-haut, bring it to bear W. by S. and steer E. by N. 10 leagues, which course and distance will carry you up the eastern passage going into Mount Desert: you must leave all the islands to the northward, and go to the northward of Mount Desert rock, which lies E. S. E. from the Isle-au-haut, S. E. by S. from Long island, and S. from the Duck islands. When you bring the harbour to bear W. N. W. you may steer directly in, for you may go about with a first rate man of war in this passage. You may steer in this channel with a fair wind, from W. N. W. to W. by N. till you come to Langley's island, which lies about 1 league up the harbour and makes the starboard hand of the river that runs from the N. E. Be careful of this island, as there is a sunken ledge of rocks abreast of it, near half a mile off. The river above mentioned has water enough for any ship to go in, and is a safe harbour.

Directions for sailing through Fox island *passage.*

When bound from the westward, and intend going through Fox island passage, bring *Owl's head island to bear W. by S. and steer E. by N. from Owl's head, 4 leagues distant. If you have a head wind and are obliged to go into the mouth of the bay, be careful of a ledge of rocks that bears from Crab Tree point S. W. or S. W. by S. distant 4 or 5 miles. This passage has rocks on both sides. Crab Tree point is on the larboard hand. It is on the northern Fox island, and there is a long point of rocks near one league to the S. W. of it. This passage is not fit to enter in the night, unless you are well acquainted. When you get in, bring Crab Tree point to bear W. by S. and steer E. by N. about 3 leagues, which will bring you to Young's narrow. In steering this course you will make two large bare rocks, called the Sugar-loaves, which you may go on ei-

* Owl's head, a head land on the west side of Penobscot bay, in the state of Maine. It has a good harbour on the larboard hand as you go to the eastward. The harbour makes with a deep cove, has 4 fathoms water, and a muddy bottom. It is open to the E. by N. and E. N. E. winds: but in all other winds you may lie safe. The tide of flood sets to the eastward, and the tide of ebb S. W. through the Muscle ridges.

ther side of, but to follow your directions you must leave them on your starboard hand, and also be careful of a ledge that lies about north one-third of a mile from them. The entrance to Young's point is narrow at low water, off which lies a ledge of rocks which are covered at high water. There is also a quantity of sunken rocks at the larboard hand, near a mile to the W. N. W. which lie off the Dumplins. These Dumplins are 3 islands which you leave on your larboard hand. Your course in this passage is E. S. E. and W. N. W. keeping your starboard hand on board. When you pass this point on your starboard hand, you must keep your starboard hand on board, and steer E. S. E. about 2 miles, when you will make Deep cove on your starboard hand, which lies to the eastward of a very high bluff of rocks. If you have neither cables nor anchors, you may run into said cove, or secure your vessel with the main or fore-sheet, or come to anchor in 7 fathoms water off the said cove. There the flood meets, one from the W. N. W. and the other from the E. N. E. which makes an eddy against this cove and high land: here you may ride safe with any wind. When you leave this place, and are bound to the eastward, you steer E. S. E. and keep your starboard hand on board till you come up to a clear spot of land where the trees have been cut off. As soon as said spot bears W. S. W. you steer E. N. E. for the middle narrows. When you draw near the narrows you will see 2 large white rocks in the middle of the passage, unless at high water, at which time they are covered about one hour, but may be seen at all other times of tide. You may go on either side, but the deepest water is at the southward of them. Continue your course E. N. E. about 1 league, when you must keep your starboard hand on board, as there are several sunken rocks and ledges on your larboard hand which are covered at high water. You will make the eastern narrows on your starboard hand, and as soon as you bring it to bear S. S. E. you may run through, where you will have a fine harbour, which is safe to ride in with all winds except at E. N. E. but you may remain in the west passage with the wind at E. N. E. or anchor at the northward of a bare island, that you will see on your starboard hand as you go back to the westward. When you pass the eastern passage of Fox island you must steer E. N. E. about 4 miles, which course will carry you into a large bay that lies between Fox island and the Isle-au-haut. This bay lies N. and S. and about 4 leagues E. and W. When you get into this bay from the above-mentioned passage, and are bound to the eastward of Isle-au-haut, you may steer E. S. E. 6 leagues, which course will carry you to the southward of the Isle-au-haut.

[N. B. When you come from the westward and pass the island of Manheigin and the entrance of Penobscot bay, you may steer E. N. E. which course will carry you between the Fox islands and Mantinicus islands, leaving all the Fox islands on your larboard hand; but bring the Isle-au-haut to bear W. N. W. and steer E. N. E. 7 leagues to Long island, which you leave on your larboard hand. If you are bound to Blue hill bay or Union river, as soon as you pass Long island you will open a large sound to the N. N. W. which course you are to steer 7 leagues, when you will be up with Robertson's island, leaving the *Ship and Barge on your larboard hand. Robertson's island is the only island near that place that has a house on it. The south part of the island is clear of trees, on which the house stands. When you come near the south part of the island, give it a birth of three-quarters of a mile, as there are several sunken rocks off said point. When you bring this island to bear from S. W. to N. W. you may anchor in 6 or 7 fathoms water, muddy bottom; but if you are bound to Blue hill bay, you may stand to the northward direct for the Blue hills, which you may see 10 or 15 leagues off. If you are bound for Union river, you had better take a pilot at Robertson's island, for it is not fit for a stranger to go without one.]

* The Ship is an island that has three trees on it, and appears like a ship at a distance, and the Barge is a dry rock which appears like a barge.

Directions for *White Head *light.*

Vessels bound from the southward and intending to fall in with White Head light-house, should endeavour to take their departure from the high land of Cape Cod, on which is a light-house containing a revolving light, from which to Manheigin the course is N. N. E. ¼ E. distant 35½ leagues. The shore near Manheigin is bold, with good water on all sides, having no shoals or sunken rocks about it: there are some dry islands and ledges on the north side, but they are bold, and good water all among them.—From Manheigin to White Head light, the course is N. E. distant about 7 leagues, with a fair open sound. There is a small ledge lies about half a mile from White Head light, bearing S. S. E. which is just out of water at common tides; at low water you pass between this ledge and the light to go in the Muscle ledge channel, or into the harbour. You continue your course N. E. by the light about three-quarters of a mile, when you will open the harbour on your larboard hand between a small ledgy island next the light, and a high white island with some spruce trees on it. When you open the harbour about N. W. by W. you will sail on till you pass all the ledges on your larboard hand, and anchor in about 5 or 6 fathoms good holding ground.

Vessels of 60 or 70 tons may double close around the head of the light and anchor right abreast of the store. This is called Sail harbour. Vessels taken with calm and ebb tide, may anchor any where off the light in from 12 to 20 fathoms water. If the wind takes you at N. E. and ebb tide, that you cannot get into Sail harbour, you may run into Tennant harbour, which bears W. by S. about 4 miles distant. You will continue your W. by S. course till the first house on the starboard hand bears N. N. W. when you may anchor in about 4 or 5 fathoms water, good ground.

Directions from Tennant Harbour *to the* Muscle Ridges.

In sailing from this harbour you may steer E. by N. 1 league to White Head light house, but be careful not to haul in for it till it bears N. E. as there is a large ledge of rocks bearing about W. N. W. from said head, 1 mile distant; but within it, a pistol shot from the shore is safe navigation. There is a good harbour called Sail harbour, on your larboard hand as you pass this head (bound to the eastward) where you may lie safe from all winds. In going in you must give the larboard hand a birth as there is a sunken ledge, which extends about two-thirds across the mouth of the harbour, that breaks when there is any sea, unless at high water.

Your course from White Head light is N. E. to Ash point or island, 1 league distant, which has a large rock to the S. W. of it, about half a mile distant, which you must leave on your larboard hand. It is not in the way except you are obliged to go about. When you haul round this island, give it a small birth, and steer N. N. E. or N. E. by N. for the Owl's head, leaving 2 islands on your starboard hand: but when you draw near the larboard shore, you steer about E. N. E. for the Owl's head,

* White Head light is situated at the entrance of Penobscot bay. The lantern is elevated 50 feet above the level of the sea, and contains a fixed light. This light cannot be seen more than 4 or 5 leagues distant.

which has a good harbour on the larboard hand as you go to the eastward. This harbour makes with a deep cove. You may bring a rocky point that lies on your starboard hand to bear N. E. and a ledge of rocks that lie without said point to bear E. N. E. and anchor in 4 fathoms, muddy bottom.

This harbour is open to the wind at E. by N. and E. N. E. but in all other winds you are safe. The tide of flood sets to the eastward and the tide of ebb S. W, through the Muscle ridges.

If it is night when you come to White Head light, you had better not attempt going through the Muscle ridges. Your best way is to go by Two Bush island, which you must leave on your larboard hand, keeping your course E. N. E. or N. E. by E. [Two Bush island is round and barren, having but one bush on it. Formerly it had two bushes.]

If you are in a large vessel, your best way is to go in this passage, as it is the most safe. You must follow your course, as above directed, about 2 leagues, when you will have Penobscot bay open, and then you may direct your course to either side of Long island. If you go to the westward, your course is N. N. E. to Great Spruce head, which having passed 7 leagues, your course is N. E. by N. 5 leagues to Old Fort point. In steering said course you will leave Belfast bay and Brigadier's island on your larboard hand, which island has a good harbour, and if you mean to go into it you must leave it on your larboard hand and steer in about N. or N. by W. You may run up above this island, and anchor on the starboard hand, if the wind is to the eastward; but if to the westward or S. W. you must not. There is a bar that lies from this island to the main land, which is covered at high water. There is also a good harbour to the westward of this island, called Long cove. If you turn into either of these harbours, you must be careful of some rocks that lie to the southward of this island, more than half a mile from the main land. But in going to Penobscot, proceed as above, and keep your larboard hand on board. When you pass this island for the Old Fort point, which has no trees on it, you must observe before you come to it, that a large ledge of rocks lies about three quarters of a mile to the E. S. E. of it, which is covered at high water, but bare at half tide. You may go within a cable's length of Old Fort point, in smooth water. These rocks may be discovered when the wind blows.

If you are bound up Penobscot river, from Old Fort point, with the tide of ebb, and the wind a-head, you may make a good harbour in the east river, which lies about E. N. E. from Old Fort point about 1 league. This river lies to the southwestward of Orphan island, in which place you will lie safe from all winds, and anchor in 6 or 7 fathoms, good holding ground. Orphan island is a large island, which you are to leave on your starboard hand, and sundry rocks on your larboard hand, which are above water. When you pass Orphan island you may anchor to the N. W. of it, on the starboard hand, as you go through; but if wind and tide are in your favour, you may proceed up to Marsh bay, keeping the larboard hand best on board. Marsh bay is about 2 leagues from Orphan island. When you pass Marsh bay you may keep in the middle of the river, and you have neither rocks nor shoals until you get up to the falls. You have no particular course in going up this river, but may sometimes go to the westward of N. and sometimes to the eastward of N.

When you enter Penobscot bay and are bound to the eastward of Long island, you must steer N. E. by N. leaving Long island on your larboard hand, which course will carry you up to Casting. If you intend going in-

to this harbour, as soon as it bears E. N. E. you may run in, steering E. N. E. keeping the middle of the channel until you pass the first island, giving it a birth of half a mile; then haul to the southward until the island bears W. S. W. when you may anchor in 8 or 10 fathoms, muddy bottom, and lie safe from all wind.

In going into the harbour of Castine, you leave three islands on your starboard hand; but if you are bound up Penobscot river, you must steer north, leaving the ledge of rocks off the Old Fort point on your larboard hand; then follow the same directions you have for running into Penobscot river, which will carry you up to the Falls. The tide ebbs and flows, at full and change, about 10 or 11 feet.

Directions from Penmequid Point *to* Bass Harbour.

When you pass Penmequid point, bring it to bear W. S. W. and steer E. N. E. 3 leagues, which course and distance will carry you into George's river. In steering this course you will pass New harbour ledges, on which are 5 feet at low water; these ledges lie 1 league from Penmequid point, and are left on your larboard hand. Continuing your course will carry you between east and west Egg rocks, leaving Franklin's island light house (which is on the north end of the island, and contains a fixed light, 50 feet above the level of the sea) on your starboard hand; but be careful not to go to the northward of said course, for there are several sunken ledges to the westward of the Egg rocks, which you leave on your larboard hand. But if it should be in the night, and you are to the eastward of Damiscove islands, bring *Seguine light to bear W. ½ N. and steer E. ½ S. and you will go clear of Bantam ledge, which lies E. 3½ leagues from Seguine light; continue this course till you are 5 leagues from the light, (or till the light is nearly run down) then haul up north till you make Penmequid point, from whence you may steer for George's river, as before directed. If you should meet with the wind a-head, you may anchor off Gay's cove, taking care to avoid a sunken ledge, which lies E. from Gay's cove, near the middle of the channel, and has 4 feet water at low water. This ledge must be left on your larboard hand, keeping †Caldwell's island close on board. Gay's cove lies on your larboard hand, about 3 miles to the E. N. E. of Franklin's island light. You may know this cove, as Gay's house and barn lie to the N. W. of it. But if you are bound through Herring gut bring ‡Capt. Henderson's house to bear N. N. W. and steer S. S. E. for Herring gut. This Herring gut has a bar from side to side, but you may go over it at 2 hours flood, keeping your larboard hand best on board. As you come on the bar, you will see a large rock on your starboard hand, and the deepest water is within a cable's length of the rock; your course over the bar is S. S. E. You may anchor to the N. W. of the bar, in 4 or 5 fathoms, muddy bottom, and wait for the tide. The tide of flood sets to the northward, and the ebb to the southward.

* Seguine light-house is situated on an island near the mouth of Kennebec river. The lantern is elevated 200 feet above the level of the sea, and contains a fixed light of the first magnitude, and may be seen at the distance of 9 or 10 leagues in clear weather.

† Caldwell's island lies on the east side of George's river, about 9½ miles from the entrance; it is a high round island, covered with trees.

‡ Captain Henderson's house is white and his store red, and both lie on the larboard hand.

When you go out of this harbour, and bound to the eastward, be careful and give the larboard hand a good birth, for there are two ledges of rocks on the same hand of the eastern point, which are under water and lie off about a cable's length. When you are clear of these ledges, you may steer E. by S. or E. S. E. one mile to the barren island, which you leave on the larboard and 3 or 4 islands or ledges on the starboard hand. When you pass these ledges and Musqueto islands, if bound to White Head, you may steer N. E. by E. 2 leagues, and when you bring the light to bear N. E. run for it, but when you pass the S. W. White Head leave it on your larboard hand, and be careful of a sunken rock that lies S. E. from the eastern White Head, about one cable's length distant. Your course through to the eastward is N. E. and to the westward S. W. keeping near the middle of the passage. Before you come up with Ash point, you must be careful of a sunken rock, which lies off the point about one third of the passage, which has not more than 8 feet water at low water. But if you should go through this passage in the night, keep Potatoe island which is right against Ash island, about S. S. W. from it, and bare of trees, which you leave on your starboard hand, best on board. When you pass Potatoe island and are bound into Owl's head, your course is N. N. E. about 2 miles, which will leave 2 islands on the starboard hand. When you open the passage to Owl's head, and bound to Edgemavoggan reach, your course is N. E. by N. till you pass the Lime islands, which you leave on your larboard hand. Continue said course till you make a large bare rock on your starboard hand, and a little round island to the eastward on the same hand, which is covered with trees. Continue your course to the N. E. and you will make a large island on your starboard hand: when you pass this island, you have the passage open to Buck's harbour; continue your course N. E. till you pass by all the islands, to the southward and northward. In the day time you may see Blue hill bearing E. N. E. over all the land. This passage is safe to go through with a first rate man of war. When you come within two miles of the reach, you will make a small island on your starboard hand, which has a sunken rock to the northward of it. Your safest way is to keep the middle of the passage, as there is a sunken rock or ledge on the larboard hand, that lies E. by S. from an island which you leave on your larboard hand, about half a mile distant. If you want to make a harbour, you may go into Buck's harbour by a N. E. or N. E. by N. course. When you come into this harbour (which is 12 leagues from Owl's head) you must leave an island, covered with young birch trees, on your starboard hand, steering N. N. W. and when you get to the northward of said island, you steer E. S. E. till you bring it to bear S. S. W. where you will be land-locked from all winds, in 4 or 5 fathoms, soft bottom.

When you leave Buck's harbour, and bound to the eastward, you steer S. E. till you come to a large rock and four islands, which you leave on your larboard hand keeping the said rock and islands best on board, for there is a sunken ledge that lies S. S. W. from them. You will make a black island on your starboard hand with burnt trees on it. This ledge lies N. N. E. from said island, near the middle of the passage, but keeping the eastern shore best on board, you will go clear of it. When you have passed this ledge, you leave two islands on your starboard, and 2 or 3 on your larboard hand. Continue your course to the S. E. till you make 2 islands, between which and Buck's harbour the course is S. E. and N. W. 6 leagues. To the eastward you may go between both islands, steering E. by S. 1 league, which course will carry you up with Trum

cap, which island has a bar of rocks, that lies near half a mile to the northward; but if you have a head wind, and are obliged to turn through, you will observe the channel is 2 miles wide to Channel rock, which is always above water.

When you leave this Trum cap, steer E. by S. which will carry you between the Ship and Barge, and 3 islands which you leave on your larboard hand, which are covered with large rock maple trees. The Barge is a bare rock, which you leave on your starboard hand; but there is a rock about a cable's length to the northward of the Barge. Continue your course E. by S. for Bass harbour, distance from Trum cap 5 leagues; but you must have some regard to the tide of ebb, which sets very strong to the S. S. E. and the tide of flood to the N. N. W. If you are bound into Bass harbour you keep Rich's point within a cable's length, which point you leave on your larboard hand, for there is a large ledge of rocks that lie off about half a mile, which is bare at half tide, and bears S. E. from Rich's barn, and S. by W. from the entrance of Bass harbour. You give the larboard hand a good birth in going to Bass harbour, in entering which you must give both sides a birth, for at low water it is shoal. When you get into this harbour, anchor on the larboard hand, with a cove to the westward of you, in 3 or 4 fathoms, muddy bottom.

Directions from Bass harbour.

When you leave this harbour, bound to the eastward, steer out S. W. till you bring Bass harbour bar to bear S. S. E. then run S. S. E. keeping the larboard hand best on board. This bar has not water enough for a loaded vessel before half tide, having 8½ feet only at low water; but a light vessel may go over at low water, keeping the larboard hand best on board. When you get over this bar, you steer E. by S. till you bring the S. W. entrance of Mount Desert to bear N. E. then you may run N. E. leaving Cranberry island on your starboard hand. But this passage is shoal at low water, and not fit for loaded vessels to go through, but at full tide there is water enough, keeping the middle of the passage. Continue your course to the N. E. till you pass Cranberry island; then you may steer E. S. E. and anchor between the two Cranberry islands, where you will be safe from easterly or S. W. winds. You may lie in from 4 to 7 fathoms, good holding ground.

When you leave this port, bound to the eastward, you steer E. by S. till you get up with Baker's island, which lies to the eastward of the Cranberry islands; then you steer E. by N. 4 leagues to Scuttoc island. When you pass said island, and are bound to Goldsborough, you must steer N. E. about 5 leagues, and keep that course till you bring Goldsborough harbour to bear N. N. W. then you must leave three islands on your larboard, and one on your starboard hand, and run into the harbour, where you may lie safe from all winds, and anchor in 5 or 6 fathoms.

Directions for Dyer's bay, *&c.*

This harbour lies a little to the eastward of Goldsborough. When you make Titmanan light, bound to Dyer's bay, leave it on your starboard

hand, and steer north for the eastern head. You leave a large dry dock on your larboard hand, which, when you pass, you will see a small island, covered with trees, which you leave on your starboard hand; then haul round said island, where you will be safe from all winds.

Directions from Scuttoc Island.

When you come from the westward, and bound to Titmanan, you pass Scuttoc island; steer E. N. E. from Scuttoc island, 5 leagues, to Titmanan light.

Directions from Titmanan light *to* Ladle island.

When you pass the light, bring it to bear S. W. and steer N. E. about 4½ leagues, which course will carry you to Ladle isle. This isle has a remarkable appearance, being formed exactly like a ladle, and has a large black rock to the S. W. a little distance from the island. You may go any side of this island, but the best channel is to the S. E. of it.

Directions for Cape Splitt harbour.

When you pass Titmanan light, bring it to bear S. W. ½ S. and steer N. E. ½ N. for Cape Splitt, distance 5 leagues, which course will carry you safe into the harbour. In steering said course, you will make a black rock, which you leave on your starboard hand, distance 1 mile from Cape Splitt. This harbour is safe from all winds but S. W. which blows right in; but if you anchor in a cove on the starboard side, and moor N. W. and S. E. you will lie safe from all winds.

Directions for Pleasant river.

When you come from the westward, and bound to Pleasant river, in passing Titmanan light, bring it to bear S. W. by S. and steer N. E. by N. 5 leagues distance. In steering said course, if it is clear weather, you will see Capt. Wasse's house open between the island and main land; but this passage will not do at low water. You must leave this island (and a high dry ledge of rocks that lie to the westward of the island) on your starboard hand; when you pass the bare ledge, you will see a bare isle, which you leave on your starboard hand; then you may haul up for Capt. Wasse's house and anchor, and take a pilot for Pleasant river, as it is not safe going without one, except you are well acquainted.

Narrow-guages is one mile to the westward of Pleasant river, too difficult to be described, as there are sundry small islands at the mouth of the harbour or bay. The best way for a stranger is to go into Cape Splitt harbour and get a pilot, as there is no difficulty in going into Cape Splitt in the day-time, keeping the larboard hand best on board.

Directions for Moose Peck reach.

When you come from the westward, and pass Ladle island on your larboard hand, steer N. E. by N. for Tibbet's island, which you leave on your larboard hand. When you come to the east end of said island, give it a good birth, for at low water there is a ledge of rocks that lie a cable's length to the S. E. of said island. When you pass this island, and bring Moose Peck reach open, you may steer east for Mr. Beal's house, but you must keep the starboard hand best on board, for there is a rock that lies about the middle of the sound, which has not above 2 feet of water on it at low water. You may anchor to the westward of Mr. Beal's house.

Directions for going through Moose Peck reach.

When bound to the eastward, over Moose Peck bar, which you must not cross before two hours flood, you steer for *Kelly's coffee-house, which lies on the larboard hand as you go to the eastward. When you are entering on the bar, you will bring a bushy tree right against Kelly's house, which stands on the point. Your course over the bar is east. You leave the Virgin's breasts on your larboard hand; but if you are bound to Chandler's river, you will leave the Virgin's breasts on your starboard hand, and Rogue's island on the same hand. There is a muddy bar that lies between Rogue's island and the main land, but has water enough on it at two hours flood. Rogue's island has a good harbour at the N. W. of it safe from all easterly winds, and a small distance from Chandler's river.

When you go over Moose Peck bar, bound to Machias, you leave the Virgin's breasts on your larboard hand, keeping your course east, and Ragged arse on your starboard hand; you must keep Bibby's island open to the southward of Ragged arse. [N. B. This Ragged arse is a bare rock, which you leave on your starboard, but you may leave it on your larboard hand, and steer E. S. E. for Libby's island.]

Directions for sailing into George's river.

When bound from the westward to George's river, you must go to the southward of Damiscove islands, and steer N. N. E. 3 leagues from Penmequid point, which lies about 4 leagues N. W. of Manheigin island; and when said point bears W. S. W. you must steer E. N. E. 3 leagues for the river. In steering the above courses you will see †Franklin island light on your starboard hand. Before you come up with the light you will make the western Egg rock, which is high, and may be seen 2 or 3 leagues distant, and must be left on your larboard hand. When you come near this rock, you will see the eastern Egg rock, which is a dry rock on your starboard hand, but you may continue your E. N. E. course without danger till past the light, and it bears W. S. W. which course you continue

* Mr. Kelly's house lies on the N. E. part of Moose Peck reach.

† Franklin island light is on the north end of Franklin island, near the entrance of George's river. The lantern is elevated 50 feet above the level of the sea, and contains a fixed light.

till up with Pleasant point, which lies on the larboard hand, about four leagues distant. If you have a head wind and are obliged to turn to windward, you must not, after passing Penmequid point, stand to the northward of the western Egg rock, as there are two sunken ledges, called New Harbour ledges, between the said point and rock, which you must leave on your larboard hand. These ledges are never bare, but at low water; with the wind to the eastward, the water breaks over them very high.

Other directions for sailing into George's river are, After you have passed Franklin island light, steer E. N. E. about 2½ leagues, keeping in the middle of the river, which course and distance will carry you in sight of Capt. Henderson's house and store (the house is white and the store red) together with a small wharf on your larboard hand, close to the river. After you have passed this house, you must keep the starboard shore best on board, as there is a ledge of rocks on your larboard hand extending two-thirds across the river. You will also see two small houses and two barns on your starboard hand, which you may run within a quarter of a mile of.

In running up or down this river, you must not shut in Capt. Henderson's house with the north shore, until you have passed the above mentioned ledge. The best marks to clear this ledge are to shut in Caldwell's island with the eastern part of M'Cobb's narrows. When you are up with a large broad cove on your larboard hand you may be certain you are to the eastward of the ledge, and you will be also in sight of 3 large buildings, the largest of which is a spacious house, built by the late Henry Knox, Esq. When said house bears N. N. E. you may steer N. E. by N. and run said course till within a musket shot of it. The best time for a stranger to go up this river is at low water, as it is very crooked, and the flat on each side can then be seen. The river runs from Franklin's island from E. N. E. to N. E. by N. about 5 or 6 leagues distant.

N. B. When you go to the eastward of Damiscove island, you bring Seguine light to bear W. S. W. and steer E. N. E. for George's river.

Directions from Townsend *to* Manheigin.

When you take your departure from Squirrel island, you steer E. S. E. for the island of Manheigin (on the north side of which are some small dry islands and ledges, but good water between them and the other sides of the island) keeping that course until the passage between George's islands and Manheigin bears N. E. You may then steer N. E. about seven leagues, through a fair open sound, for White Head light, leaving George's islands (which are 3 in number) on your larboard hand. The eastern island has no trees on it. There are two dangerous rocks bearing due south from the middle of the middle island, called the Old Man and the Old Woman, which are bare before low water. They lie about one mile from the shore, and at high water, when the wind blows off the land, they do not appear. If you are bound to the eastward, and the wind should take you ahead, when you are between Manheigin and George's islands, you bring the middle of Manheigin to bear S. and run in N. which course will carry you between the eastern George's island and the middle island.

You may run as near as you wish to the eastern island, but the middle island has a ledge of rocks that lie to the eastward of it, which are always dry, which you are to leave on your larboard hand. When you get to the northward of this island, you must haul to the westward and run up between it and the western island, so as to bring the body of the middle island to bear N. E. of you. Here you moor your vessel if you stay any time.

If you are bound to the eastward from this island, you may go to the northward of the eastern island, but you must be careful of a ledge that lies to the eastward of said island, which you must leave on your starboard hand; and when you bring Manheigin to bear S. W. you may go N. E. If night should come on, or the wind ahead, you may haul up about N. E. by N. for Tenant's harbour, which lies about 8 leagues from George's islands. You cannot miss this harbour in the day-time. You will make Musqueto harbour, which lies between two islands covered with spruce trees. The entrance of the harbour is north. When you have passed this harbour, you will run about two miles, keeping your course N. E. by N. when you will pass by an island with burnt trees on it, which you leave on your larboard hand, and two islands on your starboard hand, which also have burnt trees on them; then you must bring the harbour to bear W. N. W. before you enter. This is a good harbour provided you have neither cables or anchors, as you may save your vessel by running up to the head of it, on muddy bottom, which will be dry at low water.

Directions for *Townsend harbour.

If you come from the westward and make Seguine light, you must leave it on your larboard hand, give it a birth of about half a mile, and steer N. E. about 2 leagues, which course will carry you to Squirrel island; if it is day-time you will see two large rocks (called the Cuckolds) on your larboard hand, to which you give a small birth, and when you pass them you will make Squirrel island, which you leave on your starboard hand, directing your course N. ½ W. about 4 or 5 miles. The entrance of Townsend is narrow, and there is a small rocky island that is very low, which you leave on your starboard hand; then you may haul to the N. E. or N. E. by E. but in a dark night and thick weather, I would recommend to anchor under the lee of Squirrel island, where you may make a good harbour with any wind that blows, as you may go round this island with any vessel whatever; but in the day-time there is not the least danger in going in, only follow the above directions, and you may anchor in the N. E. or the S. W. side, but the N. E. harbour is the best and safest with all winds. In going to the N. E. harbour you will leave a small island on your larboard hand, which bring to bear S. W. and you will be safe from all winds, and if you lose your cables and anchors, you may run your vessel up to the head of the harbour.

If you fall into the eastward and make the island of Manheigin, bring it to bear E. S. E. and run W. N. W. for Townsend 5 leagues distant. In running to this harbour from the eastward, you leave all Damiscove isl-

* Booth bay lies about two miles west from Penmequid point. On Burnt island, which lies off the entrance, a light-house is now building, for a particular description of which we refer to the Appendix of this edition.

ands on your larboard hand. The harbour is bold, but you must be careful if you should go about, not to stand too near the starboard hand, which lies near Damoriscotti river. When you pass Fisherman's island, you continue your course W. N. W. for the middle of Squirrel island, which you will make right ahead, as there are several ledges of sunken rocks on your starboard hand. When you pass Damoriscotti river, you may go within a quarter of a mile of Squirrel islands, but with a fair wind give it a birth of half a mile, and then steer N. W. for the harbour, and follow the directions you have for going into the harbour of Townsend, where you may lie safe from all winds.

Directions for *Kennebeck *and* Sheepscut rivers.

If you come from the westward, bring Cape Elizabeth (on which is a pyramid, as fully described in page 142) to bear west, and steer east for Seguine light, 10 leagues. If you are bound into Kennebeck river, you must steer E. ½ N. and leave Seguine light on your starboard hand, giving it a birth of about half a mile, and as soon as you bring said light to bear south, you steer due north, which course will carry you into Kennebeck river, leaving †Pond island light on your larboard hand, which bears N. ¼ W. from Seguine light, and lies at the mouth of the river, distant 1¾ mile from Seguine island. You must have regard to the tide, for the tide of ebb sets out very strong due south, right on Seguine island, therefore if you have not a good breeze of wind you cannot stem the tide, as it sets 4 or 5 knots an hour. When you come into the entrance of Kennebeck river, your course is N. W. to the Sugar-loaves, a quarter of a mile distant. Leave the Sugar-loaves on your starboard hand, from which your course is N. N. W. about two miles to Cock's head; this Cock's head is a very high bluff of rocks, which you leave on your larboard hand; but be careful of a shoal flat that lies on your larboard hand, before you come to Cock's head. Keep nearest to the starboard shore. In case the wind and tide should be against you, you may anchor to the southward of Perkin's island which lies on the starboard hand, where you may lie safe after bringing the island to bear north of you; but with a fair wind and tide you may proceed to Parker's flats, which lie a little above Cock's head. This river is not to be attempted above Parker's flats, on account of the strength of the tide and crookedness of the channel, unless you are well acquainted, or have a pilot.

Seguine island, on which a light-house is erected, bearing S. ½ E. from Pond island light, is remarkable when bearing east or west. It lies nearly two miles from land, and when it bears north, shuts in with it. Cape Small Point bears N. W. from it, and Wood island N. N. W. 1¾ mile distant. There are several rocky ledges lying near Seguine, and bear from the light as follow: 5 fathoms ledge S. by W. distant three-quarters of a mile—Ellenwood's rock north one quarter of a mile—Seguine ledges N. N. E. half a mile, always dry—Jacknife ledge W. N. W. 1¼ mile, 8 feet water—Wood island reef N. N. W. 1⅛ mile, 4 feet water—Whale's back N. N. E. 1¾ mile. You have deep water to the eastward of Seguine. At

* Kennebeck river is one of the most important in the state of Maine. Swan island, 4½ miles long, lies 30 miles from the mouth of the river, and 5 miles from the chops.

† See Appendix.

the westward, the tide of flood sets strong to the northward into New Meadows and W. N. W. into Broad Sound, and up to Portland, and the ebb tide the reverse. Your soundings, between Seguine and Cape Elizabeth, are various; at times you have 18 or 20 fathoms, rocky bottom, and within a cable's length you will find 30 or 35 fathoms, muddy bottom.

The land between Seguine and Cape Elizabeth is all in islands: on the cape is a pyramid bearing S. 1° W. from Portland light-house, 4 miles distant, and a wind-mill to the westward, near Richmond's island, which is the first wind-mill you see when coming from the eastward. Richmond's island lies 1 league W. of Portland, and has a bad ledge lying about S. E. from the N. E. end of it, half a mile distant.

If you are bound to Sheepscut river, from the westward, and make Seguine light, you may leave it on your starboard hand, give it a birth of half a mile, when you pass it to the eastward you must bring it to bear S. W. by S. and steer N. E. by N. which course will carry you to Ebenicook harbour, distant 3 leagues, leaving 3 dry ledges on your starboard hand, and one on your larboard; this harbour is very narrow at the entrance, but makes a large basin when you get into it; in the entrance it lies E. N. E. You cannot get in here with a N. E. or easterly wind, but must have the wind south or westerly: after you get into this harbour you must haul up N. E. or N. E. by N. for there are several sunken rocks on the starboard hand as you go in, which you are to avoid. The best anchorage is against Capt. Smith's wharf, where are 4 fathoms, muddy bottom; and you will lie safe from all winds. But if you are bound up Sheepscut river in a large vessel, and come from the westward, you must go to the southward of Seguine light, steering about N. E. or N. E. by E. 1 league, and when the river bears north, or north a little westerly, you may run north, and must keep the starboard hand best on board; there are many rocks and ledges, some of them above and some under water, which are all to the eastward of Seguine. When you get up as high as Ebenicook you leave the two Mark islands on your larboard hand, keeping your course north, a little easterly, but if you only come here to make a harbour, when you get up to Capt. Hodgson's you will see a bare ledge on your larboard hand, if it is low water, which is covered at high water; you may anchor in 8 fathoms to the northward of it.

If you want to go up to Wiscasset point, you must keep your starboard hand best aboard, north easterly, till you come to Cross river, which you leave on your starboard hand. You will not attempt to go up to Wiscasset point with a head wind and the tide of ebb, for it is 3 leagues from Cross river; but when you have a fair wind and tide, you may proceed without fear. This river is narrow and lies more to the westward; when you are about a mile or a mile and a half up, you must keep your larboard hand best on board, for there is a ledge of rocks which reaches near half way across the river, which is on your starboard hand, and the rock near the middle is covered at high water, but may be seen two hours before. The river runs straight to Decker's narrows, then turns round to the westward; when you enter these narrows you may see the town. In case you should go up in the night, you must be careful of two large rocks that lie W. S. W. of these narrows; the tide of flood sets very strong for them, and they are never covered; you may go on either side of them, and may anchor in 10 or 12 fathoms water, muddy bottom.

It is high water here at full and change of the moon, about 10h. 45m.

Directions for sailing into New Meadows.

This river bears N. E. 8 leagues distant from the Pyramid on Cape Elizabeth, and about 1 league east from Cape Small point. If you should fall into this bay with the wind at S. E. or S. S. E. and bound to the eastward, you may make a good harbour in the above river. In standing to the northward you will have a large round island on your starboard hand, covered with spruce trees, together with two large rocks, one called the Brown Cow, and the other the White Bull, which are some distance from each other. You must leave the Brown Cow on your starboard, and the White Bull on your larboard hand, the latter of which you may go within a cable's length of, and when you have passed it, must stand over for Horse island, that lies on the starboard, which has a house on it, that you may go within a quarter of a mile of. To the westward of the island lies a large rock, which is covered at high water, but bare at half tide; you may go on either side of it when it is in sight, but the widest passage is to the eastward. When you have passed this rock, steer N. by W. or N. N. W. which course will carry you up with a large island, called Bear island, which is covered with spruce and birch trees. When you have passed this island about one quarter of a mile, you may haul in for the starboard shore, and anchor in 5 or 6 fathoms water. This is the best place to anchor, with the wind at S. S. E. or east, but be careful of a ledge of rocks, that runs to the northward of this island, about half a mile off. You may anchor in this bay according as the wind may be; if it should be at the westward, you may anchor on the west side of the bay; and if to the eastward, anchor on the east side. If you have lost your cables and anchors, there is a large cove on the starboard hand, about two miles from Bear island, bearing about N. which is sufficient to hold 30 or 40 sail of vessels. It is land-locked all round, so that no wind can damage a vessel after she gets into it.

Directions for Hussey's Sound.

If you come from the eastward and make Seguine light, bring it to bear E. and steer W. for Hussey's sound, if you have a fair wind and day-light, as you have nothing but islands on your starboard hand. The tide of flood sets very strong in between these islands; when you get within 2 miles of Hussey's sound, you will make two islands, which have no trees on them, called Green islands—you continue your course till you make Hussey's sound, bearing N. N. E. then you may steer in with your course N. N. E.

There is a large sound, called Broad sound, about half way between Seguine light and Hussey's sound. You leave Merrikeneek island on your starboard, and Half-way rock on your larboard hand—but this sound has several rocks under water, and is not fit for strangers to go into.

When you pass the two islands, after entering Hussey's sound, you leave three islands on your larboard, and two islands on your starboard hand; the northern island, on your starboard, is called Smith's island; when you pass said island about three-quarters of a mile, you may haul away E. N. E. till you shut in said island to the S. E. then you may anchor in 8 or 9 fathoms, muddy bottom. Hog island to the S. W.—Basket isl-

and to the N. W.—Great Gabegue island to the N. E.—and Smith's island to the S. E. Here you may moor 200 sail of ships, safe from all winds; and when wind and tide serves, you may be out to sea in one hour.

Directions for Portland harbour.

Coming from the south-westward, when within half a mile of *Cape Elizabeth, the red buoy on Broad cove rock may be seen; it bears N. N. E. from the pitch of the cape, distance 1½ mile, and lies in 24 feet water. When up with this buoy, leave it on the larboard hand, half a cable's length distant, and steer N. by E. ½ E. 1 mile, which will carry you up with the white buoy on Trundy's reef, which lies in 16 feet water. Giving it the same birth as the other, you may then run N. by W. ½ W. for Portland † light-house, 3 miles distant. When up with the head, on which the light-house stands, give it a small birth, and steer N. by W. leaving Bang's island on the starboard hand, till you come to House island, the S. W. point of which bears N. from the light-house, distant almost 2 miles. Before you are up with this island, the black buoy on Spring point ledge may be seen; it bears N. W. by W. from the S. W. part of House island, distant half a mile, and lies in 14 feet water. [When up with this buoy, you open the town.] Giving the black buoy a small birth, you may haul

* A column or distinguishing land-mark in the form of a Pyramid, is erected on Cape Elizabeth, one-eighth of a mile N. W. from the south eastern extremity of the cape—it is built of stone, the lower half painted white, the upper black—height 50 feet from the foundation, and 125 feet above the level of the sea.

Bearing, distance, &c. of several dangerous rocks near the entrance of Portland harbour.

The column bears from Portland light, S. 1° W. distant 4 miles.

From the column to the outer part of Trundy reef, N. 20° E. distant 2½ miles.	
Do. to Broad cove rock - - - - - -	N. 25° E. 1¼ do.
Do. to New ledge - - - - - -	N. 74° E. 6¾ do.
Do. to Alden's rock - - - - - -	S. 61° E. 3½ do.
Do. to Taylor's reef, E. point - - - - -	S. 41° E. 1 do.
Do. to do. do. W. point - - - - -	S. 24° E. 1 do.
From S. E. point of the cape to the outer part of Watt's ledge, which tends off from Richmond island, is - -	S. 42° W.
From Portland light to New ledge - - - - -	S. 67° E. 6¼ miles.
Do. to Alden's rock - - - - - -	S. 20° E. 6½ do.
Do. to Trundy reef - - - - - -	S. 15° E. 2½ do.
Do. to Broad cove rock, - - - - - -	S. 9° E. 3¼ do.

The above bearings are by compass. The variation ascertained at the same time to be 8° 30′ W.

The following depths are calculated for low water spring tides—Trundy's reef, extends from the shore, the depth agreeable to the above bearing 15 feet.

Broad cove rock is nearly dry—there is a channel between it and the shore, with four fathoms water, sandy bottom.

Alden's rock, depth 8 feet.

New ledge extends about E. N. E. and W. S. W. one quarter of a mile. Depth 11 to 15 feet.

Taylor's ledge extends E. N. E. and W. S. W. near one quarter of a mile; on the eastern end, 5 fathoms, western do. 15 feet.

There is also another small rock, a cable's length within the latter, depth 15 or 16 feet—between these and the cape there is a very good and safe channel, with 7, 8, and 9 fathoms, one quarter or three quarters of a mile from the shore.

† Portland light-house is on a point of land, called Portland Head, at the entrance of the harbour. It is a stone edifice, 72 feet high, exclusive of the lantern, which is 18 feet, and contains a fixed light.

Engraved for the American Coast Pilot.

New York, Published by Edmund M. Blunt, for W. Hooker
1822.

up N. W. for the white buoy on Stanford's ledge ; this buoy lies also in 14 feet water, and one mile distant from Spring point ledge buoy. Giving the white buoy a small birth, you may keep up midway the river and anchor opposite the town, where you please, in safety.

[N. B. All the before-mentioned buoys are to be left on the larboard hand, in coming in, and the depth of water put down, is at low water ; the courses are by compass.]

There are also two small buoys, on two ledges in Whitehead passage, at the N. E. part of Bang's island. This passage is narrow, and but seldom used with large vessels. By keeping midway between the two buoys, the red on the starboard, and the white on the larboard hand, in coming in, you will have not less than 5 fathoms water. After passing the buoys keep midway the passage, and run one mile distance, which will carry you into Ship channel, the same as if you had passed the light-house.

NOTE. *If by accident either of the buoys should be removed, the following directions for sailing into* Portland harbour *will be found useful :*

When you come from the south-westward, and intend to go into Portland, give Cape Elizabeth (on which is a Pyramid as before described) a birth of half a mile, and steer N. N. E. until you bring Portland light-house to bear N. N. W. when you must haul up N. N. W. if the wind will permit ; but if you are in a large ship, and the wind N. W. or W. N. W. your safest way is to continue your course N. N. E. which will carry you safe into Hussey's sound, allowing it to be tide of flood, as Portland sound is narrow, but bold between the light-house and Bang's island, the latter of which is on your starboard hand. If you should turn into Portland in the night, in standing to the south-westward you must go about as soon as the light bears N. N. W. and in standing to the eastward, you you must go about as soon as the light bears W. N. W. for there is a ledge of rocks that bears S. by E. from Portland light-house, and also a low island, called Ram island, east-northerly, one mile distant from the light-house ; but if you have a leading wind, you may go in without fear, keeping about middle of the channel way, and when abreast of the light, steer about N. by W. for House island, which you leave on your starboard hand ; when you pass House island, bring it to bear S. E. by E. and steer N. W. by W. or W. N. W. with the tide of flood. In steering the above course, you will see a round bushy tree to the north of the town, and a house with a red roof, and one chimney ; bring the tree to the west of the house, which course will carry you up the channel way, in 6 or 7 fathoms of water ; but when you come abreast of the fort, which stands on a hill, haul away W. S. W. as there is a shoal bank on your starboard hand that has not more than 10 or 12 feet on it at high water, which you are to avoid. Here you will be careful of two ledges of rocks, one called Spring point ledge, two miles N. by W. ½ W. from the light-house, and the other three miles bearing N. by W. ½ W. called Stanford's ledge, which has a buoy on it, and stretches off from your larboard hand near half a mile in length. They lie to the S. W. of House island, and are all bare at low water. If you are obliged to turn in here, they are much in the way, and when you are standing to the southward, be careful of them. The marks will do in the day-time, but are of no service in the night. There is a pilot who generally attends here. This harbour is open to the wind at N. E. and E. N. E. If you should come in in a dark night, your best

way is to go into Hog island road, which may be done by steering as follows:—When you pass the light-house, steer N. by W. until you pass Bang's island, which you will leave on your starboard hand; in steering this course, you will make House island, which you will leave on your larboard hand; when you are between both of these islands, you steer N. E. by E. till you come to the second island on your starboard hand. If it is day time, you will see a large house on said island, and may anchor as soon as abreast of it, in 10 or 12 fathoms, muddy bottom.

If you should fall into the eastward of Portland, and make Seguine light, bring it to bear E. and steer W. which course you are to continue till you make Portland light to bear from N. W. to W. N. W. when you may run for it without fear.

N. B. You must have some regard to the tide of flood, which sets very strong between the islands to the eastward of Portland.

[☞ *See the Plate.*]

Notice to Masters of Vessels.

Masters who sail from Portland, or ports adjacent, are informed, that from the OBSERVATORY, on Fort hill, by means of the Telescope placed there, vessels approaching the coast may be discovered at 15 leagues distance; and their colours or private signals can be distinguished 8 leagues, if the weather should be clear and the colours hoisted, or suspended in such a manner as to present them fair to the Observatory. Should any need assistance, they will set their ensign over their private signals; and may be assured, if they can be discerned, that their situation will be made known to their owners.

The Observatory bears N. N. W. ¼ W. from Portland light-house, 4 miles distance; and these in range are a good mark to clear Alden's rock; which, keeping the above in range, you will be nearly three quarters of a mile to the eastward of it.

The Observatory is on an eminence 141 feet above high water mark; and the building 32 feet high, painted red, and the telescope is placed near the top.

Boon island light.

Boon island is very low land, about one quarter of a mile in length, and has a light-house on it, which bears S. E. ½ S. from Cape Neddock, distant 2 leagues. It is built on the west part of the island, where the monument formerly stood; the edifice is stone, contains a fixed light, elevated 32 feet above the level of the sea, and may be seen, in clear weather, 6 or 7 leagues. Two other buildings are erected near it; one for a dwelling house; the other for an oil house. From Boon island to Boon island ledge the course is east, distant one league. It is not safe for strangers to go very near this ledge, for several of the rocks are to be seen long before low water. From Agamenticus hill, Boon island bears S. E. distant 5 or 6 leagues; and when you come in from sea, and make Agamenticus hill, bearing N. W. by N. you are then to the westward of Boon island ledge; but when said hill bears N. W. by W. you may be sure you are to the eastward of it.

Remarks on the White hills.

These hills lie N. W. from Portland, and N. N. W. from *Wood island light-house. You may see them in clear weather, when no other part of the land is in sight. At the first sight they appear like a cloud, and are always white, occasioned, it is said, by their being covered with white moss. They have been seen when in lat. 43° 10′ N. being 46 miles from the Pyramid on Cape Elizabeth. The depth of water in the above latitude is 80 fathoms, muddy bottom. When you steer N. W. or W. N. W. from this latitude, you will make Agamenticus hills, and when bearing W. by N. 6 or 7 leagues, they appear like three hills, and the smallest of them to the eastward. At the same time, you will make Well's hills bearing W. N. W. and when you are on the northern part of Jeffrey's ledge,† in 45 fathoms water, you will see the hills of Agamenticus bearing W. by N. or W. N. W.

I would recommend to all mariners, in coming from the eastward, not to go to the northward of lat. 43° 70′ N. in thick weather, unless they are well acquainted, and judge themselves to be to the westward of Boon island ledge, as this has proved fatal to many who were unacquainted.

Between Jeffrey's and the Isles of Shoals, you will have 70 and 75 fathoms water, muddy bottom, and a strong current setting to the S. W.—You may see the Isles of Shoals 5 or 6 leagues, when you are to the eastward of them, but first see the light-house which is on White island, and the meeting-house on Star island, bearing N. E. and S. W. from each other, distant seven-eighths of a mile.

Directions from Cape Porpoise *to* Wood island light.

Wood island (on which a light-house is erected containing a repeating light, as described in note) is high woody land, very even, and lies N. E. 3 leagues distant from Cape Porpoise. In running for the light, bring it to bear N. N. W. or N. W. and run till within a cable's length with safety. You may go into this harbour either at the eastward or westward of the island. There are several rocks to the westward of the island, and likewise a long bar which lies to the S. W. about three quarters of a mile distant. When you have the wind to the southward, you may lay your course in, and anchor near Stage island ; this is called Winter harbour. You may go in the eastern way, and have room to turn your vessel (which is an advantage you cannot have in going in to the westward) ; but here you are exposed to the wind at N. E. and E. N. E. but if your cables and anchors are not good, you may run into the Pool, and lie safe from all winds.

In running in the eastern passage, you open a small channel for boats only, between Wood island and Negro island, but no man of experience

* Wood island light is situated near the entrance of Saco river, on the east side of the island. The lantern is elevated 45 feet above the level of the sea, and contains a revolving light, which may be seen 7 or 8 leagues distant. When you first make it, the eclipse will be total, until you are within 6 or 7 miles of it, when the light will not wholly disappear, but in the revolutions the greatest power of light will be to the least as 24 to 1.

† Jeffrey's ledge lies between 42° 20′ and 43° 37′ 30″ north latitude, and between 68° 52′ 30″ and 69° 45′ west longitude.

would mistake it. Negro island is small, having two stores on it, and is left on the larboard hand.

Saco lies about a league to the northwest, but is a barred place, and has not above 10 feet, at high water, which makes it not fit for a stranger to go in; there is, however, considerable navigation owned here, and the inhabitants are enterprising.

The next place to Wood island is Richmond's island, which lies about N. E. northerly, 4 leagues; this place is only fit for small vessels, such as coasters—but few vessels put in here, it being only one league to the westward of Portland, which is the principal port in the state.

In sailing by Richmond's island you must be careful of a sunken ledge, called Watch ledge, that lies off about S. E. near half a mile from the N. E. end of the island; it does not show itself, except the wind blows fresh; but you need not go so near the island unless you have a scant wind, or turning to windward.

Directions to sail from Cape Neddock *to* Cape Porpoise.

Your course from Cape Neddock to Cape Porpoise is N. E. distant 4½ leagues. Cape Porpoise is a bad harbour, and not to be attempted unless you are well acquainted, or in distress. In going in, you must leave two small islands on your larboard hand, and three on your starboard. It may be known by the high land of Kennebunk, which lies to the N. W. of it. When the *harbour bears N. W. you must haul in, but be careful of the point on your larboard hand, and not go too near it, as it is very rocky. As soon as you are in the harbour, and clear of the point of rocks on your starboard hand, your course must be N. W. about two cables length, when you must come too, and moor N. E. and S. W. or run direct for the wharf. A vessel that draws 10 feet will be aground at low water. The harbour is so narrow that a vessel cannot turn round—is within 100 yards of the sea, and secure from all winds, whether you have anchors or not.

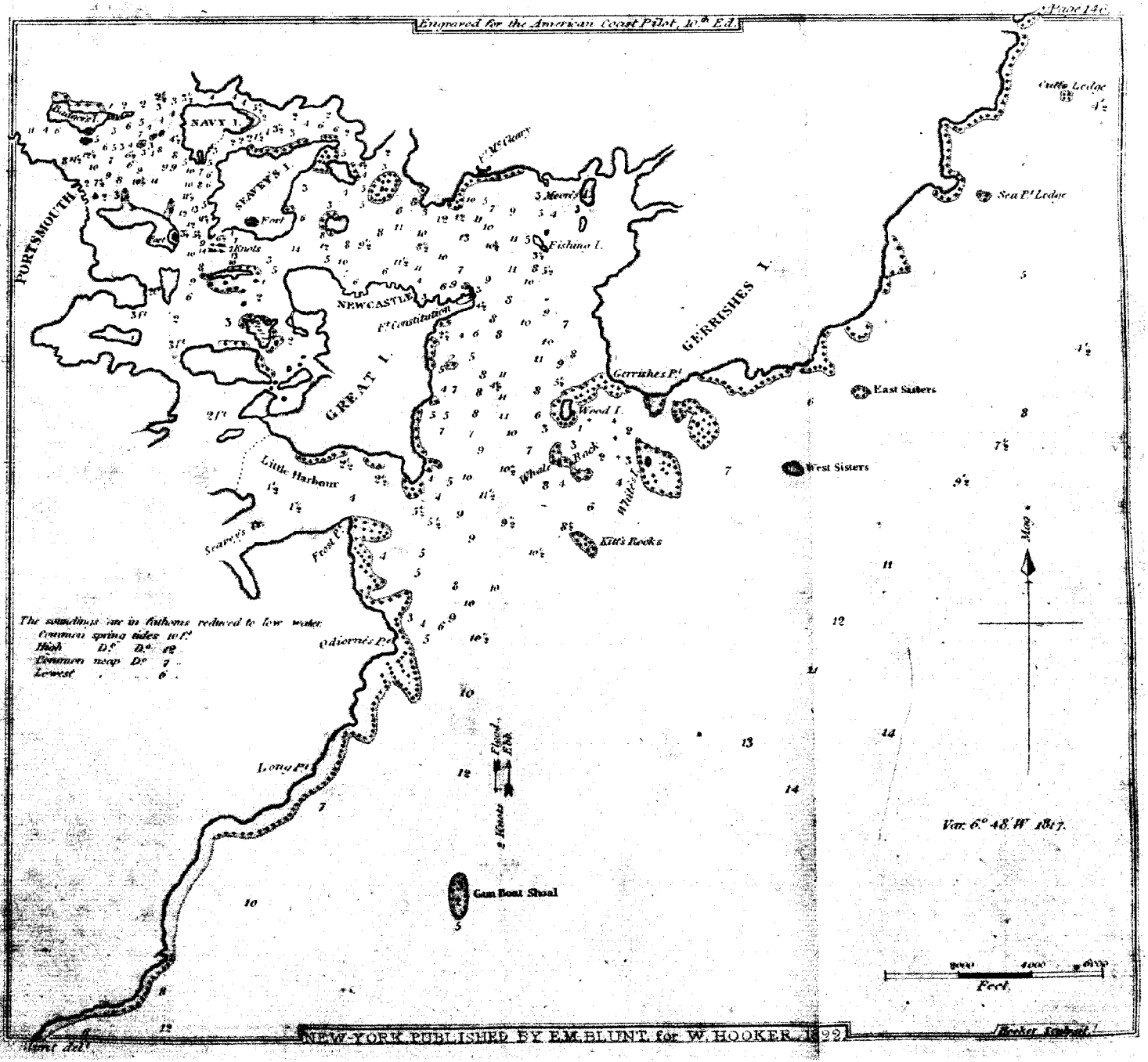
Directions for Portsmouth harbour.

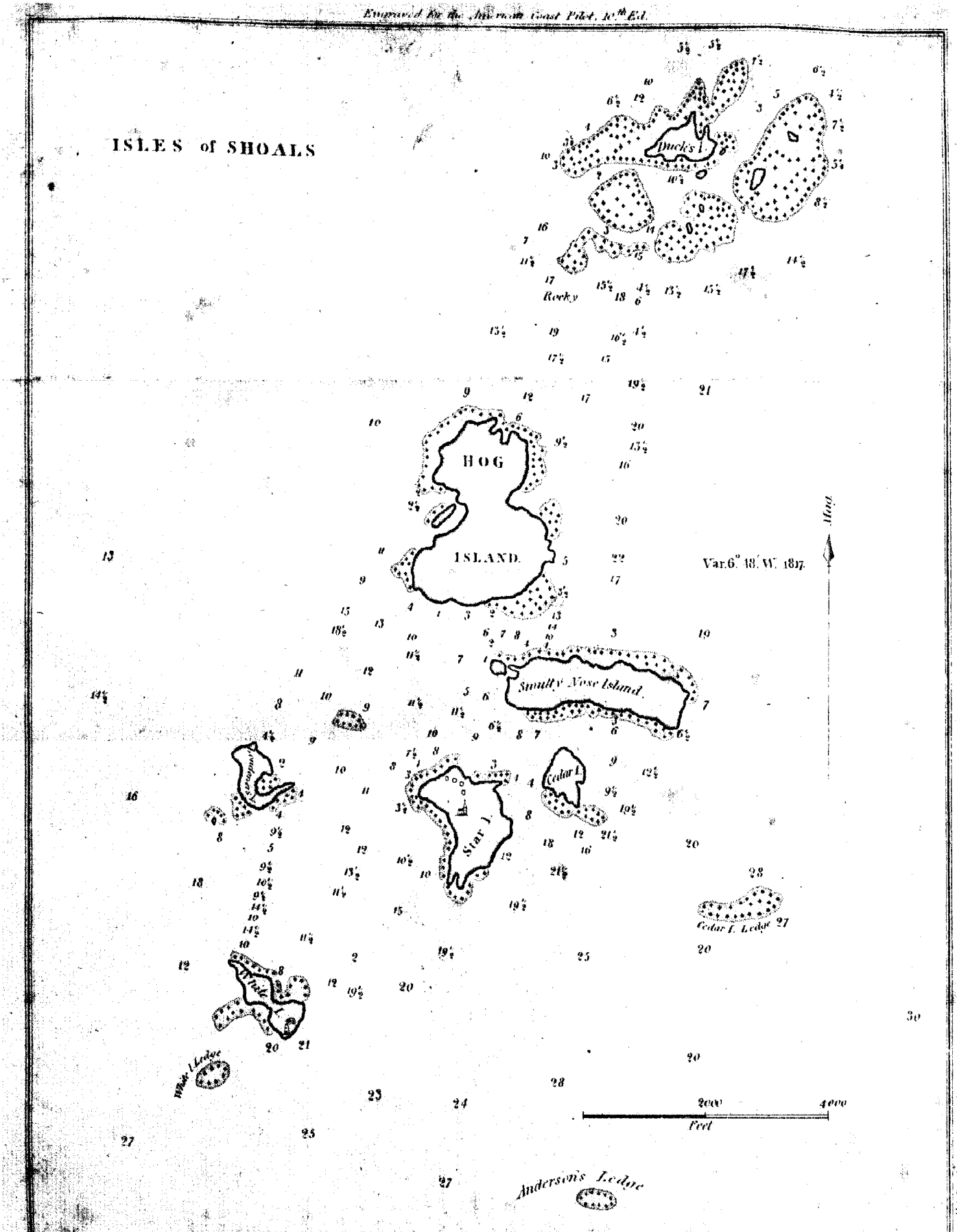
If you fall into the eastward, and make Cape Neddock, and are bound to Portsmouth, when within half a mile of said cape, your course is S. S. W. 4 leagues, which course you will continue till you bring Portsmouth† light-house to bear N. and run within one quarter of a mile of the light, then steer N. by E. or N. N. E. until you are abreast of the light, when you must steer N. W. until the light bears S. S. E. and anchor in 9 fathoms, at low water, good bottom.

If, when coming from sea, you make the Isles of Shoals, and are to the eastward of them, you must run for them till within one mile of the Eastern isle, then steer W. N. W. until Portsmouth light-house bears N. then follow your directions as above.

* At the eastern side of the harbour lies a ledge, on which it always breaks.

† Portsmouth light-house has a fixed light in it, elevated 85 feet above the level of the sea, and stands on Fort point (New Castle island) at the entrance of the harbour. N. by W. and S. by E. moon makes high water at full and change.


Engraved for the American Coast Pilot, 10th Ed.
Page 146.
PORTSMOUTH
NAVY I.
SEAVEY'S I.
Fort
Knots
NEWCASTLE
Ft Constitution
GREAT I.
Little Harbour
Seavey's Pt.
Frost Pt.
Odiorne's Pt.
Long Pt.
Ft McCleary
Moore's I.
Fishing I.
GERRISHES I.
Gerrishes Pt.
Wood I.
Whale Back
Whale's I.
Kitt's Rocks
East Sisters
West Sisters
Cutts Ledge
Sea Pt Ledge
Gun Boat Shoal
Flood
Ebb
2 Knots
Mag.
Var. 6° 48' W 1817.
Feet
The soundings are in fathoms reduced to low water.
Common spring tides 10 ft.
High D.o D.o 12
Common neap D.o 7
Lowest 6
NEW-YORK PUBLISHED BY E.M. BLUNT for W. HOOKER, 1822
Hooker Sculpt.


ISLES of SHOALS
Duck's I.
Rocky
HOG
ISLAND.
Var. 6° 18′ W. 1817.
Mag.
Smutty Nose Island.
Star I.
Cedar I.
Cedar I. Ledge
White Ledge
2000
4000
Feet
Anderson's Ledge
NEW-YORK, PUBLISHED BY E.M.BLUNT, for W.HOOKER, 1822.

If you come to the westward of the Isles of Shoals, give White island light a birth of one mile and a half, bring it to bear east, and then run N. by W. for Portsmouth light, 9 miles distant. If you have a head wind, and obliged to beat into the harbour, you must observe there is a sunken rock, at the east side of the entrance, called Kitt's rock, which has a buoy on it, and S. by W. one quarter of a mile from the light-house, lies a sunken rock, called Stillman's rock, which also has a buoy on it. Give the buoys a good birth, and there is no danger.

When you come from the S. W. and make Cape Ann, and to the eastward of the Dry Salvages, bring them to bear S. by E. and steer N. by W. or N. ½ W. In steering this course you will make the Isles of Shoals, from which you may take a new departure, by bringing the light-house to bear east, distant 1½ mile, and run N. by W. for Portsmouth light. If the wind should come to the northward, and you are obliged to turn into said port, you must stand to the westward no farther than to bring the light to bear N. ¼ W. till you get within Odiorne's point, and when standing to the eastward, to go about as soon as the light bears N. N. W. until you get within Wood island. Be careful of Odiorne's point, coming from the south-westward, for it lies off more than half a mile, with sunken rocks, which do not show themselves when the wind is off the land; likewise in standing to the east, you must be careful of the Whale's back, which lies S. S. W. of Wood island, and is covered at half tide. If you are bound to the eastward from this port, you steer S. by E. one league from the light-house, then steer N. N. E. for Old York or Cape Neddock, which is 4 leagues from Portsmouth; but if the wind should come from the northward you must be careful of York ledge, which bears from Swett's point S. E. distant 2 leagues. There is a sunken ledge that lies S. W. one mile from York ledge—it is never bare, but always breaks at low water, and is called the Triangle. Some part of York ledge is bare at half tide.

The next you come to is Boon island (on which is a light-house, which lies S. E. ½ S. from Cape Neddock, or the Nubble, so called.) When you pass Boon island, bound to the eastward, and take the wind at N. N. E. you must take care of a ledge of rocks due N. from Boon island, one mile distant.

[N. B. I have passed this place several times, but never discovered the ledge till the year 1733, when being bound to the eastward, the wind took me from the westward, but the vessel having no more than steerage way, I hove over a line to catch fish, and found I had 24 fathoms water, sandy bottom, and in a few minutes I had but ten feet of water, and my vessel drawing 9; all that saved me from striking was, that the water being entirely smooth, the current set me to the eastward, and I got into 24 fathoms within the length of the vessel from where I sounded and had but 10 feet.] (☞ *See the plate.*)

Description of the Isles of Shoals.

By the benevolence of the Massachusetts Missionary Society, aided by subscriptions of several gentlemen in Newburyport and the neighbouring towns, a meeting-house has been erected on Star island (one of the above islands.)

The following is the description and relative situation of the islands :

White island (the south westernmost island) is a rocky island, three-quarters of a mile in length, from S. E. to N. W. and about one mile and three quarters distant from the meeting-house. There is a reef that extends about one-third of a mile from the N. W. end, which in passing you must give a good birth. The S. E. end bears from the meeting-house S. W. $\frac{1}{4}$ S. the N. W. end S. W. by W. $\frac{3}{4}$ W.

On this island is a light-house with a lantern elevated 67 feet from high water mark, containing 15 patent lamps with reflectors on a revolving triangle, which will make one complete revolution in three minutes and thirty seconds ; exhibiting on one side a bright red light, on one side a blue, and on the other the natural colour of the light.

Each light may be distinctly seen about 50 seconds, at the distance of 9 miles ; the light will be wholly eclipsed, about ten seconds, between each colour ; within that distance, the light will not entirely disappear in clear weather ; but taking the medium, the greatest power of light will be to the least as 40 to 1. The bright, or natural light, will be first discovered in clear weather at the distance of about 7 leagues, and, on approaching, the red and blue in succession. The bright light may be seen two or three miles farther than the red, and the red about the same distance farther than the blue.

A bell of 800 lbs. weight is suspended in the tower of the light-house, which will be kept tolling by machinery at the rate of about ten strokes a minute, by night and day, whenever from fog, or any other cause, the light or light-house cannot be seen at least four miles ; at which distance it is calculated the bell may be heard in moderate weather.

The following bearings from White island light-house are the mean of a number of experiments by compass.

Portsmouth light-house bears N. N. W. distance 9 miles—Square rock lies directly in the range, distance from White island five-eighths of a mile.

Boon island light, N. E. by N. distant 12 miles.

Cape Ann light, S. $\frac{3}{4}$ W. distant 21 miles.

Rye meeting-house, N. W. by W. $\frac{1}{2}$ W. distant 9 miles.

Star island meeting-house, N. E. distant 7-8ths of a mile. There is a rock, called Innesis' rock, bearing S. W. by S. from this island, two miles distant, bare before low water.

North-west point of Hog island, N. by E. $\frac{3}{4}$ E.

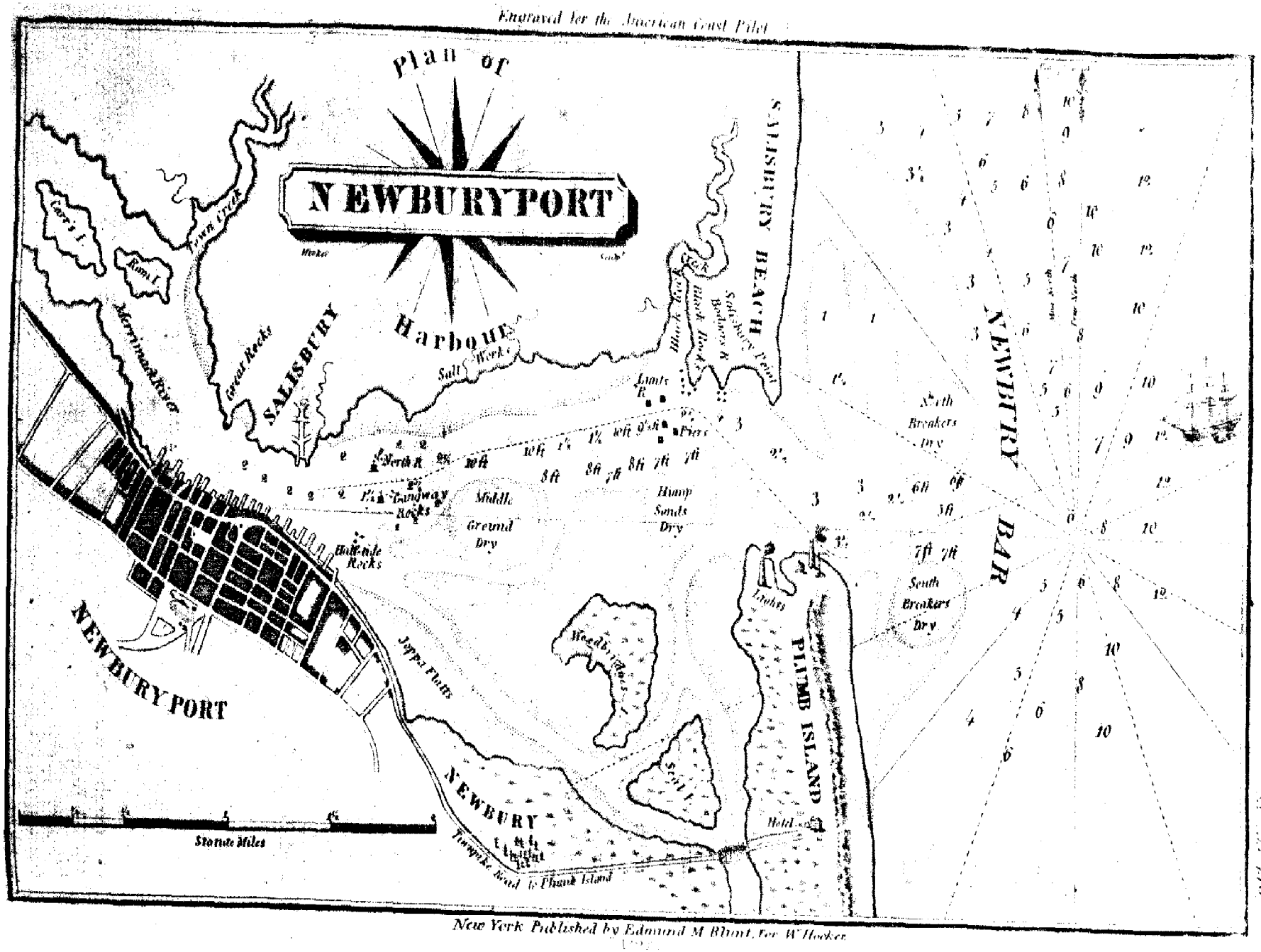
Cedar island ledge, E. by N. $\frac{1}{4}$ N. distant $1\frac{1}{2}$ mile.

Anderson's ledge, S. E. by E. $\frac{1}{2}$ E. distant $1\frac{1}{8}$ mile.

White island ledge, W. S. W. distant one-third of a mile.

Londoner's (or Lounging) island lies about $1\frac{1}{2}$ mile to the northward of White island, is about five-eighths of a mile in length from S. to N. and is high at each end : in high tides the middle is sometimes covered ; a number of rocks lie close about the island, in almost every direction, some of which are always bare. The south end bears W. from the meeting-house ; the north end W. N. W. $\frac{1}{2}$ W. about half a mile distant. About half way between this island and Star island, lies a rock which is bare at low water ; it bears from the meeting-house N. W. by W. $\frac{1}{2}$ W. one-third of a mile distant.

Star island (where the meeting-house stands) is about three-fourths of a mile in length from S. E. to N. W. and about half a mile in breadth ; it is covered with buildings on the north side. The meeting-house stands on an eminence a little to the northward of the middle of the island ; is 12 feet high from the foundation to the roof ; to the top of the steeple is


Engraved for the American Coast Pilot
Plan of
NEWBURYPORT
Harbour
SALISBURY
SALISBURY BEACH
NEWBURY BAR
NEWBURYPORT
NEWBURY
PLUMB ISLAND
Merrimack River
Great Rocks
Salt Works
Black Rock
Salisbury Point
Limits R.
Piers
North R.
Gangway Rocks
Middle Ground Dry
Hump Sands Dry
Half-tide Rocks
North Breakers Dry
South Breakers Dry
Lights
Woodbridges I.
Seal I.
Joppa Flatts
Hotel
Statute Miles
Turnpike Road to Plumb Island
New York Published by Edmund M Blunt, for W Hooker

30 feet more ; the whole height from the surface of the water is about 65 feet ; it is painted white, and the steeple is placed in the middle of the building ; it stands fronting the west, and may be seen at the distance of 8 or 9 leagues, in almost any direction at sea ; it bears from Thatcher's island lights (Cape Ann) N. ½ E. 6½ leagues distant ; from Pigeon hill N. by E. 6¼ leagues distant ; from Newburyport light-houses N. E. ½ E. 6 leagues distant ; from Portsmouth light-house S. S. E. ½ E. 3¼ leagues distant ; from the western Agamenticus mountain S. ½ E. from the eastern do. S. ¼ E. from Boon island light-house S. W. ½ S. 4¼ leagues distant ; from Boon island ledge (which lies one league E. from Boon island) S. W. by W. 4¾ leagues distant. Off the south end of this island, about three-quarters of a mile from shore, lies Anderson's rock, which is bare at half tide ; in passing, give it a good birth ; it lies from the meeting-house S. S. E.

Cedar island is small, and about one-third of a mile in length from E. to W. situated between Star and Smutty-nose islands. There is a channel between it and Smutty-nose island, but it is crooked, and not fit to be attempted by strangers. The east end bears from the meeting-house E. ¼ N. and the west end E. N. E. ½ E. three-eighths of a mile distant. A rock lies off the S. E. end of this island half a mile distant, bare at half tide, bearing from the meeting-house E. by S.

Smutty-nose island is about one mile in length from E. to W. and about half a mile in breadth, and may be known by a wind-mill on the north part of the island ; at the W. end is a fine harbour, called Haley's cove, where 15 or 20 small vessels may lie safe from all winds. There are several buildings near this harbour. There is a fine channel between this island and Hog island, where is water sufficient for any vessel, keeping near the middle of the passage. The west end of Smutty-nose island bears from the meeting-house N. by E. ¼ E. and the east end E. N. E. about five-eighths of a mile distant.

Hog island is a high island, lying to the northward of Smutty-nose island ; is about one mile in length from E. to W. and five-eighths of a mile from N. to S. The west end lies from the meeting-house N. by W. ¼ W. east end of do. N. N. E. seven-eighths of a mile distant.

Duck island (the northernmost island) is a long low rocky island ; some parts of it are covered at high water, with rocks projecting in every direction, especially at the N. W. end, where a ledge runs off half a mile. It is the most dangerous of any of the Isles of Shoals, and ought carefully to be avoided ; it is about seven-eighths of a mile in length from N. W. to S. E.—the E. end bears from the meeting-house N. N. E. ¾ E.—the west end N. by W. ¾ W. about 3¼ miles distant.

[☞ *See the Plate.*]

Directions for Newburyport, Ipswich bay, *&c.*

When you come round Cape Ann, and are two miles to the northward of the dry Salvage rock, bring said rock to bear S. E. and steer N. W. by W. 3⅖ leagues, which course and distance will carry you up with Newburyport bar. In running for the bar from the eastward, strangers should not approach too near Hampton harbour, as off the mouth of it lie several sunken rocks. Hampton harbour lies about 5 miles N. from the southern

extremity of Salisbury point, between which and Hampton harbour N. by E. ½ E. from the lights on *Plumb island, 3 miles distant, lies another dan-

* Plumb island, so called, is situated between the mouth of Merrimack river, on the north, and Ipswich bay, on the south, and is separated from the main land by a narrow sound. Its length is about 3½ miles, and its width from the sea to the main, not more than 500 paces. On the N. end of the island are two light-houses, containing fixed lights, which are constantly lighted at night, and so constructed as to be easily moved; a circumstance requisite, from the frequent shifting of the bar at the mouth of Newburyport harbour. This bar is probably formed by the current of the river in its progress out, meeting the drift of the sea and opposing winds, and by that means forming a bank of loose sand, which the strength of the tide is insufficient to force out. It extends across from Plumb island, about a mile below the lights, to Salisbury beach. The channel over it is extremely narrow, and terminated on each side by very dangerous shoals; that on the north, called the North breaker, and that on the south, the South breaker. The light-houses are always so situated as to be brought in a range by the mariner coming over the bar; and as by the violence of winds or tides, the bar shifts, the light-houses are shifted to conform to it. By keeping the lights in one, vessels may, by day or night, come in with safety, and find good anchorage, in 4 or 5 fathoms water, abreast or between the two lights.

That part of the island, bounding on the sea and extending above half its width, consists entirely of yellow sand, perfectly smooth on the beach, but farther from the sea, driven by the wind into hillocks, or heaps of fantastic forms, and preserved in that shape by the successive growth of grass and shrubs. On the back part of the island, where it is washed by the sound, is an extent of salt marsh, bounding its whole length. The products of Plumb island are scarcely worthy remark; beach grass is the principal, and is used only for manufacturing brooms. A species of plumb, from which the island derives its name, grows here in tolerable abundance. It is produced on low running shrubs, on the summit and sides of the sand hillocks, is pleasant to the taste, and, generally in its season, an article for the market. There is likewise the beach pea, of which little or no use has ever been made; and indeed it is not found in sufficient plenty to become much more than an article of curiosity. At the southernmost end of the island there are several houses, with families, and a considerable spot of land, in good cultivation. To the northward of this, there is a grove of pine trees, of a mile and a half in extent.

The Marine Society of Newburyport erected, some years since, at their own expense, several huts at proper distances from each other, and from the shore, and supplied them with fire-works, fuel, straw, &c.—but owing to the strong winds, driving the sand from their foundations, and the inhuman conduct of people who visited the island in summer, these huts were, in a few years, totally destroyed. The misfortunes attending this generous and humane attempt in favour of the ship-wrecked mariner, deterred the Marine Society, as well as other bodies and individuals, from a like benevolent attempt, until the establishment of the Merrimack Humane Society, in 1802. Conceiving it absolutely necessary that some relief should be afforded the unfortunate sufferer on so desolate a spot, and in the most inclement season of the year, the society voted to build three huts on the island, and have already carried their generous resolutions into full effect. The exertions of this benevolent institution will be, in future, to preserve these huts in repair, and in perfect supply of materials for fire, and other necessaries for the support and preservation of life. Many, no doubt, will owe their lives to the humanity of this design, and with grateful feelings contribute themselves to the preservation of others. The expense and trouble will be trivial in comparison with the noble purposes it may answer: and the hope of its answering these purposes will be alone a sufficient remuneration to the generous projectors.

From the report of a committee, appointed by the society, we have the following description of the huts, and directions to the mariner to find them:

The house for the keeper of the lights, erected by the United States, is about 20 rods south from the light-houses.

About 2500 paces, or 1½ mile south from this house and the lights, on the inside of the island, is the first hut, to which the mariner, in day-light, may be directed by a beacon about 300 paces to the E. with a hand pointing to the hut.

2900 paces, or about 1¾ mile south from this, is the second hut, with a similar beacon about 400 paces S. E. pointing to it.

1700 paces, or about one mile south from this, is a third, with a beacon, bearing E. 500 paces distant.

5000 paces, or about 3 miles S. of this, is a house, occupied by Mr. Spiller and family, which is about one mile from the S. end of the island, and about W. one mile from the S. end of the island, are two other houses with families.

These huts, together with the other houses mentioned, form a chain from one extremi-

gerous rock, having only 3½ feet water on it. If you go no farther to the westward than for the lights on Plumb island to bear S. W. there is no danger from either of the above-mentioned rocks, but that course to the bar would run you on the north breaker; therefore you must bring the lights to bear W. by S. and anchor in 11 or 12 fathoms water, if the tide will not permit your coming in. No vessel in coming in, ought to go nearer the South breaker than 7 fathoms water, nor nearer the North breaker, in coming from the eastward, than 9 fathoms. There are several pilots belonging to this harbour, who will, if possible, be outside the bar, to take command of every vessel wanting their assistance. If they cannot, you must keep the lights in range, and run for them till within a cable's length of the eastern light, when you must haul to the westward, and anchor between the two lights in 4 fathoms water. A vessel that draws 10 feet water may come in at two-thirds flood. They should always keep to the windward of the bar, unless the wind should be fair. If the sea is so great as to prevent the pilots getting over, a signal will be made by him, when you must run direct for his boat, keeping the lights in range, which will carry you safe over. If your cables and anchors are not good, you may bring the western light-house to bear S. E. by S. and run N. W. by N. for *Salisbury point; but as soon as you make said point, you must

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ty of the island to the other. The unfortunate mariner, whose fate may wreck him on this shore, can, by noticing the point of compass from which the wind blows at the time of his being wrecked, be governed in his course across the island, where he will find himself under the lee of the higher land, and protected, in some measure, from the violence of the tempest. By keeping along the margin of the island, where the travelling is good, and before coming quite to the marsh, either N. or S. he will be certain of meeting with one of these huts or houses, where he may find temporary relief. To facilitate still further the means of conveying immediate assistance to those unfortunate mariners who may be wrecked on this island, a number of gentlemen were incorporated for the purpose, and have completed a bridge and turnpike road from Newburyport to Plumb island. This road leads in a south-easterly direction from Newburyport, and the bridge crosses Plumb island near about one-quarter of a mile to the S. W. of Seal island.—An elegant Hotel has been erected at the east end of the bridge, within 100 rods of the sea shore, one mile south from the lights, and about three-fourths of a mile northerly from the northernmost house erected by the Merrimack Humane Society before-mentioned. The Hotel is painted white, has three white chimneys, and may serve as a landmark for seamen.

If a vessel, by stress of weather, should be obliged to run ashore on this island, and the master can make any choice of place, it is most eligible to run on as nearly opposite this house as possible, as assistance and shelter can be more promptly afforded, and the communication more direct with Newburyport.

It rarely happens that any life is lost on this beach, in attempting to escape from the wreck, when the crew remain on board until low tide. Unless the vessel is in imminent danger of going to pieces immediately, the seamen should never take to their boat.

* In a course nearly N. from the light-houses on Plumb island, and about half a mile distant, across the mouth of Merrimack river, is the southern extremity of Salisbury beach, called Salisbury point. From this point a sand beach extends on the verge of the ocean, without an inlet or interruption of any consequence, until it reaches Hampton river. This beach is connected with the main land by a salt marsh of considerable extent, intersected by a variety of small rivulets and creeks, which render it impossible for a ship-wrecked mariner to reach the inhabited parts of Salisbury. Here too the hapless seaman is sometimes destined to suffer the misfortunes of shipwreck, and to reach a desolate and inhospitable shore, only to aggravate the horrors of his death. If he can attain the first and wished-for object, in evading the jaws of the angry ocean, he yet finds himself a solitary wanderer on the coast, without shelter and without sustenance; and in his fruitless search for them, must inevitably perish. As the N. E. storms are generally most fatal to vessels on this part of the coast, Salisbury beach is not so often a place of shipwreck as Plumb island. But to guard against a possibility of accident, which must sometimes happen to the unskilful or inexperienced navigator, the Marine Society erected a hut, similar to those on Plumb island. Here they deposited every thing necessary for the relief of such as might need it, and were at the pains and expense frequently to inspect it, and renew their generosity by replenishing it: but this has shared the

haul up N. W. which course will carry you clear of *Badger's rocks, Black rocks, and the Hump sands. Across the channel from the Hump sands to Black rock creek, lie 7 or 8 piers, on which are from 7 to 2½ feet water, at low water, which were sunk in the year 1776, and have not since been removed; the mark to pass between them is to bring the beacon, at the west end of the town of Newburyport (which may be distinctly seen in clear weather) over the south corner of the north meeting-house. The Hump sands lie S. W. from Salisbury point, which makes the channel very narrow, and difficult for strangers. When you pass the Black rocks you must haul up W. by S. ½ S. which will bring you in channel way, and good anchorage. And if it be in the night, or dark weather, when you judge yourself about half a mile from Black rock, you may come too with safety. I would recommend to all masters, whether they belong to Newburyport or not, to avoid attempting that port in a gale of easterly wind, except they are well acquainted, and have a good prospect of getting in, as no pilot can get over the bar when it blows a gale from the eastward. And if you should make Cape Ann lights, and bring them to bear S. by E. or the Dry Salvages to bear S. by E. you may run with safety N. by W. or N. ½ W. distant 10 leagues from Cape Ann to Portsmouth. In running the above course, you will make the Isles of Shoals, if it is any way clear, from which you take a new departure; when you pass the said islands, you bring Star island (on which the meeting-house stands) to bear S. S. E. and then steer N. N. W. distant from said island 3 leagues to Portsmouth, or give White island light a birth of a mile and a half, bringing it to bear east, and then run N. by W. for Portsmouth light. (White island is the south-western island.) There is a very good harbour in the Isles of Shoals, from the wind from north-easterly round to southerly, and you may lie land-locked with any of them; but if the wind hauls to the S. W. or W. N. W. you may run in between Smutty-nose island (which has a wind-mill on it) and Hog island, where there is water enough for a first rate man of war; and where you anchor, have 12 fathoms, muddy bottom.

In going into Portsmouth, you may bring the light-house to bear N. N. W. till you get within Wood island. Then you may haul away N. or N. by E. till you pass the light-house; you may then haul up W. N. W. or N. W. by W. and bring the light-house point to shut in with Wood island, where you will be safe from all winds, and may anchor in 8 or 9 fathoms water.

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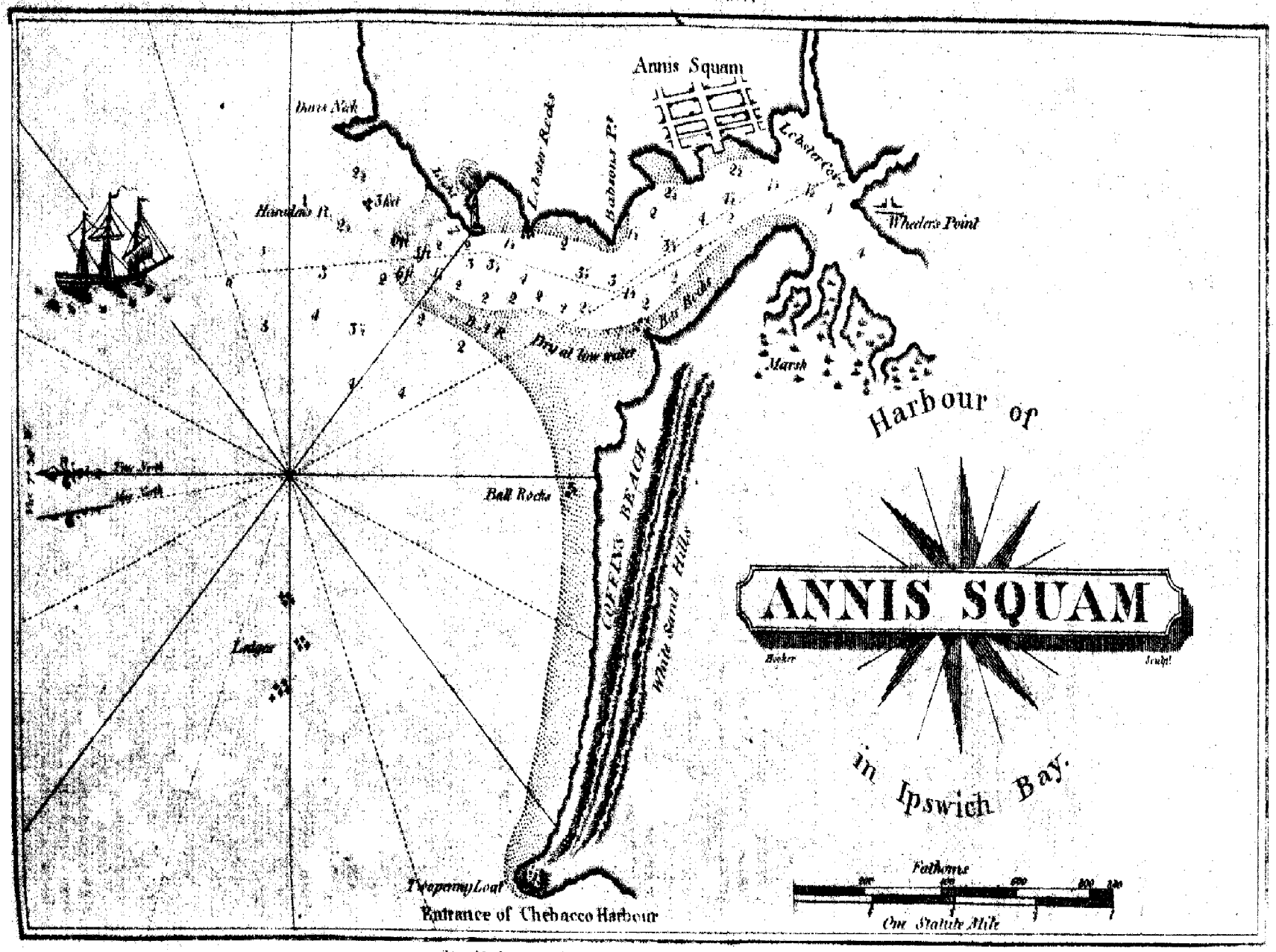
same fate with those on Plumb island, not so much, however, from the insufficiency of its foundation, or the violence of the winds, as from the wantonness of individuals and companies, who frequent this spot in the warm season *on parties of pleasure*. The Merrimack Humane Society have extended their benevolent views to this part of the coast, and have erected a hut about three-quarters of a mile north from Black rocks, so called, and about 150 paces from the sea shore. This hut will be maintained in commodious repair, and provided with every thing suitable for those who may be so unfortunate as to need its shelter. Others on the same coast will be erected as speedily as the funds of the society, and the charities of individuals will render it possible, and will be conveniently furnished and provided for the same laudable purpose.

* Badger's rocks bear N. W. ½ N. from the light-houses, distant half a mile, and are covered at two-thirds flood, which you leave on your starboard hand. Black rocks bear N. W. from the light-houses three-quarters of a mile distant, are always dry, which you also leave on your starboard hand. Half tide rocks (on which is placed a pier) bear W. by S. ¾ S. from Black rocks, distant one mile and a half, are bare at half tide, which you leave on your larboard hand. North rocks (which also have a pier on them) bear W. by S. from Black rocks, distant one mile and a half, and are seen only at very low tides, which you leave on your starboard hand, between which and Half tide rocks is the channel.

Engraved for the American Coast Pilot.



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When you come from the eastward, with the wind at E. or E. S. E. with which wind you cannot weather away Cape Ann, and you are to the northward of the Isles of Shoals, your only shift is to Portsmouth, and you are obliged to run so far to the westward as to bring said port to bear N. N. W. as generally the wind at E. at sea hauls two or three points to the northward, which makes it a head wind. [☞ *See the Plate.*]

SIGNALS FOR VESSELS,

When in sight, supposed to be bound for Newburyport, and the sea is so large on the bar that pilots cannot get out to their assistance.

When a vessel comes into the bay, and cannot come over the bar at HIGH WATER, owing to insufficiency of the tide, a RED SQUARE FLAG will be hoisted up and a PENDANT under it, and as soon as those signals are seen from the vessel in the bay, she must keep off, and try some other port.

When the usual signals for vessels are kept up, the vessel must lay off and on at the bar, keeping to windward, until signals be made for her to come in; and when it is a suitable time to come over the bar, a RED SQUARE FLAG will be hoisted half mast: she may then come in, keeping the lights in range.

When a PENDANT is hoisted half mast the vessel may come in, keeping the lights a little open to the northward.

When a BLUE BURGEE is hoisted half mast the vessel may come in, keeping the lights a little open to the southward.

When a vessel is seen in the bay, and does not come in before night comes on, the following lights will be made, viz.

For a vessel to keep off, and not attempt to come in over the bar during the night, a LANTERN will be hoisted to the top of the flag-staff.

When there is a proper time for a vessel to come in over the bar during the night, TWO LANTERNS will be hoisted, one at the top of the flag-staff, and the other half mast high. The vessel must then lay off and on at the bar until a light is made in the eastern light-house, at a window about eight feet below the lantern. The vessel may then come over the bar, keeping the lights in range, and when she gets abreast of the upper light, there is good anchorage.

The signal for a vessel in distress is a WHITE SQUARE FLAG, with a large black ball in the centre, hoisted half mast high.

Directions for *Annis Squam harbour *in* Ipswich bay.

The masters of vessels out of Newburyport should generally be acquainted with the harbour of Squam; and for their benefit a plan of the harbour has been taken from actual survey, which will be of the greatest importance when obliged to make a harbour from Ipswich bay, through stress of weather. When a vessel at anchor off Newburyport bar, parts a cable, with the wind at N. E. or E. N. E. if she can carry double reefed sails, she may run S. S. E. 5 leagues, which course, if made good, will carry her a little to the eastward of Squam bar; and if the weather is so clear as to see half a mile when you make the land to the eastward of Squam, you may run within a cable's length of the shore; your course is S. S. W.

Squam bar bears from Hallowboat point (the N. E. point of Cape Ann) from W. S. W. to S. W. distant about two leagues. In running from Hallowboat point, you must be careful of Plumb cove ledge, which shews

* Annis Squam light-house is a wooden building, of an octagonal form, about 40 feet high, containing a fixed light, elevated about 50 feet above the surface of the water at common high tides. It is painted white, and may be known by being lower than any other light-house on the coast of Massachusetts, and its inland situation. It bears from Portsmouth light-house about S. by W. distant 10 or 11 leagues, and from Newburyport bar S. S. E. 5 leagues.

itself till near high water, and bears from Squam light N. N. E. a little northerly, distance five-eighths of a mile. When you have passed this ledge, you leave a deep cove, called Hodgkin's cove, and a long point or neck of land, called Davis' neck, on your larboard hand. When up with this neck, haul S. W. or S. W. by W. for Squam bar.

In sailing into this harbour bring the light to bear due S. when at the distance of 1 mile, and run directly for it, leaving Haradan's rock (which lies N. by E. ¾ E. from the light, distant three-eighths of a mile) on your larboard hand; continue your course till within 50 yards of the light-house, then haul up S. S. W. for the Bar rock, leaving the light-house on your larboard, and the bar, which runs nearly N. E. and S. W. (leaving the river about 90 fathoms broad, opposite the light-house) on your starboard hand. In running this course you will leave the Lobster rocks (which lie S. by W. from the light-house, distant 200 yards, and are dry at low water) on your larboard hand. When up with the Bar rocks (which lie on the starboard hand, and are dry till nearly high water) steer S. by E. ¾ E. till you open the houses, and you may anchor in from 3½ to 5 fathoms, clear sandy bottom; or run your vessel on shore on the starboard hand, in case you have neither cables nor anchors.

When a stranger is obliged to run for Squam harbour, and is doubtful whether to enter on account of the depth of water, he had best anchor back of the bar, and he will immediately have assistance from the light-house, if it is possible for a boat to live; if the weather is so boisterous that a boat cannot come off, a flag will be hoisted on shore near the light-house, as soon as there is water enough for a vessel on the bar, when he may run in as above directed.

If you are bound to Ipswich, your course from Hallowboat point to the mouth of the channel that leads into the harbour, is W. ½ N. distant about 8 miles. There are two beacons erected a small distance to the southward of Castle hill, which may be run for, but as the bar is often removed by storms, it is not safe to run into the harbour unless acquainted.

[☞ *See plan of Annis Squam.*]

Directions to go into Cape Ann harbour.

When you come from the eastward, and make *Cape Ann lights in the night, bring them to bear S. W. and run direct for them, which course will carry you within the Londoner, and when you pass the said rocks, bring the two lights in one, at which time they will bear N. by E. ¾ E. and then steer S. S. W. ¼ W. keeping said course about one mile, which will carry you clear of Milk island, which is very low and cannot be seen in a dark night. When you judge yourself to the westward of said island, you haul to the westward until you bring the lights to bear E. N. E. when you must steer W. S. W. about 5 miles, which course will carry you to Eastern point. When you pass said point, keep your course W. S. W. until you bring Norman's Woe, which is the highest land on the north side of the harbour, to bear N. N. W. then run N. N. W. till you shut the light in, then N. N. E. will carry you safe in.

* Cape Ann light-houses are built on Thatcher's island, which lies about two miles E. of the S. E. point of Cape Ann, and forms the northern lights of Massachusetts bay. The lanterns are elevated about 90 feet above the level of the sea, and contain fixed lights which may be seen 7 or 8 leagues distant.

If you want to go inside the Salvages, keep close aboard Hallowboat point, which has a tree on the eastern part of it, and steer S. S. E. for Sraight's mouth island, but be careful to avoid Avery's rock, by keeping the lights on the dry point of Straight's mouth island, till you get up close aboard, then haul round the point, and S. S. E. will carry you to the lights. To avoid the Londoner, you must keep the lights close aboard the body of the island, on which they stand; the Londoner lies half a mile off, breaks at all times of tide, is quite dry at low water, and bears E. S. E. from the middle of Thatcher's island. A long shoal runs off N. E. half a mile distant from the Londoner. Between the Londoner and Thatcher's island there are 3½ fathoms at low water. From the Salvages to Hallowboat point and Sandy bay, there lies a large spot of flat ground, which, at low water, will take up a small vessel. Outside the Salvages is very bold. Hallowboat point bears from the Salvages W. N. W. 2½ miles distant, and the Salvages bear from the lights N. N. E. 3 miles distant.

Ten *Pound island light-house.

Vessels bound for Cape Ann harbour and falling in to the eastward of the eastern point, must give the point a birth of about one mile, and when the light on Ten Pound island bears N. N. E. you are then to the westward of the ledge that extends off from the point, and may steer direct for the light (this ledge bears from the light on Ten Pound island S. by W. ½ W. and is about half or three-quarters of a mile from the shore.) Running this N. N. E. course will carry you between Ten Pound island and Ten Pound ledge; this ledge bears from the light S. W. ½ W. about ⅔ of a mile distance, and has but 6 feet water at low spring tides, is about 10 fathoms diameter. Passing between the island and the ledge, you will have 13 to 15 feet water at low spring tides; the east end of Ten Pound island is foul ground, and no safe passage; the south, west and north sides are bold and may be approached within 40 to 60 fathoms at low water; give the west end of the island a birth of 50 to 70 fathoms, and steer in for the inner harbour N. E.; you may anchor at any distance from 100 fathoms to three-quarters of a mile from the island; the light will then bear from S. to S. W. anchor in 6, 5, 4 or 3 fathoms spring low tides, muddy bottom; this inner harbour is safe against all winds that blow.

Bound for Cape Ann harbour and falling in to the westward, as far as Half-way rock, take care not to bring the light on Ten Pound island to bear to the eastward of N. E. by N. until you are a mile or a mile and a half to the eastward of Half-way rock, to avoid the S. E. breakers that extend from Baker's island, and which bear from the lights on Baker's island S. E. ½ S. to S. S. E. ½ E. and about 2¼ miles distant. On the S. E. part of these breakers is placed a spar buoy, painted black, bearing from Half-way rock N. E. by E. about one mile distant, and from the lights on Baker's island S. S. E. ½ E. 2¼ miles. When passed to the eastward of these breakers, you may then bring the light on Ten Pound island to bear N. E. and run for it; on this course you will leave Ten Pound ledge on your starboard hand, and the ledges off Norman's Woe rock and Fresh

* Ten Pound island lies in the harbour of Cape Ann. There is a light-house on it, the base of which is about 25 feet above the level of the sea, and the tower 20 feet high.

water cove on your larboard hand; when up with Ten Pound island, anchor as above directed.

The outer harbour of Cape Ann is a safe and good anchorage against a northerly or east wind, when you may anchor in 7½ to 6½ fathoms, low tides, muddy bottom, the light-house bearing about S. E. by E. distant about one mile or a mile and a half.

The S. E. harbour is also a safe and good anchorage against a northerly, east, and to S. E. winds; bring the light to bear from N. by E. to N. N. W.; anchor in 9, 8, 7 or 6 fathoms at low spring tides, muddy bottom; distance from the light one-eighth to half a mile.

Bearings of several ledges from the light on Ten Pound island, viz.—

The ledge that makes off from the eastern point, bears from the light S. by W. ½ W. about 2 miles distant, and has from 6 to 10 feet water at low tides; this ledge lies off from the eastern point about half a mile.

There is a single rock that lies about midway between the eastern point and Norman's Woe land, called the Round rock, and has 12 feet water on it at low spring tides; bears from the light S. W. ½ S.

About 30 fathoms off from Norman's Woe point is a large high rock, of 20 to 30 fathoms diameter, and about 100 fathoms off this rock, in a southerly direction, is a ledge that has 7 or 8 feet water on it at low tides.

About one quarter of a mile off from Fresh-water cove lies a ledge, with only 3 feet water, low spring tides, bears from the light W. ½ N. distant about 2 miles.

Half-way rock and the light on Ten Pound island, bear S. W. ½ W. and N. E. ½ E. of each other; distance about 8 or 9 miles.

Remarks on Cashe's ledge.

(BY AN EXPERIENCED NAVIGATOR.)

I took my departure from Thatcher's island, which lies 2 miles to the eastward of Cape Ann; the island bore from me N. 3 miles distant: from the bearing I steered E. ¾ N. 65 miles, with a fair wind, and fell in with the north part of the bank, where Cashe's ledge is, about 2 leagues to the northward of the shoal, in 60 fathoms, hard black clay. This bank lies N. and S. 7 leagues, and east and west 2 leagues; and in the centre of the bank is the shoalest ground. Its length and breadth is one-quarter of a mile. There are on it in some parts 10 fathoms, in others only 4½, all exceeding rocky. In the length of a boat you will have from 10 to 4½ fathoms, and there are 17 fathoms within a cable's length of the shoal, which gradually deepens as you stand from it, all over the bank, to 90 fathoms; at this sounding you are on the edge of the bank. You will, in general, have upon the bank oozy and sandy bottom, with black stones and broken shells, till you get into 25 or 30 fathoms, it then becomes rocky. The current sets exceeding strong and irregular; in less than an hour it will run all round the compass. All ships and vessels should endeavour to steer clear of this shoal, for I am persuaded, that in a fresh gale of wind they must strike; if not, the sea must run so as to founder them.

By four days' observation, the weather being exceeding clear, found the shoal to lie in lat. 43° 04′ N. long. 69° 11′ W.

Directions for Salem harbour.

Vessels inward bound, and falling in with Cape Ann, must observe the following directions, viz.—When abreast of Cape Ann lights, bearing N. N. W. about two miles distant, steer W. S. W. about 3 leagues, which will carry them up with the eastern point of Cape Ann, then steer W. by S. ½ S. 7½ miles, which will carry them up with the lights on (*a*) Baker's island.

Ships bound to Salem, falling to the southward, and running for the lights, must, when they have made them, keep the northern or lower light open to the eastward of the southern light, and run for them, which will carry them to the eastward, and clear of the south breaker of Baker's island, which bears from the lights S. E. by S. 2¼ miles distant, and is very dangerous.

Vessels bound to Salem, having made the lights with a westerly wind, in beating up, must not stand to the southward or westward, further than to shut one light in with the other, on account of the South breaker, nor to the northward further than to bring the lights to bear W. by S. ½ S. on account of Gale's ledge, which bears from the lights N. E. by E. ⅛ E. 1⅓ mile distant, having but 4 feet water at low tides.

In going into Salem, by the common or ship channel, between Baker's island and (*b*) Misery island, being up with Baker's island, you may pass within 100 fathoms of it, and steer W. by N. for the (*c*) Haste; this course will carry you clear of (*d*) Hardy's rocks, leaving them to the southward, and will leave (*e*) Bowditch's ledge to the northward. If you are in the mid-passage between Baker's island and the Misery, you may steer W.N.W. till you have passed Bowditch's ledge, or till you get (*f*) Cat

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NOTES.

(*a*) Baker's island lies on the south side of the principal entrance of Salem harbour, is about a third of a mile in length, from N. to S. bearing E. from Fort Pickering, distant about 5 miles east from the town of Salem. There are now two light-houses on Baker's island, the bases of which are about 45 feet above the level of the sea. One is 25 feet and the other 56½ feet high. They stand 40 feet apart, and bear from each other N. W. ¼ W. and S. E. ¼ E. The southern light is the highest, and may be seen from 6½ to 7 leagues. The water is deep near the island, but there is no convenient landing-place. The N. and E. sides are high and rocky. There is a small channel between the S. rocks and the dry breakers, but is safe only to those who are acquainted with it.

(*b*) Misery island lies from Baker's island about one mile, is joined by a bar to Little Misery, which makes the N. side of the channel opposite Baker's island. Misery ledge has 8 feet water at low spring tides, and bears from the light-house N. W. by W. ¼ W. 1¼ mile distant. Misery island, or Great Misery, is 174 rods in length from N. to S. and 96 rods in breadth. Little Misery is 40 rods in length, with its most western point projecting into the channel. South part of Little Misery island bears from the lights N. W. ½ N. three-quarters of a mile distant.

(*c*) The Haste rock is a broken rock above water, lying near the channel, bearing from Baker's island lights W. ⅓ N. distant 2½ miles, and 1¼ mile from Salem neck.

(*d*) Hardy's rocks (on which a beacon is erected) bear W. ¾ N. from Baker's island lights, distant five-eighths of a mile; they are covered at high water, and are dangerous. At half tide they appear.

(*e*) Bowditch's ledge, on which a black spar buoy is placed, bears from Baker's island light-house W. N. W. 1¼ mile distant.

(*f*) Cat island is situated about S. W. by W. from Baker's island, 2 miles distant, and about 1¼ mile from Marblehead neck, and ranges from Baker's island just clear of Marblehead neck. On the N. W. end is a high beach, directly opposite the point of Marblehead, called Peach's point. The shore is irregular and rocky. Beyond and on a line with the island are two other heads, of nearly the same projection: and on the southern side are three high rocks, but not so large as the former. Two of them are connected with the island by bars of sand, out of water at the ebb; the other stands boldly up within

island open to the westward of (*g*) Eagle island, then haul up for the Haste; any stranger may there anchor in safety, in about 5 fathoms of water, good anchorage; but if you choose to proceed into Salem harbour, you must steer about W. for the Haste, which you will leave on your larboard hand, about half a mile distant, then steer S. W. by W. which will carry you into Salem harbour; but you must observe, that there is a ledge runs off from the N. E. end of (*h*) Winter island, and that Abbot's rock lies abreast of it; to avoid which you must keep above a quarter of a mile from the shore. Abbot's rock is found by bringing Castle hill and house into the cove N. of Fort Pickering, and Beverly meeting-house well in with Juniper point (or S. E. point of Salem neck.) Abbot's rock has 7 feet at common ebb. The mean of common tides is 12 feet. In keeping off shore, to avoid Abbot's rock, you must not go too far off, for fear of the Aquæ Vitæ, which are sunken rocks, lying E. S. E. from Fort Pickering, distant nearly half a mile.

When coming from the southward, if you are near Cat island, you may pass to the eastward or westward of it; if you are to the eastward, you must give a birth of a quarter of a mile, and steer N. by W. ½ W. or N. N. W. leaving the (*i*) Brimbles and Eagle island to the starboard, and (*j*) Coney island ledge to the larboard—that course will carry you clear of Eagle island bar; continue upon the same course till you have passed the Haste, and got into the common ship channel, or you may continue the same course till you get under the north shore, where there is good anchorage.

If you are to the westward of Cat island, you may pass in the middle channel, between that island and (*k*) Marblehead rock, and steer over N. for the ship channel, leaving (*l*) Gray's rock and Coney island to the westward. After passing the Haste, and entering the ship channel, you may proceed as before directed.

If in coming from the southward and eastward you should find yourself near (*m*) Half-way rock, you may bring it to bear S. E. and steer N.

NOTES.

these two, but more southerly. The Marblehead Marine Society has erected on Cat island rock, a spar 40 feet high, to the top of which is annexed a cask of about 130 gallons measure, which is seen at sea 20 or 30 feet above the land.

(*g*) Eagle island is about 1¾ mile from Peach's point, and bears from the light-house W. by S. ½ S. distant 1½ mile; a bar runs off from the western point of this island, in a N. W. direction.

(*h*) Winter island lies on the north side of the entrance of Salem harbour, about half a mile in length; the highest part is on the south of the island, opposite a point of rocks on the neck (which is a point of land running north-easterly from the town about one mile.) It has a store and wharf on the southern end, at the entrance of Cat cove. On the eastern point stands Fort Pickering.

(*i*) The Brimbles bear S. W. by W. from the light-house, distant 1½ mile, S. S. E. from Eagle island nearly half a mile distant. They are sunken rocks, bare at low water; near to it is a spar buoy, painted red. It comes out of water at half ebb.

(*j*) Coney island is a small island, that lies near the mouth of Salem harbour; it bears from Marblehead point N. E. 1 mile distant; from Fort Pickering, on Winter island, E. ½ S. two miles distant; and from Baker's island light, W. ¼ S. 2½ miles distant.

(*k*) Marblehead rock bears S. W. from the western part of Cat island, distant three-fourths of a mile; it is above water, and may be approached on either side, very near, with safety.

(*l*) Gray's rock bears N. W. from Cat island, distant three-quarters of a mile; W. by S. ½ S. from the light-house, distant 2¼ miles, is high out of water, and may be approached with safety.

(*m*) Half-way rock is about 180 feet in diameter, 40 feet high, and bold too; lying

W. for the Haste, passing near to (n) Satan, or Black rock, leaving it on the larboard hand, and the Brimbles and Eagle island on the starboard; continue this course, and you will leave the Haste on the larboard hand, and enter the common ship channel and proceed as above.

There are several other channels for entering Salem harbour, but they ought not to be attempted without a pilot.

Directions for Beverly *and* Manchester.

To enter Beverly harbour, follow the directions for Salem harbour, till you bring the Haste to bear E. S. E. and run W. N. W. about two miles, and you reach Beverly bar, which is a spot of sand running out from the southern or Salem side of the entrance, and has commonly a beacon upon the head of it, above a quarter of a mile from the shore. The bar has very shoal water on the eastern or outward side near it, but good anchorage within. There is good water at the head of the bar. Having passed the bar, there is a sandy point from Beverly, on the northern side of the entrance, and beyond this point are the Lobster rocks, which bear from the head of the bar W. a little S. and not half a mile distant, and they are above water at half tide. To avoid this point, after having well cleared the bar, you will steer towards Ram-horn rock, which has also commonly a beacon, and is to be seen at half tide, bearing S. W. by S. from the head of the bar, one-eighth of a mile distant. There are several fathoms of water within a vessel's length of Ram-horn rock. Giving this a good birth, you then clear the sandy point, and steer for the Lobster rock beacon, bearing from Ram-horn beacon N. W. by W. distant about one-quarter of a mile. Giving this a good birth, you are then opposite to the wharves, and may anchor in deep water, and in a very safe and excellent harbour.

To enter Manchester harbour, you must bring the southern light to bear S. ½ E. and run N. one mile distant, where you may anchor on good bottom.

N. B. Eastern point bears from Baker's island lights E. by N. ½ N. 7½ miles distant. Half-way rock bears from the lights S. ¼ E. 2 miles distant. Hardy's rocks bear from the lights W. ¾ N. distant five-eighths of a mile.

Directions for sailing into Marblehead.

Vessels inward bound, and falling in with the lights on Thatcher's island, may observe the following directions, viz.—Thatcher's island ledge bears from the body of the island from E. S. E. to S. S. E. extending about two miles from the island. After getting the west light to bear N.

NOTES.

about half way between Boston and Thatcher's island light-houses, on which a pyramidical monument has been erected; the stone-work of which is 15 feet high, with a base of 10 feet; above the stone-work is a spindle 15 feet high, on which is a copper ball, 2 feet in diameter.

(n) Satan, or Black rock, is above water, steep too, and bears S. W. by S. from Baker's island, distant 1⅜ mile.

$\frac{1}{2}$ W. you are to the westward of the ledge; then haul to the N. W. to bring the lights to bear N. E. by E. and steer S. W. by W. for the eastern point, which is about $7\frac{1}{2}$ miles distant from Thatcher's island. Then your course is W. by S. distant $7\frac{1}{2}$ miles, for the lights on Baker's island.

Vessels bound to Marblehead, and falling to the southward, and running for the lights, after making them, must keep the north and lower one open to the eastward of the southern light, and run for them, which will carry them to the eastward, and clear of the south breakers off Baker's island, which bear from the lights from S. E. $\frac{1}{2}$ S. to S. S. E. $\frac{1}{2}$ E. distant two and one quarter miles.

Having made the lights with a westerly wind, and beating, when within $2\frac{1}{2}$ miles of them, you must not stand to the southward and westward so far as to shut the north light up with the south light, on account of the south breakers, nor to the northward further than to bring the lights to bear W. by S. $\frac{1}{2}$ S. on account of Gale's ledge, which bears from the lights N. E. by E. $\frac{1}{8}$ E. distant $1\frac{1}{3}$ mile. Drawing near to the lights, take care of a ledge, called the Whale's back, which bears from the lights N. by E. distant four-fifths of a mile, and comes out of water at quarter ebb.

In going into Marblehead, and being up with the lights, give the north point of Baker's island a birth of one-quarter of a mile or less. Having the lights one in with the other, you are up with the point. When the south light is open with the north light, you have then passed the point (leaving the Misery island on your starboard hand, which bears from the lights N. W. $\frac{1}{2}$ N. three-fourths of a mile.) Then steer S. W. by S. or S. S. W. until you bring the south light to bear N. E. by E. $\frac{1}{2}$ E. then steer S. W. by W. $\frac{1}{2}$ W. distant 3 miles, for Marblehead harbour. You will leave Hardy's rocks, Eagle island, and Gray's rock, on the starboard hand; Pope's head (which is a large high rock, bearing S. W. by W. from the lights, two-thirds of a mile distant) Brimbles, and north point of Cat island, on the larboard hand. The Brimbles bear from Eagle island S. S. E. $\frac{1}{2}$ E. distant half a mile; and Gray's rock from the north point of Cat island N. W. by W. seven-eighths of a mile.

Falling in with the south point of Baker's island, and it blowing hard from the eastward, if you cannot avoid it you may pass the point by keeping it well on board, say at the distance of from 20 to 50 fathoms from the shore, where you will have from 4 to 5 fathoms water. When up with the S. W. point, steer W. S. W. which will carry you between the north Gooseberry island (which bears S. W. $\frac{1}{2}$ S. from the lights, distant two-thirds of a mile) and Pope's head, leaving the former on your larboard hand, and Pope's head on your starboard hand, between which you will have from $3\frac{1}{2}$ to 5 fathoms of water. As soon as you have passed Pope's head, haul to the northward, until the south light bears N. E. by E. $\frac{1}{2}$ E. then steer S. W. by W. $\frac{1}{2}$ W. for Marblehead harbour.

Vessels coming from the eastward and running for Half-way rock (which is a high bold rock of about 30 fathoms diameter, lying S. $\frac{1}{4}$ E. from Baker's island lights, distant two miles) must not bring the rock to bear to the southward of W. S. W. to avoid the south breaker, which bears from Half-way rock N. E. $\frac{1}{2}$ E. distant one mile. Being up with Half-way rock, and bound into Marblehead, bring the rock to bear E. by S. $\frac{1}{2}$ S. and steer W. by N. $\frac{1}{2}$ N. for Fort head, distant 3 miles, leaving Cat island on the starboard hand, which bears from Half-way rock W. N. W. distant $1\frac{3}{4}$

mile, and Marblehead rock* on the larboard hand, which bears from Half-way rock W. ¾ N. distant two miles. Black rock bears from Half-way rock N. W. by W. distant 1½ mile. Cat island rock and Point neck bear east and west of each other, distant about one mile.

Vessels being up in Boston bay, may, by bringing Boston light to bear S. S. W. run N. N. E. for Marblehead rock—they are distant from each other about 12 miles. Half-way rock and Boston light bear of each other S. W. and N. E. distant 15 miles.

Hardy's rocks are covered at high water, and may be seen at quarter ebb. Whale's back is covered at high water, and may be seen at quarter ebb. Gale's rocks have but 4 feet water at low tides and bear N. E. by E. ⅛ E. from the lights, distant 1¾ mile. The south breakers, off Baker's island, are always covered. The Brimbles are covered at high water, and are seen at half tide. Black rock is always out of water, but low. Cat island rock, Half-way rock, Marblehead rock, Gray's rock, and Pope's head, are large, and high above water. Half-way rock is very bold all round it. Eagle island is bold only on the south and east; from the N. E. part of it, quite to Hardy's rocks, is very shoal water, and no passage for ships.

Bearings and distances of the principal islands, rocks, &c. in the vicinity of Salem, from Baker's island lights.

Eastern point of Cape Ann bears	E. by N. ½ N. 7½ miles distant.	
Gale's ledge	N. E. by E. ⅛ E. 1¾ mile	do.
House island	N. N. E. 1 mile	do.
E. part of Whale's back	N. by E. ¾ mile	do.
Great Misery	N. by W. ½ W. 1 mile	do.
S. part of Little Misery	N. W. ½ N. ¾ mile	do.
Bowditch's ledge	W. N. W. 1¼ mile	do.
N. part of Hardy's rocks	W. ¾ N. ⅝ mile	do.
N. part of Haste rock	W. ½ N. 2¼ mile	do.
S. part of Coney island	W. ¼ S. 2⅛ mile	do.
Nagus head, or Marblehead shore	W. ½ S.	
Gray's rock	W. by S. ½ S. 2⅓ mile	do.
N. part of Eagle island	W. by S. ½ S. 1½ mile	do.
S. part of Marblehead neck	S. W. by W. ½ W.	
N. part of Cat island	S. W. by W. 2 miles	do.
Middle of Pope's head	S. W. by W. ⅝ mile	do.
N. part of Western Gooseberry	S. W. ½ S. ⅞ mile	do.
South Gooseberry	S. S. W. ½ W. ⅞ mile	do.
Satan, or Black rock	S. W. by S. 1⅜ mile	do.
Eastern Gooseberry	S. S. W. ½ W. ¾ mile	do.
Half-way rock	S. ¼ E. 2 miles	do.
S. Breakers off Baker's island	S. E. by S. 2¼ miles	do.

Archer's rock, on which is a spar buoy, painted red, has 7 feet at low tides, S. W. by W. ½ W. 2⅜ miles distant.

Outer Breakers, known generally by the names of Outer, Middle, and Inner Breakers; this is a very extensive and dangerous shoal, extending from Searl's rocks, in a S. E. direction, about two miles, and in a westerly direction about three quarters of a mile, bearing from the lights S. E. ½ S. to S. S. E. ½ E. 2¼ miles; to pass to the eastward of this dangerous shoal, have the northern or low light a little open of the eastward of the high light.

NOTE.

* On this rock is erected a monument, painted white at the bottom and black at the top, being about 8 feet in the base, and 15 in height. Strangers will observe, that the course from Half-way rock to Marblehead fort is W. by N. ½ N. 3 miles distance, leaving the beacon which is placed on Cat island rock on the starboard hand, and the monument on the larboard hand; the monument bears from the beacon W. by S. ¾ S. distance seven-eighths of a mile.

Searl's rocks, a small part comes out of water at low spring tides, and bears from the south light S. E. three-eighths of a mile distant, and from the S. E. points of Baker's island S. E. distant a small one-fourth of a mile. Here is a good channel between the island and Searl's rocks, by keeping the island best on board, say at the distance of 30 to 40 fathoms; in this channel is 3 to 5 fathoms water at low common tides.

George's Shoals.

A Report relative to the Survey of Georges' Shoals, made in the United States' schooner Science and the sloop Orbit, by direction of the Board of Navy Commissioners, and under the orders of Capt. Isaac Hull, in 1821.

There are properly four shoals on George's Bank; the whole of them included between latitudes 41° 34′ N. and 41° 53′ 30″ N. and longitude 67° 18′ W. and 67° 59′ W. Between them there is from 15 to 35 fathoms water.

The largest, and on which is the chief danger, is the most southerly and westerly. It is somewhat triangular, with a long and narrow spit making out from the S. E. angle. The S. E. point is in latitude 41° 34′ N. and longitude 67° 40′ W. The west point is in latitude 41° 42′ N. and longitude 67° 59′ W. The N. E. point is in latitude 41° 48′ N. and longitude 67° 47′ W. The eastern side of this shoal, although somewhat irregular, runs nearly S. S. E. and N. N. W. having on it from three feet to nine fathoms at common low water It is composed of a great number of sand spits, very narrow, so that the width of a narrow vessel will make several fathoms difference in the depth of water. The general range of the spits is from S. E. to N. W. As there are no rocks, they are consequently liable to change, in some measure, their positions and ranges. On the eastern edge, even in calm weather, unless it be high or low water, the tides run with great rapidity, and form considerable breakers when setting to the westward, and a large waterfall when setting to the eastward. This is accounted for, by a knowledge of the fact, that directly on the edge of this shoal there is from twelve to sixteen fathoms of water, so that the edge forms a species of dam, stopping the force of the flood tide, and over which the ebb falls.

When there was considerable wind, we observed that the breakers were higher within the edge, to the westward, than on the edge; and I have no doubt that the water there was still shoaler, and that we should have seen the sand, had it not been for the heavy sea. The breakers were such, unless it were entirely calm, that it was impossible to go among them with boats; nor was it considered safe to attempt it with the vessels. For besides the danger of striking on the hard sand spits, the vessels would have been liable to be filled by the breakers. Even on the eastern edge, and at nearly slack water, the vessels were at times nearly covered with them. And it was not thought necessary to attempt it, as the objects of the survey, to ascertain if there was danger on the shoals, and the situations and extent of them, could be accomplished without the risk.

Had not the sea been very smooth, and at high water, we should not have been able to have gotten on where we found three feet, reducing it to low water. The prevailing wind was to the eastward; and I have no doubt but that this place would have been bare with any continuance of an off-shore wind.

I think there are no rocks about the shoals. We had one cast on the

S. W. side which indicated rocky bottom, in fifteen fathoms; but I believe it to have been some sharp stone that the lead struck on, although I have marked it according to the appearance, on the Chart.*

The centre of the northern shoal is in latitude 41° 53′ 30″ N. and longitude 67° 43′ W. It extends east and west about four miles. The shoalest part having six fathoms, is very narrow, and composed of hard sand. But there is not more than twelve fathoms of water for three miles south of the above latitude. On the north side, at two cables' length from the shoal, the sloop dropped into 33 fathoms. The breakers on this shoal are very heavy, and when there should be a sufficient sea to endanger a vessel, they might be seen some miles, and heard at a very considerable distance; and as the shoalest part is not more than a cable's length inside, and no danger near it, a vessel might avoid it.

To the eastward of the last mentioned shoal, in latitude 41° 51′ N. and longitude 67° 26′ W. is another small shoal, with eight fathoms water, having however considerable breakers. There are but 17 fathoms for three miles N. of it. But very near to the east of it, are 31 fathoms, and from twenty to thirty fathoms to the south and west.

The centre of the east shoal is in latitude 41° 47′ N. and long. 67° 19′ W. It is about two miles long from east to west, and has several fathoms water. To the south, there are but 17 fathoms for two miles. In other directions there are from twenty to thirty fathoms.

The above described shoals, I am confident, are all which are on Georges' Bank. Their positions and sizes may be relied on, as well as the places of the soundings which I have laid down on the chart. They were ascertained by a vast number of celestial observations, taken with good and well adjusted instruments on board the two vessels—and very carefully and faithfully calculated. The rates of the chronometers were found by a transit instrument previously to sailing from Boston, and after our return, and all the observations re-calculated for the small variation which appeared.

At anchor, different places, and on different days, we determined the set and strength of the tides, and as nearly as possible their rise and fall. The rise of them is from one to one and a half fathoms. They set round the compass every tide, setting S. E. nearly, at full moon, and running from one to four knots per hour, at a mile's distance from the breakers. The mean rate, however, is materially varied by the winds; they set strongest at W. S. W. and E. N. E. and which is undoubtedly the strength of the flood and ebb. From these causes and variety in the tides, arises a principal danger in approaching the shoals. When under weigh about the shoals, in a few hours' time we found ourselves drifted far out of our reckonings, and to ascertain our situations, when both vessels were under weigh, we took continued observations for the longitude by the chronometers, and at the same time double altitudes for the latitudes; which latter were calculated by Brosius' new and certain method. By allowing for the sets of tides, as ascertained at anchor, the observations and reckonings agreed very nearly; so that the latitude and longitude of every sounding placed on the chart may be considered as certain.

Should any vessel fall in with the shoals, a knowledge of the course and strength of the tides would be of the greatest importance. And they can be calculated for any day and hour by the preceding facts.

In going from Cape Cod to the Shoals, at 5 leagues from the light, there are 86 fathoms, muddy bottom. The water gradually deepens to 133 fathoms; and then gradually decreases towards the shoals. In lat. 41° 51′ N.

* This Chart is published by the author of the American Coast Pilot.

and lon. 68° 11′ W. there are 90 fathoms. In lat. 41° 50′ N. and lon. 68° 3′ W. there are 49 fathoms, sand and gravel, on the western edge of the bank. The water then shoals fast. To the northward of the Shoal, in lat. 41° 59′ N. and lon. 67° 52′ W. on the S. side of the north channel, there are 60 fathoms, soft mud. In lat. 42° 12′ N. and lon. 67° 51′ W. there are 102 fathoms. In lat. 42° 10′ N. and lon. 67° 18′ W. there is no bottom at 175 fathoms. To the eastward we did not ascertain the extent of the Bank. In two miles southward of the S. E. point of the shoals, there are from 20 to 26 fathoms of water, which soundings continue for at least 20 miles to the southward and westward.

The bottom on the Bank, so far as we ascertained it, is of such a narrow character, that it is difficult for a vessel to ascertain her situation by it. We often found a great variety of soundings in a very short distance; such as sands of various colours, and differently mixed, coarse and fine, gravel pebbles of various colours, stones, sponge, and shells. Of all these, except sand, I saved a number of specimens, with marks to note the places from where they were taken.*

Notwithstanding this variety, some general character of the soundings may be useful. To the westward of the Shoals, and at some distance from them, the bottom is coarse sand and gravel of all colours. To the N.W. a mixture of white, black and yellow sand. To the N. black and white sand. To the N. E. chiefly gravel and pebbles. To the E. fine white and yellow sand; and in lat. 41° 57′ N. and lon. 68° 40′ W. some white moss. To the S. E. fine white and yellow sand. As the shoals are approached, in whatever direction, the soundings become coarse, and are frequently mixed with shells of different kinds. Near the shoal much of the bottom is pebbles; and to the E. of the largest and dangerous shoal, there are stones of the size of hen's eggs, with moss and sponge on some of them. Near the S.E. point is from 15 to 20 fathoms, a prevailing character of the soundings is green shells, and chiefly of the species usually called sea-eggs. If a vessel be far enough S. to avoid danger, she will have no shells. The quality of the soundings, as far as we were able to survey the bank, will be best understood from the chart, where they have been carefully rated.

The time and weather prevented making a complete survey of all parts of the Bank. And although we ascertained the boundaries of it to the westward and northward, I have not delineated it on the chart, being unwilling to borrow any thing from charts, which disagree so essentially, and which we found very incorrect in the material points. Of the shoals themselves, I do not believe a more perfect survey can be made; unless in a calm time, the main shoal could be penetrated. This however, does not seem to be an object, as no vessel would be safe in attempting to pass over it.

The reports that rocks have been seen on the Shoals, are undoubtedly incorrect. Had there been any there, we could not have failed of discovering them. At the west part of the bank, in strong tide rips, we saw large quantities of kelp and sea weed, which, at a distance, had the appearance of rocks. But on sounding, we found good water, and a regular and clear bottom.

It will be seen, by the bottom, that the holding ground is not good. But the vessels employed in the survey, by having a long scope of cable, rode out a considerable gale of wind, for 22 hours, on the east side of the main shoal, and to windward of it. At this time the sea broke very high in 10 fathoms water.

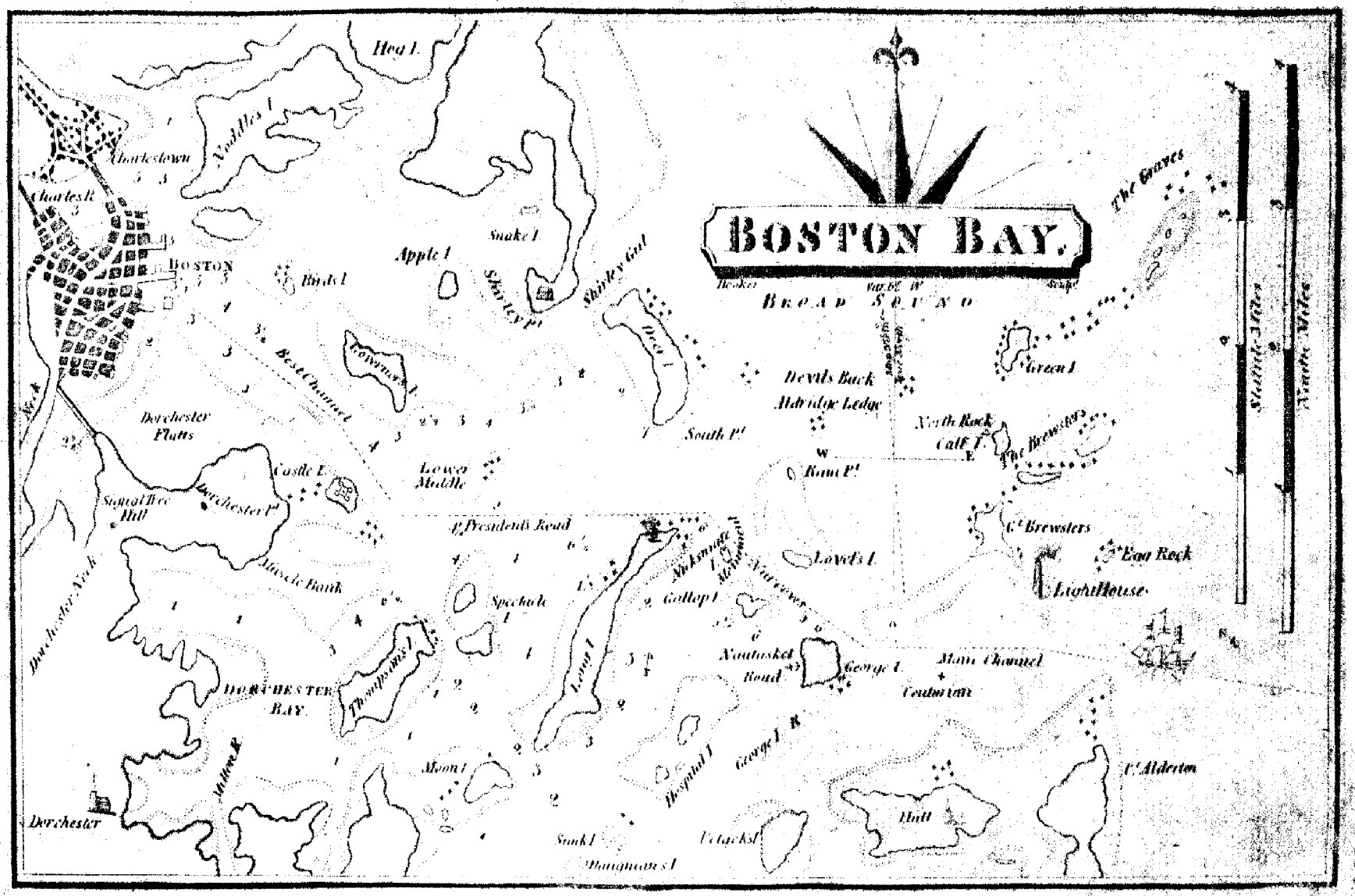
C. FELCH.

NOTE.—In coming from the southward for George's bank, you will get soundings in lat. 40° 4′ N. if on the S.S.W. part of the bank. Should you not get soundings in the lat. of 40° 30′ N. you may be certain you are to the eastward of the shoal, when you must direct your course accordingly to clear it, when your first soundings will be in from 75 to 60 fathoms. When steering to the northward, you will shoalen your water gradually to 20 fathoms, when you will be in lat. 41° 20′ N. which depth of water you will have 10 or 12 leagues distant, either east or west.

Soundings from George's bank continues its course W. by S. until you are nearly abreast of the east end of Long Island; then southward to Cape Hatteras.

* It may be worthy of remark, that at one cast of the lead, on examining the arming, I found one third black sand, one-third white, and one-third green shells, in as distinct dimensions as they could have been drawn.

Engraved For the American Coast Pilot.



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Directions for sailing into Boston Harbour.

From Cape Ann to *Boston light-house, the course is S. W. ½ S. distance 8½ leagues. After making the light, with the wind fair, you will bring it to bear W. by N. or W. N. W. and then run for it, till you come within two cables' length of it. If the weather is bad, and you cannot get a pilot from the light-house, after running abreast of it so as to bring it to bear N. by E. you may run W. by S. about 1½ mile to Nantasket road, where you may anchor in from 7 to 5 fathoms in safety.

To work into Boston bay you may stand to the southward till you bring the light to bear W. N. W. and to the northward till you bring it to bear W. S. W. till you come within one league of the light; then you must not stand to the northward any farther than to bring it to bear W. by N. and to the southward to bring it to bear W. N. W. You may anchor in the bay with safety if the wind is off shore. If you fall to the southward of Boston harbour, be careful to avoid Cohasset rocks, which lie above water some distance from the land, the outer part of which, called Minot's rock, has a black buoy on it, that lies in 5 fathoms water, which you leave on your larboard hand. Your course from this buoy to the light-house is N. W. by W. distant 3 leagues. In running the above course and distance, you will pass a white buoy which lies in 4 fathoms water, that is on the N. E. part of Harden's rocks, and bears S. E. ½ S. from the light-house, distant 1½ leagues, which rocks may be seen two hours before low water, that you also leave on your larboard hand. There is another buoy on your larboard hand, which is red, that lies in three fathoms water on Point Alderton. When in the middle of the light-house channel steer W. by N. 1 mile distant, to the beacon on the spit, which you may run within one-quarter of a cable's length of, leaving it on your starboard hand, opposite to which lies a black buoy in 2 fathoms water, on George's island rocks. Between the light-house and George's island lies a rock, called the Centurion, in mid-channel, with 15 feet water on it. Your course from this to Gallop's island point, is N. W. by N. half a mile distant. From thence through the narrows, by Nick's mate, your course is N. N. W. half a mile distant. Nick's mate has a monument on it, and must be left on your larboard hand, 1 cable's length distant, and then steer W. by N. for Castle island, distant 4 miles. In running W. by N. from Nick's mate, you will first leave a white spar buoy on the lower middle on your starboard hand, distant 3 miles from Nick's mate, then three-quarters of a mile distant, you will see a white buoy, which is on the Castle rocks in two fathoms, which you leave on your larboard hand. When abreast of the Castle, steer N. N. W. one-quarter of a mile, to clear the upper middle ground, which has a black buoy on it in two fathoms water, that you leave on your larboard hand; if the buoy should be removed, run N. N. W. till you bring the two northernmost steeples in Boston a handspike's length open, then steer N. W. by W. 2½ miles, which will carry you opposite the town.

Broad Sound, which is the north entrance of Boston harbour, is not a proper channel for large vessels, but those who frequent it will follow the directions here given: when up with the Graves, which are a parcel of dry rocks that appear white, you must leave them on your larboard hand 2 cables' length distant, then bring them to bear S. E. and run S. W. by W.

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* Boston light-house is situated on an island at the entrance of the harbour. The lantern is elevated 32 feet above the level of the sea, and contains a revolving light, which may be seen 9 or 10 leagues distance. When at the distance of 7 or 8 leagues, the time of darkness will be twice that of light; as you approach it, the time of darkness will decrease, and that of light increase, until you get within three leagues of it, when the light will not wholly disappear; but the greatest power of light will be to the least, as 44 to 1. Two huts are erected at Long beach (on Nantasket) for the accommodation of ship-wrecked seamen.

4 miles, when you will be up with Long island light, which is elevated on a tower 20 feet, on which is a lantern 7 feet high, bearing from the old light-house W. ½ N. It is lighted with 10 patent lamps. You leave it on your larboard hand.

In passing from the Graves to Long island light, you will see two buoys on your larboard hand, one of which is on a reef, called the Devil's back, is painted red, and lies in 4 fathoms water; the other is on Ram-head bar, painted black, and lies in 15 feet water; you will also pass a white buoy on your starboard hand, which lies on the N. E. point of Faun bar, (at which time Long island head light will bear S. W.) in 2½ fathoms, when you must follow the directions above for the town.

A black buoy with a white vane has been placed near to the Barrel rock, which lies in the Broad Sound channel, at the entrance of Boston harbour. The buoy is moored about 7 fathoms N. E. from the rock, in 3½ fathoms water, about 1½ mile W. by S. from the body of the Graves—one-half mile N. W. from the Devil's back—W. N. W. from the house on Green island—and N. E. ¾ E. from the tree on Long island head. This rock is 10 or 12 feet long, and 5 or 6 feet wide, ranging N. N. W. and S. S. E. having 4 or 5 feet of water upon it at low tide, and 3½ fathoms round it—vessels may pass with safety either side of the buoy, giving it a birth of 12 or 15 fathoms.

The Lower middle ground lying in the way, the directions are as follow, viz.—

On the Lower middle ground, which lies on the north side of the channel, a little above Spectacle island (which is in part dry at low water) on the eastern part of which is a red buoy, and on the western part a black buoy, in two fathoms water, which you must leave on your starboard hand.

Pudding point, or Shirley gut entrance, is between Faun bar and Winship's bar. You must bring it to bear S. W. and run for it, leaving Shirley point on the starboard and *Deer island on the larboard hand. The channel from this gut to Boston is so crooked and narrow, that no person should attempt to go in with a large vessel, unless acquainted, without a pilot.

Vessels outward bound, from Boston light-house, who would wish to fall in with †Cape Cod, the course is S. E. by E. ½ E. distant 11 leagues, thence 3 leagues to the light-house. When up with the light-house, and it bears S. W. 2 leagues distant, you may then steer S. S. E. which will carry you out of the south channel.

Vessels in Boston bay, who put away for Cape Cod harbour, must endeavour to fall in with Race point light-house, which contains a revolving light (see page 171.) Should you first make Cape Cod light, bring it to bear E. by N. and run for it until you have soundings in 14 or 15 fathoms water, then steer N. E. until the light bears E. by S. then run in N. W. for the harbour.

When between Cape Ann and Cape Cod, you will have from 35 to 19 fathoms water, which latter sounding is within 2 leagues of Boston light-house; the quality of the soundings is more to be depended on than the depth of water. As you will find a difference of 5 or 6 fathoms in run-

* In the course of the winter of 1810-11, Deer island point washed away, so that it is now covered at high water, and renders it dangerous for vessels coming in and going out through Broad Sound; a black buoy is therefore now placed near the point. Vessels must pass to the southward of said buoy.

† Cape Cod is low and sandy land. Cape Ann is middling high, with many trees on it. On the latter is a remarkable land called Pigeon hill, which appears like a boat bottom up.

ning a cable's length, you will observe that the quality of soundings is rough on Cape Ann side, and sandy on Cape Cod.

At full and change, it is high water off Race point at 10 o'clock and 45 minutes. Vessels in leaving Cape Cod, bound to Boston, should calculate the tide, as the flood sets strong to the S. W.

N. B. The upper buoys will be taken up during the winter season.

[☞ *See the Plate.*]

Half-way rock bears from Long island light N. E.
The east point of Nahant bears from Long island light N. E. by N.

Directions from Boston light-house *to* Cape Elizabeth.

From Boston light-house to Thatcher's island lights, which lies 2 miles E. from Cape Ann, the course is N. E. ½ N. and the distance 8½ leagues; butto clear the Londoner, which you leave on your larboard hand when bound to Cape Elizabeth, the course is N. E. by E. About half way, and near the north shore, is a high bold rock, called Half-way rock, of about 30 fathoms diameter (on which is a monument) bearing S. W. by W. distant 7⅔ miles from the eastern point of Cape Ann.

From Thatcher's island, E. S. E. one-half of a mile, lies a ledge of rocks, called the Londoner, which show themselves at half tide, and extend E. N. E. and W. S. W. distant two miles from the island. If you should be forced to the northward of Cape Ann, there is a very clear bay, called Ipswich bay, and N. E. from it lies the harbour of Portsmouth, the entrance to which is formed by Great island on the west, and Gerrish's island on the east; on the former of which the town of New Castle is built.

From Cape Ann lights to the Isles of Shoals the course is N. ½ E. distant 6½ leagues. These isles are low and level, and near two miles in length. South from their west end, half a mile distant, lies a rock, which may be seen at half tide, and by giving the west end of these islands a birth of 1½ mile, a N. by W. course will carry you to the entrance of Portsmouth harbour, 9 miles distant. The southernmest of these islands has a light-house on it, as more fully described in page 148.

Strangers should never attempt to go round the east end of these islands; but if driven thereto, give them a birth of half a mile, and steer N. W. by N. which will carry you to Portsmouth. N. E. from the east end of these islands, 4 miles distant, lies York ledge, which is always to be seen, and extends N. E. and S. W. two miles. From York ledge to Boon island light the course is E. N. E. distant 9 miles. From Boon island light to Boon island rock (on which the sea always breaks) the course is E. and the distance 3 miles. From Boon island light to Wood island light, the course is N. N. E. distant 12 leagues, and from thence to Cape Elizabeth the course is N. E. ¼ E. and distance 4 leagues. [*See page* 147.]

Directions for sailing in and out of Boston Bay, *from* Cape Cod *or* Cape Ann, *to* Boston-light house.

Boston light-house, as before mentioned, stands on a small island at the entrance of the channel, and is about 82 feet high, including the lantern. To steer for it from Cape Cod, when in 5 fathoms off Peeked hill bar, your course is N. W. by W. ½ W. 14 leagues. Should it be thick weather, and you should fall in with the south shore of Scituate in 15 fathoms, steer N. till you get into 16 fathoms, when Boston light will bear W. N. W.

From the Race point light-house to Boston light-house, is about 11

leagues. From Cape Ann lights to Boston light, the course is S. W. ½ S. distant 8⅓ leagues.

There are two lights on Thatcher's island. This island contains about 30 acres of land, secured by an iron bound shore, and is situated about two miles east of the main land of Cape Ann. It affords no harbour, nor is there any safe anchorage very near it; there is a passage between that and the main, through which small vessels may pass even at low tide; but the water is shoal and the bottom covered by a collection of large round stones. The light-houses were erected there for the benefit of vessels coming in from sea, as well as for those coasting around the shores. As soon as these lights are discovered they can know their real situation; for being two lights, they cannot be taken for the single revolving light at Boston harbour, or for the Plymouth lights, where there are also two, but the distance between them is only 11 feet 6 inches, while the distance between those on Thatcher's island is about one-third of a mile, and can be brought to range one with the other when you are abreast of the island, and bear N. by E. ¾ E. and S. by W. ¾ W. from each other, and those on Plumb island bear E. by N. and W. by S. from each other. The lights on this island are of great use to all vessels in their passage in or out, as they point out the situation of the Salvages on the north, and the Londoner on the south. Besides, from the different bearings of the lights, a safe departure may be taken for the different harbours in the bay, as well as for those bound northerly and to sea. For remarks more minute, you will find them in the directions for sailing to Boston light, to Baker's island lights, and to those on Plumb island, at the mouth of Newburyport harbour.

Directions for Scituate *harbour.*

The light-house at the entrance of Scituate harbour was erected more for the benefit of foreigners, who fall into the bay southward of Cohasset rocks, and as a guide to southern coasters to avoid Cedar point, which is flat, and projects into the bay beyond the Clifts, than for any advantages to be derived from the harbour, which is small, having only about 12 feet water on the bar at high water, middling tides. There is one light, which is fixed, elevated 30 feet above the level of the sea, 4 miles to the southward of Cohasset rocks, and thereby distinguishable from Boston light, on the north, which is a repeating light; and Plymouth lights on the south, which show two lights (or lanterns on the same building.) Scituate light-house is erected on Cedar point, which makes the north chop of the harbour, the first clift (so called) making the south chop. There are four of these clifts extending towards the north main; the southernmost of which is the highest.

From the body of the light-house, the northerly part of Cedar point and a ledge called Long ledge, extends N. N. W. nearly one mile; so that vessels falling in a little more than one mile northward of the light, may bring the light to bear south; and if they make good their course north, they will clear the outer ledges of Cohasset rocks; half a mile east of the body of the light will clear Cedar point, Long ledge, and the first Clift ledge. [Note—there are ledges extending from all the 4 clifts, but none between them, and half a mile from the shore will clear all except frigates and large vessels.]

From the body of the light, running S. S. E. will clear Branche's point; consequently, giving the light half a mile birth, there will be no danger in running S. S. E.

There is a passage within Cahasset rocks, used by coasters. which is

found by giving the light half a mile birth, and running N. W. by N. to the southerly entering rock.

There is a meeting-house about two miles W. by N. from the light; and a farm-house near the northwest side of the harbour, with two large barns a little north. To go into the harbour (the mouth of which is about one-third of a mile wide) bring the meeting-house or farm-house to bear about W. by N. from the middle of the entrance of the harbour, and run in W. by N. for the farm-house, until you have passed the bar, which is a hard bed of stones and gravel, that does not shift; and after passing the bar, and coming on sandy bottom, haul up and anchor near the beach on the south side of the harbour.

Directions for *Plymouth harbour.

The high land of the Monument bears from the lights S. $\frac{1}{4}$ W. 3 miles, and †Monument point S. S. E. 3 leagues, and Branche's point N. $\frac{1}{2}$ W. about 3 leagues, Saquash head W. $\frac{1}{2}$ S. 3 miles, the easternmost part of Brown's islands or shoal that dries, S. S. W. $1\frac{1}{4}$ mile, and the Gurnet rock from the body of the light-house E. by S. $\frac{3}{4}$ S. one-third part of a mile; on this rock you have but 3 feet at low water, at which time all the soundings were taken. When you have shut in the Sandy hill with the Gurnet head, you are clear of the rock; after which you must mind not to haul in too close to the head, as there are many sunken rocks some distance from the shore. When you bring Saquash head to bear W. by N. you may then steer up W. by S. and if you are bound for Plymouth, you must keep that course for a large red cliff on the main, which is a very good mark to carry you clear of Dick's flat; then you must steer more southerly for Beach point, or run up until you are abreast of Saquash head, giving it one-quarter of a mile distance; then steer W. by S. $\frac{1}{2}$ S. which will clear you of Dick's flat, and carry you directly for Beach point, keeping within 15 or 20 yards of the Sandy point, steering away for the southward, keeping that distance until you have shut in the lights, where you may anchor in 3 and 4 fathoms, but the channel is very narrow, having nothing but a flat all the way to Plymouth, except this small channel, which runs close by this neck of land; you will have 4 and 5 fathoms close to this point. If you are bound into the Cow-yard, you must steer as before directed, which will clear you of the stone monument on Dick's flat and that on the Muscle bank, both which you leave on your starboard hand, when you may anchor in 7 or 8 fathoms water.

* This harbour is capacious, but shallow, and is formed by a long and narrow neck of land, called Salt-house beach, extending southerly from Marshfield, and terminating at the Gurnet head, and by a smaller beach within, running in an opposite direction, and connected with the main land near Eel river, about 3 miles from the town. There are two light-houses on the Gurnet, which are about 86 feet above the surface of the sea, 15 feet apart, containing fixed lights, and cannot be brought into one to the northward, unless you are on the shore. But to the southward you may bring them in one, which is a very good mark to clear you of Brown's island or sand bank. On Salt-house beach is placed one of the huts erected and maintained by the Humane Society of Massachusetts, for the reception and relief of shipwrecked mariners. There is a breach in the inner beach, which exposes the shipping, even at the wharves, during an easterly storm. The Gurnet is an eminence at the southern extremity of the beach.

† Monument Bay (from which the point takes its name) is formed by the bending of Cape Cod. It is spacious and convenient for the protection of shipping.

If bound to Kingston you will keep the house on Gurnet head just open with Saquash head, until you have opened the high pines with Clerk's island ; then you are clear of the Muscle bank, when you may steer N. W. until you have 3 fathoms at low water, not running into less.

In coming from the northward, bound into Plymouth, you must not bring the lights more southerly than S. by W. to avoid High Pine ledge, which lies north from the Gurnet head about 2½ or 3 miles. When you are on the shoalest part of this ledge, some part of which appears at low ebbs, you will have the high pines in range with Captain's hill, which will then bear W. by S. This ledge of rocks lies 1½ mile from the shore, extending about N. N. E. for near a mile, and close to this ledge you will have 4 and 5 fathoms, which deepens gradually as you run from it to the eastward ; within one mile you will have 10 and 12 fathoms.

In coming from the southward, bound into Plymouth, you must not open the northern light to the westward, but keep them in one, which will carry you in 5 fathoms by the easternmost part of Brown's islands or shoal, keeping that course until you are within half a mile of Gurnet head, or nigher, where you will have but 4 fathoms ; then Saquash head will bear W. by N. a little northerly, and the two outermost trees on the head in one ; then you may steer directly for them, until you bring the lights to bear E. N. E. and the house on Saquash head to bear N. W. just open with the first Sandy beach, where you may anchor in 4 fathoms in Saquash road, good clear bottom ; but if you are bound for Plymouth, or the Cow-yards, you must steer as before directed. If in the night, it is best to anchor here, as it is difficult to make Beach point (as it is mostly covered at high water) if dark, or to go into the Cow-yard.

In turning into Plymouth, you must not stand to the northward into less than 3 fathoms, as it runs a flat a long way from the Gurnet head to Saquash ; and from both the heads lies off a point of rocks a good way from the shore, many of them but just under water at low ebbs. And all the way from Saquash to the Muscle bank, you have shoal water ; so that you must not stand in less than before mentioned. And in standing over for the sands to the southward, you must go about as soon as you have shoalen your water to 4 fathoms, as it is bold too, and you may observe the rips, unless it is very smooth. This sand extends from abreast of the lights to Beach point, most of which is dry at low ebbs. From the easternmost part of this sand to Dick's flat it rounds with a considerable sweep ; you have but 5 fathoms water from the easternmost part of Brown's island to the Gurnet head, and not more than 7 or 8 until you are abreast of Dick's flat, where you will have 13 or 14 fathoms in a deep hole, and then shoalen to 5 fathoms abreast of Beach point.

If you should fall into the southward of Brown's islands or shoal, between them and the Monument land, where you have 20 fathoms in some places, you must not attempt to run for the lights, until you have them shut in one with the other, when they will bear N. N. W. ½ W. ; if you do, you may depend on being on Brown's islands or shoals, as there is no passage for even a boat at low water.

In coming in from the northward in the night, you must not bring the light to bear more southerly than S. by W. to avoid High Pine ledge, and keep that course until you have them to bear N. W. or N. W. by W. when you will be clear of the rock, and may steer up W. by S. until you have the lights to bear E. N. E. where you had best anchor in the night. Here the tide runs strong channel course from the Gurnet to the Race point of Cape Cod ; the course is E. ½ N. about 6 leagues distance ; and from the

Gurnet to the point going into Cape Cod harbour, is E. by S. 7 leagues. If you should make the lights in hard northerly, or N. W. winds, and cannot get into Plymouth, you may then run for Cape Cod harbour, bringing the lights to bear W. by N. and steer directly for the harbour, which you may do unless it is very dark, as it is bold too—and you may see the Sandy hills before you can get on shore. You may keep within 100 yards of the shore until you are up with the point that runs out to the eastward, which you must give a quarter of a mile distance, and then steer up N. W. If it should blow so hard that you cannot turn up the harbour, you may anchor off the point, clear bottom; you have 8 and 9 fathoms very nigh the shore, so that there is no danger of being on it, unless very dark.

At the Gurnet and Plymouth the tides are much the same as at Boston; that is, a S. E. moon makes full sea.

Directions for Cape Cod harbour.

If you wish to go into Cape Cod harbour, you may pass within one-quarter of a mile of the light on *Race point. After passing it, bring it to bear N. N. W. and run S. S. E.; run until the light on the highland bears E. by N.; then run for it 2 or 3 miles, when you will be clear of Wood end bar; then N. E. to bring the light on the highland to bear E. ½ S. when haul up N. W. for the harbour, and anchor in 4 fathoms, when the light will bear E. by S. ½ S. 5 or 6 miles distant.

In going into Cape Cod harbour in the night, you may follow the above directions till the light on the highland bears E. by N. when you may run for it till you get into 5 fathoms, when you must steer N. W. for Provincetown, keeping same soundings, about 2 miles distant.

Good anchorage may be found in a N. E. gale, by running for the light, giving it one-third of a mile distance as you pass it; as soon as it bears E. by N. haul up E. S. E. and anchor in from 10 to 4 fathoms.

Vessels inward bound, who fall in with the back of Cape Cod, may bring the †light to bear S. W. 2 leagues distant, and then steer W. N. W. for Boston light-house, which contains a revolving light.

When up with Race point, you will find it very bold about one mile to the westward of the light-house, and it may be known by a number of fish-houses on it. About one mile to the southward of Race point is what is called Herring cove, where you may have good anchorage half a mile from the shore, the wind from E. to N. N. E. in 4, or even in 3 fathoms water.

In passing Race point to the southward, you must give it a birth of one mile, as there is a long flat of sand that lies to the southward of said point. You must not haul to the eastward till you come near Herring cove.

* There is a light-house erected on the extreme point of Race point, which contains a REVOLVING LIGHT (on the same plan as Boston light) to distinguish it from the one on highland of Cape Cod, but it cannot be seen from vessels coming from sea until it bears S. S. W. ¼ S. when they run for it. The light is 25 feet above the level of the sea, and 155 feet from high water mark.

† The light-house is erected on land at the Clay pounds (high land of Cape Cod) elevated about 150 feet, which, with the elevation of the lantern, makes the whole height 200 feet above high water mark. It contains a FIXED LIGHT.

In running from Race point to Wood end, after you pass the Black land or Hummocks, you will come up with a low sandy beach which forms the harbour, extending between two and three miles to Wood end, which is difficult to be distinguished in the night; it is very bold, and you will have 25 fathoms water within one-quarter of a mile of the shore.

In beating into Cape Cod harbour you must keep the eastern shore aboard until you get into 5 fathoms water. Stand no further to the westward than to bring the light to bear E. by S. as there is a long spit of sand runs off from the western shore, which being very bold, you will have 11 fathoms water within a stone's throw of the shore.

If it blows so hard that you cannot beat into the harbour, you will have good anchoring without, from 10 to 15 fathoms water. Or, if it blows hard at N. E. bring Race point to bear N. W. by N. and steer S. E. by S. 7 leagues, which course will carry you into Wellfleet, formerly called Billingsgate. In steering this course you will make Harwich right ahead. When you open the bay, you will bring an island on your larboard hand, when you may haul to the eastward, and anchor safe from all winds.

Description of the eastern coast of the county of Barnstable *from* Cape Cod, *or* Race point, *in lat.* 42° 5′ N. *to* Cape Malebarre, *or the* Sandy point *of* Chatham, *in lat.* 41° 34′ N. *pointing out the spots on which the Trustees of the Humane Society have erected huts, and other places where shipwrecked Seamen may look for shelter.*

The curvature of the shore, on the west side of Provincetown, and south of Race point, is called Herring cove, which is three miles in length. There is good anchoring ground here, and vessels may ride safely in four or five fathoms water, when the wind is from north-east to south-east.

On Race point stand about a dozen fishing huts, containing fire-places and other conveniences. The distance from these huts to Provincetown, which lies on Cape Cod harbour, is three miles. The passage is over a sandy beach, without grass, or any other vegetable growing on it, to the woods, through which is a winding road to the town. It would be difficult, if not impossible, for a stranger to find his way thither in the dark; and the woods are so full of ponds and entangling swamps, that if the road was missed, destruction would probably be the consequence of attempting to penetrate them in the night.

Not far from Race point commences a ridge, which extends to the head of Stout's creek. With the face to the east, on the left hand of the ridge, is the sandy shore: on the right is a narrow sandy valley; beyond which is naked sand, reaching to the hills and woods of Provincetown. This ridge is well covered with beach grass, and appears to owe its existence to that vegetable.

Beach grass, during the spring and summer, grows about two feet and a half. If surrounded by naked beach, the storms of autumn and winter heap up the sand on all sides, and cause it to rise nearly to the top of the plant. In the ensuing spring, the grass sprouts anew; is again covered with sand in the winter, and thus a hill or ridge continues to ascend, as long as there is a sufficient base to support it, or till the circumscribing sand, being also covered with beach grass, will no longer yield to the force of the winds.

On this ridge, half way between Race point and the head of Stout's creek, the Trustees of the Humane Society have erected a hut. It stands a mile from Peeked hill, a land-mark well known to seamen, and is about 2½ miles from Race point. Seamen, cast away on this part of the coast, will find a shelter here; and in north-east storms, should they strike to the leeward of it, and be unable to turn their faces to the windward, by passing on to Race point, they will soon come to the fishing huts before mentioned.

At the head of Stout's creek the Trustees have built a second hut. Stout's creek is a small branch of East harbour in Truro. Many years ago there was a body of salt marsh on it; and it then deserved the name of a creek. But the marsh was long since destroyed; and the creek now scarcely exists, appearing only like a small depression in the sand, being entirely dry, and now principally covered with beach grass. The creek runs from

north-west to south-east, and is nearly parallel with the shore on the ocean, from which it is at no great distance. Not far from it, the hills of Provincetown terminate; and should not the hut be found, by walking round the head of the creek, with the face to the west, the hills on the right hand, and keeping close to the shore on the harbour, in less than an hour the shipwrecked seaman would come to Provincetown. It is high water at Truro about 30 minutes sooner than at Boston.

The Humane Society, several years ago, erected a hut at the head of Stout's creek; but it was built in an improper manner, having a chimney in it, and was placed on a spot where no beach grass grew. The strong winds blew the sand from its foundation, and the weight of the chimney brought it to the ground, so that in January, 1802, it was entirely demolished. This event took place about six weeks before the Brutus was cast away. If it had remained it is probable that the whole of the unfortunate crew of that ship would have been saved, as they gained the shore a few rods only from the spot where the hut had stood.

The hut now erected stands on a place covered with beach grass. To prevent any accident from happening to it, or to the other hut near Peeked hill, the Trustees have secured the attention of several gentlemen in the neighbourhood. Dr. Thaddeus Brown, and Capt. Thomas Smalley, of Provincetown, have engaged to inspect both huts, to see that they are supplied with straw or hay in the autumn, that the doors and windows are kept shut, and that repairs are made when necessary. The Rev. Mr. Damon, of Truro, has also promised to visit the hut at Stout's creek twice or thrice a year; and the Rev. Mr. Whitman, of Wellfleet, distinguished through the country for his activity and benevolence, has undertaken, though remote from the place, the same charge.

From the head of Stout's creek to the termination of the salt marsh, which lies on both sides and at the head of East harbour river, the distance is about 3½ miles. A narrow beach separates this river from the ocean. It is not so regular a ridge as that before described, as there are on it one or two hills which the neighbouring inhabitants call islands. It may without much difficulty be crossed every where, except over these elevations. By these hills, even during the night, the beach may be distinguished from those hereafter to be mentioned. It lies from N. W. to S. E. and is in most parts covered with beach grass. The hills have a few shrubs on the declivities next the river. At the end of the marsh the beach subsides a little, and there is an easy passage into a valley in which are situated two or three dwelling houses. The first on the left hand, or south, is a few rods only from the ocean.

The shore, which extends from this valley to Race point, is unquestionably the part of the coast the most exposed to shipwrecks. A N. E. storm, the most violent, and fatal to seamen, as it is frequently accompanied with snow, blows directly on the land; a strong current sets along the shore; add to which, that ships, during the operation of such a storm, endeavour to work to the northward, that they may get into the bay. Should they be unable to weather Race point, the wind drives them on the shore, and a shipwreck is inevitable. Accordingly, the strand is every where covered with the fragments of vessels. Huts, therefore, placed within a mile of each other, have been thought necessary by many judicious persons. To this opinion the Trustees are disposed to pay due respect; and hereafter, if the funds of the Society increase, new huts will be built here for the relief of the unfortunate.

From the valley above mentioned the land rises, and less than a mile from it the high land commences. On the first elevated spot (the Clay Pounds) stands the light-house, which contains a FIXED LIGHT, which every navigator should impress on his mind. The shore here turns to the south; and the high land extends to the table land of Eastham. This high land approaches the ocean with steep and lofty banks which it is extremely difficult to climb, especially in a storm. In violent tempests, during very high tides, the sea breaks against the foot of them, rendering it then unsafe to walk on the strand, which lies between them and the ocean. Should the seaman succeed in his attempt to ascend them, he must forbear to penetrate into the country, as houses are generally so remote, that they would escape his research during the night; he must pass on to the valleys, by which the banks are intersected. These valleys, which the inhabitants call hollows, run at right angles with the shore; and in the middle, or lowest part of them, a road leads from the dwelling-houses to the sea.

The first of these valleys is Dyer's hollow, 1½ mile south of the light-house. It is a wide opening, being 200 rods broad, from summit to summit. In it stands a dwelling-house, a quarter of a mile from the beach.

A mile and a half south of Dyer's hollow, is a second valley, called Harding's hollow. At the entrance of this valley the sand has gathered, so that at present a little climbing is necessary. Passing over several fences, and taking heed not to enter the wood on the right hand, at the distance of three-quarters of a mile a house is to be found. This house stands on the south side of the road; and not far from it, on the south, is Pamet river, which runs from east to west through a body of salt marsh.

The third valley, half a mile south of Harding's hollow, is head of Pamet hollow. It may with ease be distinguished from the other hollows mentioned, as it is a wide opening,

and leads immediately over a beach to the salt marsh at the head of Pamet river. In the midst of the hollow the sand has been raised by a brush fence, carried across it from north to south. This must be passed, and the shipwrecked mariner will soon come to a fence which separates what is called the road from the marsh. If he turns to the left hand, or south, at the distance of a quarter of a mile, he will discover a house. If he turns to the right hand, at the distance of half a mile, he will find the same house which is mentioned in the foregoing paragraph.

The fourth opening, three-quarters of a mile south of Head of Pamet, is Brush valley. This hollow is narrow, and climbing is necessary. Entering it, and inclining to the right, three quarters of a mile will bring seamen to the house, which is situated at the head of Pamet. By proceeding straight forward, and passing over rising ground, another house may be discovered, but with more difficulty.

These three hollows, lying near together, serve to designate each other. Either of them may be used: but Head of Pamet hollow is the safest.

South of Brush valley, at the distance of 3 miles, there is a fifth opening, called Newcomb's hollow, east of the head of Herring river in Wellfleet. This valley is a quarter of a mile wide. On the north side of it, near the shore, stands a fishing hut.

Between the two last valleys the bank is very high and steep. From the edge of it, west, there is a strip of sand, 100 yards in breadth. Then succeeds low brush-wood, a quarter of a mile wide, and almost impassable. After which comes a thick, perplexing forest, in which not a house is to be discovered. Seamen, therefore, though the distance between these two valleys is great, must not attempt to enter the wood, as in a snow storm they would undoubtedly perish. This place, so formidable in description, will however lose somewhat of its terror, when it is observed, that no instance of a shipwreck on this part of the coast is recollected by the oldest inhabitants of Wellfleet.

Half a mile south of Newcomb's hollow, is the sixth valley, called Pearce's hollow. It is a small valley. A house stands at the distance of a little more than a quarter of a mile from the beach, W. by S.

The seventh valley is Cohoon's hollow, half a mile south of Pearce's hollow. It is not very wide. West from the entrance, several houses may be found at the distance of a mile. This hollow lies E. by N. from Wellfleet meeting-house.

Two miles south of Cohoon's hollow, the eighth valley is Snow's hollow. It is smaller than the last. West from the shore, at the distance of a quarter of a mile, is the county road, which goes round the head of Blackfish creek. Passing through this valley to the fence, which separates the road from the upland and marsh at the head of the creek, a house will immediately be found by turning to the right hand, or north. There are houses also on the left, but more remote.

The high land gradually sudsides here, and 1½ mile south terminates at the ninth valley, called Fresh Brook hollow, in which a house is to be found a mile from the shore, west.

The tenth, 2½ miles south from Fresh Brook hollow, is Plumb valley, about 300 yards wide. West is a house, three quarters of a mile distant.

Between these two valleys is the table land.

After this there is no hollow of importance to Cape Malebarre.

From Fresh Brook hollow to the commencement of Nauset beach, the bank next the ocean is about 60 feet high. There are houses scattered over the plain, open country; but none of them are nearer than a mile to the shore. In a storm of wind and rain they might be discerned by day-light; but in a snow storm, which rages here with excessive fury, it would be almost impossible to discover them either by night or by day.

Not far from this shore, south, the Trustees have erected a third hut, on Nauset beach. Nauset beach begins in latitude 41° 51′, and extends south to latitude 41° 41′. It is divided into two parts by a breach which the ocean has made through it. This breach is the mouth of Nauset or Stage harbour; and from the opening, the beach extends north 2¼ miles, till it joins the main land. It is about a furlong wide, and forms Nauset harbour, which is of little value, its entrance being obstructed by a bar. This northern part of the beach may be distinguished from the southern part by its being of a less regular form. Storms have made frequent irruptions through the ridge, on which beach grass grows. On an elevated part of the beach, stands the hut, about 1½ mile N. of the mouth of Nauset harbour. Eastham meeting-house lies from it W. S. W. distant 1¾ mile. The meeting-house is without a steeple; but it may be distinguished from the dwelling-houses near it by its situation, which is between two small groves of locusts, one on the south, and one on the north, that on the south being three-times as long as the other. About 1¼ mile from the hut, W. by N. appear the top and arms of a windmill. The Rev. Mr. Shaw, and Elisha Mayo, Esq. of Eastham, have engaged to inspect this building.

The southern part of Nauset beach, most commonly called Chatham beach, and by a few persons Potanumaqunt beach, begins at the mouth of Nauset harbour, and extends 8 or 9 miles south to the mouth of Chatham harbour. It is about 50 rods wide. A regular well-formed ridge, which, in the most elevated part of it is 40 feet high, runs the whole

length of it; and, with the exception of a few spots, is covered with beach grass. This beach forms the barrier of Chatham harbour, which, from Strong island, north, receives the name of Pleasant bay. A mile south of the entrance of Nauset harbour, it joins the main land of Orleans, except in very high tides, when the sea flows from the north-eastern arm of Pleasant bay into the harbour of Nauset, completely insulating the beach. By those who are acquainted with the shallow, it may be safely forded at any time; but strangers must not venture to pass it, when covered with water, as below, the channel is 7 feet deep. On this beach, about half way between the entrances of Nauset and Chatham harbours, the Trustees have erected a fourth hut. The spot selected is a narrow part of the beach. On the west, the water adjoining it is called Bass hole. Salt marsh is north and south of it next the beach, but is here interrupted. Orleans meeting-house lies from it N. W. The meeting-house is without a steeple, and is not seen; but it is very near a wind-mill placed on an elevated ground, a conspicuous object to seamen coming on the coast. It may be necessary to add, that there are three wind-mills in Orleans, forming a semi-circle, that the mill referred to is on the right hand, or N. E. point, and that the mill in the middle point of the semi-circle stands on still higher ground. The meeting-house of Chatham is situated from it S. W. This meeting-house is also without a steeple, and is concealed by Great hill, a noted land-mark. The hill appears with two summits, which are a quarter of a mile apart. The hut lies east from Sampson's island in Pleasant bay. Timothy Bascom, of Orleans, has undertaken to inspect this hut.

Lest seamen should miss this hut, by striking to the leeward of it, the Trustees have erected another on the same beach. It stands a mile north of the mouth of Chatham harbour, east of the meeting-house, and opposite the town.

Another spot on the same beach would be a proper situation for a hut. It is north of the fourth hut, and east of the middle of Pochet island. The highest part of the ridge is near it, S. A break in the ridge, over which the sea appears sometimes to have flowed, divides this high part from the northern portion of the beach.

On the beach of Cape Malebarre, or the sandy point of Chatham, the Trustees have built a sixth hut. This beach stretches from Chatham 10 miles into the sea, towards Nantucket; and is from a quarter to three-quarters of a mile in breadth. It is continually gaining south; above three miles have been added to it during the past 50 years. On the east side of the beach is a curve in the shore, called Stewart's bend, where vessels may anchor with safety, in 3 or 4 fathoms water, when the wind blows from N. to S. W. North of the bend there are several bars and shoals. A little below the middle of the beach, on the west side, is Wreck cove, which is navigable for boats only. The hut stands 200 yards from the ocean, S. E. from the entrance of Wreck cove, half of a mile. Between the mouth of the cove and hut, is Stewart's knoll, an elevated part of the beach. The distance of the hut from the commencement of the beach is 6 miles, and from its termination 4. Great hill, in Chatham, bears N. by W. distant 6 miles; and the south end of Morris' island, which is on the west side of the beach, N. by E. distant 4 miles. Richard Sears, Esq. of Chatham, has engaged to visit the two last mentioned huts.

Two miles below the sixth hut is a fishing house, built of thatch, in the form of a wigwam. It stands on the west side of the beach, a quarter of a mile from the ocean. Annually in September it is renewed; and generally remains in tolerable preservation during the winter.

Another spot, a few rods from the sea, 4 miles south from the commencement of the beach, and half a mile north of the head of Wreck cove, would be a proper situation for a hut. A little south of this spot, in storms and very high tides, the sea breaks over from the ocean into Wreck cove.

Cape Malebarre beach may be distinguished from the two beaches before described, not only by its greater breadth, but also by its being of a less regular form. It is not so well covered with grass as Chatham beach. From Stewart's knoll, south, to the extremity, it is lowest in the middle. In this valley, and in other low places, fresh water may be obtained by digging two feet into the sand. The same thing is true of Nauset and Chatham beaches.

The six huts, the situation of which has thus been pointed out, are all of one size and shape. Each hut stands on piles; is 8 feet long, 8 feet wide, and 7 feet high; a sliding door is on the south, a sliding shutter on the west, and a pole, rising 15 feet above the top of the building, on the east. Within, it is supplied either with straw or hay, and is farther accommodated with a bench.

The whole of the coast, from Cape Cod to Cape Malebarre, is sandy and free from rocks. Along the shore, at the distance of half a mile, is a bar, which is called the outer bar, because there are smaller bars within it, perpetually varying. This outer bar is separated into many parts by guzzles, or small channels. It extends to Chatham: and as it proceeds southward, gradually approaches the shore, and grows more shallow. Its general depth, at high water, is 2 fathoms, and 3 fathoms over the guzzles; and its least distance from the shore is about a furlong. Off the mouth of Chatham harbour there are

bars which reach three quarters of a mile; and off the entrance of Nauset harbour the bars extend half a mile. Large, heavy ships strike on the outer bar, even at high water, and their fragments only reach the shore. But smaller vessels pass over it at full sea; and when they touch at low water, they beat over it as the tide rises and soon come to land. If a vessel is cast away at low water, it ought to be left with as much expedition as possible; because the fury of the waves is then checked, in some measure, by the bar; and because the vessel is generally broken to pieces with the rising flood. But seamen, shipwrecked at full sea, ought to remain on board till near low water; for the vessel does not then break to pieces; and by attempting to reach the land before the tide ebbs away, they are in great danger of being drowned. On this subject there is one opinion only among judicious mariners. It may be necessary, however, to remind them of a truth, of which they have full conviction, but which, amidst the agitation and terror of a storm, they too frequently forget.

Directions for Point Gammon light *and* Hyannes harbour.

Vessels coming from the eastward, bound through the north channel, must leave the Bishop and Clerks on the larboard hand, and not go nearer them than 4 fathoms; they are a dangerous ledge of rocks bearing S. by E. from the light-house, 3 miles distant, and are always dry. When the light bears N. by W. steer W. N. W. keeping in 4 fathoms till the light bears N. N. E. then steer N. W. or N. W. by N. keeping in 3 fathoms, which will keep you clear of a dangerous reef running from the light to a great rock which you leave on your starboard hand; when abreast of this rock the light will bear S. E. ½ E. then steer N. N. W. and anchor within one mile of the shore, in 3 fathoms, soft bottom. Vessels should not come nearer than three-quarters of a mile of the light, as there are sunken rocks that lie one-half a mile from land.

Vessels bound to the westward from Hyannes, must run to the southward till the light bears E. by N. then steer W. by S. which course will carry them clear of the Southwest rock, which bears W. from the light 4 miles distant, with several sunken rocks near it; said rock is dry at low water. W. ½ S. 8 miles distant from the light, is a dangerous ledge called Culler's ledge, 3 miles from the shore. There are 3 fathoms water round it, and the ledge is part dry at low water. In running this W. by S. course (the light bearing E. by N.) you will have from 3 to 4 fathoms, and sometimes 5, as it is ridgy. If farther towards the Horse-shoe, to the southward, you will have 4, 5, 6, 7, 10, and close to the Horse-shoe 13 fathoms; northern part of the Horse-shoe dry at low water. On the S. E. part of the Horse-shoe is a black buoy placed in 16 feet water, bearing from Nantucket light N. W. by W. 4⅓ leagues, and from Tuckanuck island N. by E. ½ E. 5 leagues. Tide rises about 5 feet; high water at full and change, at 12 o'clock; and runs from 2 to 3 knots east and west in the following manner, viz.—it begins to run to the westward at half flood, and continues to half ebb, then runs to the eastward, the three last hours of ebb and three first of flood.

From the south end of Cape Cod *to* *Holmes' Hole.

Bring Chatham lights to bear N. N. W. then by steering S. S. E. 3½

* Holmes' hole is a harbour to which vessels resort during the winter season, and as every master should embrace the first opportunity to advise his owner, we state there is a Post-office, and a regular mail made up twice a week for Boston, &c. which is taken in a passage boat to Falmouth, on the N. E. part of the Vineyard sound, 9 miles distant, from thence by land carriage to Sandwich, &c. Passengers will find a speedy conveyance from Falmouth.

leagues, you will pass the Pollock rip, in 3 or 4 fathoms water; and if the weather is clear, you will make the *light-house on Sandy point (Nantucket island) 5½ leagues distant, which bring to bear S. W. ½ W. then steer for the light-house, keeping it in this direction, and you will pass between the Great and Little Round shoals, on the former of which is a ‡black buoy, and on the latter a ‡white buoy, with a small pole in the end of it, bearing N. W. by N. and S. E. by S. from each other, distant 2½ miles. Shoalest water on Great Round shoal, 5 feet; do. on Little Round shoal, 7 feet.

On the east end of Pollock rip is a red buoy, in 14 feet water, bearing from Chatham lights S. ½ E. 11 miles; from Monomoy point E. ½ N. 7 miles; and from Little Round shoal buoy N. E. by N. 4 miles. Shoalest water on this rip 5 feet. When you are within about three miles of the light-house steer W. ½ S. until you are past the Point Rip on the N. E. end of which is a ‡red buoy, in 14 feet water, bearing from Sancoty head N. by W. 4 leagues; from Nantucket light N. E. by E. ½ E. 2 miles, and from the ‡black buoy on the Horse-shoe E. S. E. 6 leagues. Shoalest water on Point Rip 8 feet: or you may bring the light-house to bear E. by S. ½ S. and steer W. by N. ½ N. taking care to make your course good for Holmes' Hole light, 11 leagues distant, observing, while running from Nantucket light to Holmes' Hole, you leave on your larboard hand †Cape Poge light, which must bear W. ¾ S. to clear the Cross rip, on the N. E. part of which is a ‡white buoy, in 15 feet water, bearing from Cape Poge light E. by S. 5 leagues; from Tuckernuc island N. by W. 2 leagues; and from the ‡red buoy on Squash meadow, E. by S. ¾ S. 5 leagues. Shoalest water on this rip 12 feet.

To go through the north ship channel, bring Chatham lights to bear N. N. W. and steer S. S. E. 3½ leagues, when you will pass the Pollock rip in 3 or 4 fathoms water, when you must steer W. ½ S. 5 miles for Butler's hole, in 15 fathoms water, when you will see a white buoy to the north of you which lies in the S. S. W. passage, when you must run W. S. W. for the south part of the Handkerchief, which has a ‡white buoy on the west end of it, bearing from Monomoy point S. S. W. ½ W. 2 miles; from Nantucket light N. by E. ½ E. 4 leagues, and from the ‡red buoy on Pollock rip W. by S. ½ S. 3 leagues. Crossing the Handkerchief on a W. S. W. course in 3 or 4 fathoms water, you will run W. for the ‡black buoy on the Horse-shoe, 11½ miles, leaving it on the larboard hand, when you will continue your course W. for Holmes' Hole light, 4½ leagues distant. As you enter the Swash, in the Horse-shoe, Hyannes light will bear N. N. E.—Cape Poge light W. S. W.—Holmes' Hole light W. Part of the Handkerchief dry at low water.

There is a channel of 9 feet still north of the above, which may be found by bringing Chatham lights to bear N. W. when in 7 fathoms, and running S. S. W. for the Sandy point of Monomoy 5½ miles distant, which will bring you to Stewart's bend, which are sandy hummocks on your starboard hand 1½ mile from Monomoy; then haul in for the land till you get into 3 fathoms water, which will be within one and a half cable's length of the surf, when you may keep the shore on board till you come into 7 fathoms water, which will be near the Sandy point of Monomoy, where

* Nantucket light-house is on the north point of Nantucket island.

‡ The buoys on Nantucket shoals and the Vineyard sound were placed by Capt. Trevett, in the Revenue Cutter, and Wm. Daggett, branch pilot for the Vineyard shoals, and from their authority we publish them.

† Cape Poge light is situated on the N. E. point of Martha's Vineyard. The lantern is elevated 55 feet above the level of the sea, and contains a fixed light.

you may anchor with safety. Continue along shore in from 2 to 3 fathoms, calculating that at high water at Monomoy the tide sets to the westward, when you may steer W. N. W. for Bass river, Monomoy bearing E. S. E. which will carry you to *Hyannes light.

[NOTES.—While passing Chatham in thick weather approach no nearer than 5 fathoms to cross the Pollock rip: edge off and on from 5 to 7 fathoms, which will carry you over the Pollock rip in 3 fathoms.

The Editor, viewing the navigation of Nantucket shoals dangerous, has made every possible exertion to obtain information, and inserts different directions for passing them, leaving it to others to make choice.]

Bring Chatham lights to bear N. by W. on which bearing keep them till you cross the Pollock rip in 3 fathoms water and deepen into 7 fathoms, then steer S. W. by S. which carries you across Butler's Hole to 5 or 4 fathoms, then steer W. S. W. which will carry you to the northward of the Little Round shoal up to Tuckernuc channel, when you will be up with the S. E. end of the Horse-shoe, where you have 9 fathoms; then steer W. by N. for Cape Poge light. From the Stone horse to the S. E. end of the Horse-shoe the distance is 5 or 6 leagues.

To go through Moskeekett channel bring the light on Cape Poge to bear N. by W. and steer S. by E. which will carry you to the eastward of Skiff's island, which you may go within half a mile of.

To go through the Swash of the Horse-shoe, bound to the westward, after passing the Stone horse, and you deepen your water to 6 fathoms, steer W. till you bring Cape Poge light to bear W. S. W. then steer directly for it through the Swash of the Horse-shoe, till you deepen to 12 fathoms, then steer for the east chop of Holmes' Hole.

To go to the northward of the Horse-shoe, bring Point Gammon light to bear E. N. E.—Seconoset point to bear W. N. W. when you will see the northernmost dry shoal of the Horse-shoe. Bring Cape Poge light to bear S. S. W. and run for it. In beating to windward come no nearer the north shore than 3 fathoms; when past the dry spot of the Horse-shoe steer S. W. by S. till you bring the east chop to bear W.

To go through the south ship channel, steer from Chatham lights S. S. E. until you pass the Pollock rip in 3 or 4 fathoms water; if the weather be clear you will make Nantucket Great point light; continue your course S. S. E., S. by E. and S. until the light-house bears W. from you; then steer directly for it, until you are within three miles of it. You should then steer N. W. until the light-house Bears S. W. by W. then steer W. by S. till the light-house bears E. by S. ½ S. and then run W. by N. ½ N. making your course good for Holmes' Hole light as before directed. when, if you wish to anchor, run S. W. till the light bears N. W. by N. and anchor in 4 and 5 fathoms, soft mud, and out of the tide.

Directions for †Chatham harbour.

There are two light-houses built at the mouth of Chatham harbour, on

* Hyannes light is situated on Point Gammon, at the entrance of the harbour, south side of Cape Cod. The lantern is elevated 70 feet above the level of the sea and contains a fixed light. (See page 176.)

† Chatham is situated on the exterior extremity of Cape Cod, bounded E. by the

a place called James' head. The lanterns are elevated about 40 feet above the level of the sea, and contain fixed lights, which may be seen five or six leagues distant, and are very useful to vessels bound over Nantucket shoals. They bear from Nantucket light-house N. N. E. distant 10½ leagues, and from the shoals N. N. W. It is a barred harbour and not to be described with safety.

Directions for sailing into Nantucket harbour.

[NOTE.—*As the harbour of* Nantucket *is a resort for small vessels during the winter season, after leaving the* Vineyard Sound, *and the wind prevails at the northward, at which time it would not be prudent to go over the* shoals, *the Editor has inserted* three *different directions for sailing into it, either of which may be depended on.*]

Bring the light-house on Brant point, which contains a small fixed light, to bear S. S. E. ¾ E. and steer for it until you are about 2 cables' length from it; then steer S. E. by E. or E. S. E. till Brant point bears S. and steer close along by it: keep as much as a cable's length from the shore at Brant point, until the light-house bears S. S. W. to avoid the Brant point, or light-house shoal. As soon as it bears S. S. W. haul for the point, to avoid the Coetue flats. S. by E. will just lay a good reach across the harbour; but you must steer S. to avoid the Pest-house shoal; then you may stand far across the harbour, if the wind be westerly—if easterly, you may keep right for the wharves, as it could not be expected that a stranger could take the advantage of the laps and swashes on the bar; at middling tides he would have about 8 feet water—at neap tides not more than 7 to 7½ feet—at spring tides 9 to 9½ feet.

When you are about half way from the bar to the light-house, it would be best to steer about S. by E. or S. until the light-house bears S. E. by S. then run for it as above directed, as a straight course above will cross the corner of the Black flat; yet if the wind be easterly, there will be no danger; if the wind is westerly, you might get on the flat, as it lies on the east side of the channel, and the Clift shoal on the west side.

The depths of water, on Nantucket shoals and the Vineyard Sound, are taken at low tide. At Pollock rip, Great and Little Round shoals, Point Rip and Handkerchief, the tide rises and falls 5 to 6 feet. At the Horse-shoe, Cross Rip, Hedge Fence, Squash meadow, and Middle ground, the tide rises and falls 3 to 4 feet. S. ½ E. moon makes full sea in the sound.

2d. *Directions for going into* Nantucket harbour.

Observe the small light-house on the end of Brant point, and for a vessel that draws no more than 9 feet 3 inches, bring it to bear S. E. by S.

ocean, S. by Vineyard Sound, W. by Harwich, and N. by Pleasant bay. Its situation is convenient for the fishery, in which they have usually about 40 vessels employed. Its harbour contains 20 feet water at low tide. The place is remarkable for many shipwrecks on its shores. Lat. 41° 42′ N. long. 69° 50′ W. from Greenwich.

when at the back of the bar, and run directly for it, which will carry you between the Clift shoal and Black flats; continue your course until you just shut in the north shore that is to the westward of the clift; then you are within the corner of the Black flats, when you may steer directly for the end of the point, and enter the harbour.

Distance between the light-house shoal and Flats	60 rods.
——— between the Flats and Clift shoal	70
——— between the Clift and Stub shoal	78
——— between the Clift shoal and Bar	110
Length of Clift shoal from shore	95

N. B. You will pass 5 buoys going into the harbour.

3d. *Directions for sailing into the harbour of* Nantucket *by the Buoys.*

Western Channel. The first buoy you pass is white, which you leave on your starboard hand; the next a black one, which you leave on your larboard, the last buoy bearing S. S. E. ½ E. from the white buoy; then steer E. by S. leaving the next buoy, which is a black one, on the larboard hand. The next a white one, which leave on the starboard. Then steer S. S. E. leaving a red buoy on the larboard hand; then run as the shore lies, till you come near up with Brant point, on which a light-house is erected, which keep aboard all the way into the harbour.

Eastern Channel. The first buoy you pass is a red one, which you leave on your starboard hand; the next is a black one, which leave on the starboard hand; then steer E. S. E. till you come near a white buoy, which leave on your starboard hand; steer S. S. E. till you leave a red one on your larboard hand; then keep Brant point aboard, as before mentioned.

Vessels coming in the Eastern Channel, in the night, must bring the light on Brant point to bear S. E. by S. ¼ S. and run directly for it till they get the shore soundings; then leave Brant point shore aboard all the way into the harbour.

Courses and distances from Nantucket light-house.

		Courses.	Leagues.
From light-house	to the Handkerchief	N. by E.	4½
do.	to the Snow Drift	N. N. E.	5
do.	to the Stone Horse	N. N. E. ½ E.	8½
do.	to the Sandy point of Monomoy	N. by E. ½ E.	5½
do.	to the Little Round shoal	N. E.	3¼
do.	to the Pollock Rip buoy	N. E. ½ N.	5
do.	to the Great Round shoal	E. N. E. ½ N.	3⅔
do.	to the north end of Great Rip	E. by S. ½ S.	5½
do.	to Nantucket harbour	S. S. W.	2⅔
do.	to Tuckernuc shoal	W.	3
do.	to East chop of Holmes' Hole	W. by N.	9
do.	to the Horse-shoe	N. W. by W.	4½
do.	to Hyannes	N. W. ½ N.	7
do.	to the west part of George's bank	E. ½ N.	32
		(Variation 6° 30′ W. 1821.)	
From the E. end of Nantucket (called Sancoty head) to the South shoal		S. by E.	4

Directions for those running for Block Island Channel, *to the southward of* Martha's Vineyard, Nantucket Island, *and such as are bound into the* Vineyard Sound, *and intend going over the Shoals to the eastward.*

In approaching the south end of Block island from the southward, the water shoals gradually. When the island bears from N. W. to N. by W. the bottom is mud; this is commonly called Block island channel. This island, if you come from the southward, appears round and high; and if you approach it from the S. E. it appears like a saddle, being high at both ends, but highest to the southward. Your course from the south-east head of Block island to *Gay head light-house is E. by N. 15 leagues. The current in Block island channel is N. N. E. and S. W. 2 knots.

If you fall to the southward of Martha's Vineyard, and can see †Noman's-land island, and intend going over the shoal to the eastward, bring Noman's-land island to bear west, and steer E. by S. 3 leagues, which will bring you up with Nantucket island, to which you must give a distance of two miles, until you have passed Micomic reef, which extends one mile from the shore, has two fathoms water, and bears from the south tower at Nantucket S. by W. When you get to the eastward of this rip, you may nigh the shore to within one-quarter of a mile, until up with Tom Never's head, which lies 1¾ of a mile to the southward and westward of a small village called Sciasconset, where you may anchor, if necessary, in 4 or 5 fathoms. If you wish to continue through the channel, which lies between Nantucket island and the Old Man, you may run within three cables' length of the shore, which will carry you over Pochick rip, on which there are but 2 fathoms, and of course only fit for small vessels. When on this rip, haul to within one cable's length of the shore, and continue in 5 fathoms till up with Sancoty head, which is the highest eastern land of Nantucket. Bring Sancoty head to bear S. W. when in 5 fathoms water, and run N. E. till you deepen to 15 fathoms, when the Round shoal buoy will bear N. W. after which you shoalen into 7 and 8 fathoms, fine ridges, which, having passed, and come into 10 fathoms, a north course will carry you to the high land of Cape Cod, 17 leagues distant.

If in a large ship, and you make the south side of Nantucket, bound over the shoals, you may proceed either within or without the Old Man, but the latter is preferable.

If you wish to go between the Old Man and Pochick rip, bring Tom Never's head to bear N. W. by W. and run S. E. by E. till Sancoty head bears N. N. W. ½ N. where you will have 9 fathoms water, when you will run direct for Sancoty head, till in 5 fathoms, which will be close on board, then continue your course N. E. as before mentioned for the Round shoal. In running the S. E. by E. course you go through a swash half a mile wide, having 7 fathoms.

If you are coming from sea, and make the island of Nantucket to the northward of you, it may be known by two towers and four windmills, which stand near each other upon an eminence. You may then steer

* Gay head light is situated on the S. W. point of Martha's Vineyard, at the entrance of the Vineyard Sound. The lantern is elevated 150 feet above the level of the sea, and contains a revolving light, to distinguish it from Cape Poge light, which can be seen at sea over the Vineyard.

† Noman's-land island lies south from Gay head, 8 miles distant, about three miles long and one broad.

directly for the land, until you are within half a mile ; and may, if bound to the eastward, run along the shore in 4, 5, and 6 fathoms water, to the S. E. part of the island, where there are shoals and rips, on which you will have only 2½ or 3 fathoms water. Sancoty head is the easternmost head land of Nantucket.

If, in coming from sea, you make the South shoal, which lies in 41° 04′ N. latitude, give it a birth of a mile. If you intend to make Nantucket island, steer N. by W. and when you come near the island, you may proceed along the shore, according to the former directions.

If, when you make the South shoal, you are bound to Boston bay, and choose to go to the eastward of all the shoals and rips, pass a mile or two to the southward of the shoal, then steer N. E. by E. about 7 leagues, when you will be up with the Fishing rip. In running this N. E. by E. course you will deepen to 25 fathoms, which is about midway of South shoal and Fishing rip. From the Fishing rip, in 17 or 18 fathoms, steer N. N. W. for the high land of Cape Cod, 18 leagues, on which is a light-house, containing a fixed light, as more fully described in page 171.

If you come from the eastward, and are bound for Long island or New-York, you should be careful not to go to the northward of 41° 00′ N. latitude, until you pass the South shoal of Nantucket. If, by stress of weather, you should be driven so far to the northward as to be near the Vineyard, you may pass through the channel to the westward of Nantucket island, by bringing Cape Poge light-house to bear N. by W. and steering right for it will lead you through in from 3 to 4 fathoms, clear of all shoals, leaving Skiff's island, which is a dangerous shoal, on your larboard hand. Martha's Vineyard island lies in much the same latitude as Nantucket island, and may be known by a small round island, which lies at the southward of Gay head light, called Noman's-land island, 8 miles distant. You may sail between this island and Martha's Vineyard ; but you must take care to avoid a ledge of rocks, which bears from Gay head light S. by E. 5½ miles distant, called the Old Man.

As the South shoal of Nantucket lies in lat. 41° 04′ N. and the Gulf Stream, southward from this part, reaches as far to the northward as lat. 38° 30′ N. you should pass Nantucket shoals between these latitudes. The shoal on George's bank (east end) lies in long. 67° 42′, and the W. end in long. 67° 59′ W. and the South shoal of Nantucket in long. 69° 56′ W.

By observing the foregoing directions, and keeping between the Gulf Stream and the shoals, you will shorten your passage to New-York, Delaware, Virginia, or other western ports ; for you will have the advantage of the eddy current, running contrary to the Gulf Stream ; the latter would retard your progress at the rate of 60 or 70 miles a day. The Nantucket whalemen, by their constant practice of whaling on the edge of the Gulf Stream all the way from their island to the Bahamas, are well acquainted with its course, velocity, and extent. A stranger may know when he is in the Gulf Stream, by the warmth of the water, which is much greater than that on either side of it. If, when you are crossing the Gulf Stream, you are bound to the westward, you should get out of it as soon as possible.

Gay head is the westernmost land of Martha's Vineyard. When you come by Gay head with a southerly wind, the south channel is best—see page 181. The land of this head is high and of divers colours, namely, red, yellow and white in streaks.

In steering from *Block island for Gay head, you must be careful to avoid the Sow and Pigs; they make a ledge of rocks, some of which are above and others under water. These rocks lie 2½ miles S. W. by W. from the westernmost of Elizabeth isles, and N. W. by W. from Gay head 3½ leagues distant: the first of the flood tide sets strong to the northward over them into Buzzard's bay, which is very foul. Within Gay head there is a fair sandy bay, called Nimshe bite, with from 5 to 10 fathoms, in which is very good anchoring with south and south-easterly winds. Your course along Elizabeth isles is E. N. E. in 15, 14, 12, 8, 15, 16, and 17 fathoms water; give the isles a birth of about three-quarters of a mile.

In running from Gay head light into Vineyard Sound, if you wish to make a harbour on the north side, bring Gay head light to bear S. W. and run N. E. 4 leagues, which will carry you up with Tarpaulin cove light, where you may anchor in from 4 to 18 fathoms, the latter of which is fine sand, the light bearing from W. by N. to S. W.

When coming from sea, you may run for Gay head light, when it bears from N. N. E. to E. S. E. giving it a birth of two miles to clear the Devil's bridge, which bears from the light N. W. by N. 1¼ mile distant. As measuring the distance in the night would be uncertain, you must keep your lead going, and if you should have 7 or 8 fathoms when the light bears S. E. by E. or S. E. haul up north till you have 10 or 12 fathoms; then with flood, steer N. E. and with ebb, N. E. by E. 3 leagues; then E. N. E. will be the course of the sound, which will carry you to the northward of the Middle ground (which has a ‡black buoy on the east end, in 16 feet water, bearing from Tarpaulin cove light E. 4 leagues; from West chop †light N. W. by W. half a mile; and from the black buoy on Hedge Fence W. ½ N. 3 leagues, shoalest water on Middle ground 2 feet) when you will see the West chop of Holmes' Hole light, which you may run for, but keep one mile distant from the shore till you open the East chop one cable's length; and with a flood tide steer direct for it, and with ebb keep it one point open, till you open a wind-mill, on the west side of the harbour, about one cable's length; then run up in the middle of the river, till you come to 4 or 3 fathoms, where you may anchor on good ground. The usual mark for anchoring is the West chop bearing from N. N. W. to N. W. by N.; but if you lie any time here, the best anchoring is well up the harbour, and close to the shore, mooring S. E. and N. W. in 4 or 5 fathoms water. In this harbour, which is about two miles deep, you will lie secure from all winds except a northerly one.

You must not keep further than two miles from the West chop, as there is a shoal, called Hedge Fence, on the east end of which is a ‡black buoy, in 16 feet water, bearing from West chop east 6 miles; and from the black buoy, on Middle ground, E. ½ S. 3 leagues. The Hedge Fence lies about 3½ miles N. E. by N. from Holmes' Hole light, and extends W. N. W. and E. S. E. 6 miles, is about half a mile broad, and has 4 feet water on the shoalest part. Between this shoal and Holmes' Hole, there are from 8 to 12 fathoms water. If you make the chop in the night,

* Block island is about 9 miles in length, extending N. by E. and S. by W. and 5 miles in breadth.

‡ See note respecting buoys, page 177.

† A light-house, containing a fixed light, is erected on the West chop of Holmes' Hole.

when it bears S. E. you are clear of the Middle ground. Steer for the east side of it till you strike in 4 or 3 fathoms, on the flat ground near the chop; then steer S. E. by E. observing not to go nearer the land than 3 fathoms. If in running S. E. by E. you fall into 6 or 7 fathoms, haul up S. by W. or S. S. W. and run into 4 or 3 fathoms, as before directed.

If bound into Vineyard Sound, with the wind at the eastward, and you are near the south side of Martha's Vineyard, to go between Squibnocket and the Old Man, run round Squibnocket in 3½ and 4 fathoms water, continuing N. N. W. along the beach till you come to Gay head light, and if ebb tide anchor in 5 fathoms, the light bearing from N. to N. E.

In coming into the sound in the night, with a strong north-westerly wind, haul to the northward till you have smooth water under the Elizabeth islands, where you may anchor in 14 or 10 fathoms. Should you have the wind to the southward, it will be best to run down through the South channel or Vineyard side. When Gay head light bears S. S. E. your course is N. E. by E. ½ E. or E. N. E. observing not to come nearer the land than into 7 fathoms water, till you are abreast of Lumbert's cove, in which is good anchoring, with southerly or easterly winds, and may be known by a high sand bank, called Necunkey cliff, on the east side of it, about midway the cove, opposite which you may come too in 5 or 3 fathoms, sandy bottom, where is the best anchoring. The Middle ground lies about two miles without the cove, and has 12 feet water on it. If you intend running down for Holmes's Hole, your course, when opposite Necunkey point, is E. by N. keeping near the land to clear the Middle ground. You may track the shore by the lead in from 7 to 4 fathoms, till you come near the light; but come no nearer than 3 fathoms, and you may track the chop around the same as running down to the northward of the Middle ground. There is good anchoring along this shore, in 6 or 4 fathoms, after you are to the eastward of Necunkey point, till you come near the West chop.

If you wish to make a harbour after entering the Vineyard Sound, bring Gay head light to bear W. distant 8 miles, and run S. E. till you come in 7 fathoms water, which will be on the east side of the bay in Nimshe bite, near Clark's spring, where the best water may be had in great abundance, and lie in good anchorage—Gay head light bearing W. by N.

Your course from Gay head light to Tarpaulin cove light, is N. E. by N. and the distance 4 leagues. In this harbour you may anchor in from 4 to 2½ fathoms, and lie safe, with the wind from N. E. by E. to south. It will be best to anchor in 3 fathoms, as with that water you will be out of the tide, where the ground is good for holding. The tide flows at change and full days of the moon, at 9 o'clock, but in the channel between Elizabeth's island and Martha's Vineyard the flood runs until 11 o'clock. In this channel there is a Middle ground, which is a narrow shoal of sand, the eastern end of which bears N. W. by N. from the light. There is not more than 3 or 4 feet water on the eastern end. N. W. from Necunkey cliff is 3 and 4 fathoms across the ground. Opposite Lumbert's cove is 12 feet, and to the westward of that is 3 or 4 fathoms. The shoal lies W. by S. and E. by N. is about 4 leagues in length, and has several swashes on it. When the East chop of Holmes' Hole comes open of the West chop, you are to the eastward of the Middle ground.

Your course from Tarpaulin cove to Holmes' Hole light, is E. ½ N. distance 3 leagues. In steering this course, you must have regard to the tide, as the ebb may set you too far to the southward, and the flood too far

to the northward, and stand in for the harbour, when you have opened the East chop as before directed.

From Holmes' Hole light to Cape Poge light the course is E. S. E. and the distance about 3 leagues; in the channel between them there are 12 and 11 fathoms water. In going over the shoals through this channel, you must be careful to keep your lead going, in order to avoid a dangerous sand which lies on the north side of it, called the Horse-shoe, distant from Cape Poge 3 leagues. The channel between this sand and Cape Poge, and also between the former and Tuckernuc shoal, is narrow; in it there are from 12 to 4½ fathoms water, the latter of which is between the east end of the Horse-shoe and Tuckernuc shoal. When Tuckernuc island bears S. S. W. you are to the eastward of the Horse-shoe. On the south side of the channel also there are several spots of shoal, to avoid which, you must keep your lead going.

The harbour of Edgartown lies between Martha's Vineyard and Cape Poge, in which you may anchor. In proceeding for this harbour, pass within a mile of Cape Poge, and then steer south along the low sandy beach on the west side, in 5 fathoms water, until you come to the southernmost part of it, then sail more easterly about a mile, until you bring the town, which is a bay to the westward, fairly open, and then steer directly S. S. W. into the harbour, until you get within half a mile of the town, leaving a black buoy on the starboard hand, where you may anchor in 4 or 3 fathoms water. This harbour is a gut between Martha's Vineyard and Cape Poge, and is formed by a shoal which lies on the N. W. and W. sides of the entrance, and the beach to the southward. The tide runs strong in this harbour, and affords excellent anchorage.

Or you may, if bound from Holmes' Hole to Edgartown, bring the East chop to bear N. W. by W. and run S. E. by E. 2½ leagues, which will carry you over the flats in 3 fathoms water, on which lies a black buoy, which you leave on your starboard hand, when you will drop into 4 fathoms, and then steer S. S. W. 4 miles, which brings you up to the entrance of the harbour, from which, to the wharf, is W. N. W. one mile.

In leaving Holmes' Hole to pass over the shoals, keep the West chop open to the northward of the East chop until you have passed Squash Meadow shoal, on the N. W. end of which is a *red buoy, with a small pole in the end of it, placed in 16 feet water, bearing from Cape Poge light N. W. ½ W. 6 miles; from West chop light S. E. by E. ¼ E. 6 miles; and from the Black buoy on Hedge Fence S. by E. 2 miles. Shoalest water 5 feet. The buoy lies about 2½ miles from the East chop, must be left on the starboard hand, when your course will be E. by S. in 10 or 12 fathoms water, which course you must continue till you pass Cape Poge light. If it should be tide of flood, you must steer E. by S. ½ S. as the tide of flood sets very strong to the northward, between Cape Poge and Tuckernuc island, and the tide of ebb to the southward, so that you must govern your course by the tide. In clear weather you may see Nantucket light-house 18 miles, which you must bring to bear E. by S. ½ S. which course you are to steer till you pass it one league, when you must bring it to bear west and steer east, taking care to make this course good, which will carry you over the shoals in ship channel; the ground is very uneven, and you will have from 4 to 8 fathoms water. When you have passed over the shoals, you will have from 10 to 14 fathoms water, and

* See authority for the buoys in note to page 177.

then, by steering north, you will make Cape Cod light-house (which contains a fixed light) distant 18 leagues.

To go to the northward of the Great Round shoal (on the northerly part of which is a *black buoy, which you leave on your starboard hand, placed in 14 feet water, bearing from Sancoty head N. by E. ½ E. 5 leagues, from Nantucket light E. N. E. ½ N. 10 miles, and from the *red buoy on Point Rip E. N. E. 3 leagues: shoalest water 5 feet) you must proceed according to the foregoing directions, until you pass the light-house, and bring it to bear S. W. ½ W. then, by making a N. E. ½ E. course good, you will go between the Great and Little Round shoals (on the south part of which is a white buoy with a small pole in the end of it, placed in 14 feet water, bearing from Chatham light S. by W. 4½ leagues; from Nantucket light N. E. 5 leagues; and from the black buoy on the Great Round shoal N. W. by N. 2½ miles: shoalest water 7 feet) in 2½, 3, 4, and 5 fathoms water, until you have crossed the Pollock rip, where you will have about 3 or 4 fathoms water, on which is a red buoy, which you leave on your larboard hand. The Little Round shoal bears N. W. from the great one, distant about 2½ miles. Continue your N. E. ½ E. course until you deepen your water to 12 or 13 fathoms, and then steer north for Cape Cod light-house.

Nantucket South Shoal.

This dangerous shoal, which lies in lat. 41° 04′ N. long. 69° 56′ W. bears S. by E. from Sancoty head, 4 leagues distant. It is composed of hard white sand, over which the sea breaks in the most tremendous manner, having on it, in many parts, 3 feet water. It extends from east to west one mile, and is in breadth two cables' length. It often breaks in 5 fathoms on the east and west of the shoal. The rip which extends from the western end has about 7 fathoms water on it. The tides run round the compass in 12½ hours, but the southern tide has the greatest duration, and runs the strongest.

Extract from the Orbit's journal.

"Sancoty head bearing	N. W.	Came to a large swash through the Bass rip, with 5 fathoms. Standing on the rip had from 9 feet to 2 fathoms, hard sand.
Siasconset town	N. W. ½ N.	
Southernmost land	W.	

"Sancoty head bearing	N. by W.	On the south breaker of Bass rip, in 9, 8 feet, and less.
Siasconset	N. N. W.	
Tom Never's head	N.W. by N.	
Southernmost land	W. N. W.	

"Kept standing on to the southward in a channel of from 6, 7, and 8 fathoms, Sancoty head bearing N. by W. 8 miles, crossed a dangerous rip in 2½ fathoms, lying S. W. by S. From this rip E. S. E. 3 miles distant, is another rip, between which are 9, 15, 17, 14, 6, and 4 fathoms, which is the shoalest water on the rip; then standing east, had 7 and 8 fathoms; three cables' length from this rip came to another with 4 fathoms water; from this, at equal distance, came to a third, then a fourth, all which were

* See authority for the buoys in a note to page 177.

within the limits of 3 miles, and lay N. and S. Although they have the appearance of danger, there is not less than 4 fathoms on the shoalest part. After crossing the fourth rip, came into deep water within one mile, viz. 12, 17, 22, and 25 fathoms, sand and red gravel. When over had smooth water with 3 fathoms, and made a south course, having 4, 11, 18, and then 11 fathoms, and crossed the east end of the South shoal in 2 fathoms, ruuning down the south side in 13 fathoms, 80 fathoms distant, when we anchored in 10 fathoms. Got under way and stood to the westward; had 7, 4, 6, 5, and 7 fathoms; doubled round the west end in 3 fathoms, fine sand; when over had 7 fathoms, the tide setting N. N. W. Kept along the north side in $2\frac{1}{2}$, $2\frac{3}{4}$, and 2 fathoms, one cable's length from the breakers. When about midway the shoal, perceived a swash, through which crossed between the breakers in a S. S. E. direction, had $2\frac{1}{2}$ and 2 fathoms, and one cast 9 feet at which time it was about half-tide. In a few moments, deepened to 4, 5, 6, and 7 fathoms, 2 cables' length from the shoal, hard white sand. From this steered S. $\frac{1}{2}$ W. to make a south course good, kept the lead going, and increased the soundings gradually to 10 fathoms, fine black and white sand, then one mile from the shoal. From this sounded every 3 miles, depth increasing about one fathom per mile, till at the distance of 7 leagues from the South shoal, where we found 28 fathoms, fine black and white sand. [This was in lat. 40° 42′ N. long. 69° 56′ W.] The same quality of soundings continue till you get in lat. 40° 31′, when you will have soft mud, 40 fathoms, from which it continues muddy bottom till off soundings, and in 40° 00′ no bottom with 120 fathoms."

NOTE.—The Orbit was sent by the author of this work to ascertain the exact situation of the South shoal, which differing so much in latitude from what it had been before laid down, induced several gentlemen in Nantucket again to engage in the enterprize, who confirm the surveys made in that vessel, and make the following report:—"Observed in lat. 41° 4′ 11″ N. abreast of the shoal, as laid down by Capt. COLESWORTHY; steered off S. by W. 22 miles, and regularly deepened the water to 35 fathoms: steered E. N. E. 12 miles, to 30 fathoms; N. W. 20 miles, to 18 fathoms; S. S. W. 10 miles, to 30 fathoms, and N. N. W. 14 miles, regularly shoaling until 6 A. M. made the Mills, and came in at 1 P. M. These several courses formed a track over where PAUL PINKHAM has laid the South shoal of Nantucket, *and on which there are 28 fathoms.*"

Eight or ten leagues S. E. from the south part of George's bank lies the Gulf Stream, where there is a strong E. N. E. current, and if you are bound to the westward, you had better go very near the bank, quite on soundings, till you are abreast of the South shoal of Nantucket, where you have 30 leagues from bank to current, and by doing which you will probably shorten your passage.

Seven leagues to the westward of the South shoal, in 25 or 30 fathoms, you will have black mud of a shining smooth nature, when you will be in Tuckernuc channel.

To the westward of the South shoal of Nantucket, you have no shoals, rips, nor tide to hurt you, until you come near the land, but clear sea, good navigation, and regular soundings. To the eastward and northward of the South shoal you will have a rapid tide.

"A shoal, called POCHICK RIP, lies off the S. E. part of Nantucket island. It commences a few rods south of Siasconset town, and then runs E. S. E. one mile, when you come to a corner on which are 6 feet at low water; between this corner and the island there are a few swashes from

2½ to 3 fathoms, through which vessels may pass. From the corner the rip runs south 1½ mile, when you come to another swash, half a mile wide, with 7 fathoms; W. S. W. one-quarter of a mile from this channel is a very shoal spot, with 6 feet, which runs S. W. by W. one-quarter of a mile, when you fall into a swash 40 rods wide, Tom Never's head bearing W. N. W. 3 miles distant. You then come to the east end of the OLD MAN, which runs W. S. W. about 4 miles, on which are from 9 feet to 3 fathoms; when over the Old Man you will drop into 7 fathoms, fine sand with black specks.

Between the Old Man, Tom Never's head, and Pochick rip, there is a very good roadstead or anchorage: Tom Never's head bearing E. N. E. ½ N. the southernmost land W. by N. you will have 5 fathoms, coarse sand, from which to the Old Man you will have 5, 6, 6½, 7, 8, 9, 10 to 14 fathoms, red sand, then half way between the two; from this you shoalen to 13, 11, 8, 7, 5, 4, and 3 fathoms, fine sand with black specks.

The Great rip is about 4½ leagues from Sancoty head; on this rip, about E. S. E. from Sancoty head, there are 4 feet water, and east from Squam there are 5, but on many other parts of it there are 2½, 3, and 4 fathoms water.

Fishing rip is about 11½ leagues from Sancoty head, and has from 5 to 7 fathoms water on it. Between this and the Great rip, the ground is uneven; there are 12, 22, and 15 fathoms water. These two rips stretch nearly north and south, and are about 12 miles in length.

Off the E. part of Nantucket island, lies the Bass rip, about 3 miles from Sancoty head."

Around the coast of Nantucket and the shoals, you will have sandy bottom, and in moderate weather had better anchor than be driven about by the tide, which is very rapid. The course of the tides at and over Nantucket shoals, is nearly N. E. and S. W. and regular. The N. E. tide makes flood. S. S. E. moon makes high water. South moon makes full sea at Nantucket harbour.

S. S. E. and W. N. W. moon makes high water on the shoals; the tide of flood sets N. E. by E. and ebb S. W. by W. from 2 to 3 knots an hour. It ebbs and flows about 5 or 6 feet.

If, when coming from sea you fall into Block island channel, you will have soundings in lat. 40° N. 100 fathoms, mud and ooze, which quality of soundings continue, decreasing gradually, till you get in 40 fathoms. In 38 fathoms, Block island bearing N. by W. 4½ leagues distant, you will have fine red and black sand; two and one-half leagues distant, same bearing, you will have 28 fathoms, coarse sand. When Block island bears N. distant 4 or 5 leagues, you cannot see any land to the northward or eastward; but as you approach the island you will see Montuck point to the westward, making a long low point to the eastward. In sailing W. S. W. you will make no remarkable land on Long island, from the eastward of said island to the westward, its broken land appearing at a distance like islands. You will have 20 or 22 fathoms water out-sight of the land, sandy bottom in some and clay in other places. When you come in sight of Sandy-hook light-house, you will see the Highlands of Neversink, which lie W. S. W. from Sandy-hook, and is the most remarkable land on that shore.

South of Noman's-land island, in 20 or 25 fathoms, you will have coarse sand like gravel stones; and S. S. W. from it, in 28 or 30 fathoms, coarse red sand; S. S. E. from Block island, which is in Block island channel, in 40 or 50 fathoms, you will have oozy bottom, but as you shoal your water to 25 or 20 fathoms, you will have coarse sandy bottom.

Directions for New-Bedford.

Bring Gay head light to bear S. and run N. till you come to the passage through the islands, which forms Quick's hole, which you must enter as near the middle as possible ; but if you deviate, keep the starboard hand best on board, to avoid a spit or flat which runs off from the S. E. point of Nashawina, on the larboard hand, when you will have from 5 to 6 fathoms ; then haul square into the hole, keeping the larboard hand best on board, following somewhat the bend of the shore. You will keep Gay head light open about a ship's length by the S. E. point of Nashawina, till you are at least one mile north of the hole, which will carry you to the eastward of a ledge and rock that lie that distance from it, with only 5 to 12 feet water on them, to the westward of which is a good channel, and 5 fathoms all round. Then steer N. ½ W. till you strike hard bottom in 5 fathoms water, on the S. E. corner of the Great ledge, which is on the western side of the channel ; then N. E. by N. about three-fourths of a mile, till in 5½ or 6 fathoms, sucky bottom, when the light will bear N. N. W. ; then steer N. by W. and run into the river.* After passing †Clark's point light, you will see a small island, called Outer Egg island, just above water, which you will leave on your starboard hand, giving it some birth, as there are rocks which lie south-westerly from it, say one-third of a mile distant, but still keeping nearer to it than to the main land, to avoid Butler's flat, which makes off from the west shore. To steer clear of this flat, keep the light-house open a ship's length to the westward of the Round hills. As soon as you open the N. line of the woods with the clear land, about a mile N. of the light-house, you are to the northward of the flat, and may steer direct, either for the hollow, or the high part of Palmer's island, hauling a little to the eastward as you approach it. The passage between this island and Fort point, on the starboard hand, is narrow. A flat which extends out S. W. from the point, makes it necessary to keep nearest the island ; as you draw towards the N. end of the island, give it a birth of two ships' lengths as a small flat makes off E. from its N. E. point. As soon as you have passed the island one cable's length, the town will appear open on your larboard hand, when you may run for the end of the wharf which projects out farthest into the channel (Rotch's wharf.) Or to anchor in the deepest water, bring Clark's point light without Palmer's island.

In coming into New-Bedford from the westward, the Eastern channel is safest for strangers. Give the Sow and Pigs a birth of one mile, and run N. E. by N. till Pune island bears S. E. then E. N. E. till Gay head light bears S. and then N. ½ W. as before directed.

A rock lies off N. W. from the N. end of Pune (or Penequese, as it is sometimes called) about one mile distant, on which there is only 8 feet at low water. Between this and Wilkes' ledge (on which there is a black buoy) is an open ship channel, free from danger, and courses may be varied as circumstances require.

By those who are acquainted with the bay, the Western channel is most commonly used. Giving the Old Cock and Hen and Chickens a suf-

* When running from Quick's hole for the N. ledge, as soon as you find yourself in 7 fathoms water, you may be sure that you are abreast of the Great ledge, or have passed it.

† Clark's point light is situated at the entrance of New-Bedford harbour. The lantern is elevated 100 feet above the level of the sea, and contains a fixed light.

ficient birth, the only danger to be avoided in approaching Mishom point, is a rock which lies about one mile S. W. by S. from it, on which there is only 6 feet water.‡ Having passed Mishom point, you may steer directly for the Dumplin rocks, off the Round hills, and which may be passed within two cables' length to the eastward. Hence to Clark's point light the course is N. N. E. but to avoid the Middle ledge (on which there is a red buoy) and which lies very near in a direct course from the outer Dumplin to the light, it is better to steer N. E. by N. about a mile, and then haul up N. N. E. when you will leave the ledge on your larboard hand. You may also carry in 4 fathoms to the westward of the ledge, but the channel between it and the Lone rock, which lies N. W. from it, is narrow.

From Seaconnet rocks (giving them a birth of one mile) to the entrance of Buzzard's bay, the course is E. ½ S. By this course made good, all the dangers off the Hen and Chickens will be avoided. Soundings, generally, from 9 to 7 fathoms, and mostly hard bottom, till deepens to 16 fathoms, sucky bottom, when Cutterhunk island will be upwards of a mile distant, and Clark's point light will bear N. N. E. and you may run directly for the light till up with the Dumplin rocks, to which a sufficient birth must be given. Or you may stand on this course of N. N. E. till in 7 fathoms, sucky bottom (which will be between Mishom point and the Round hills) and come to anchor. Or otherwise, steer N. N. E. till Pune island bears S. E. and then E. N. E. for the Quick's hole channel, as before directed.

It may be well to observe, that if when you have stood in from Seaconnet point towards Cutterhunk, and the light on Clark's point is not to be seen, but you can see Gay head light, you may stand on your course E. ½ S. till you shut it in behind the west end of Cutterhunk, but must then immediately change your course to N. N. E. If neither light is to be seen, the soundings are the only dependence, and must be very carefully attended to.

Additional Remarks.

To the S. E. of the Dumplin rocks, one-half to three-quarters of a mile distant, is a sand spit with only 7 feet of water on it. Between this spit and the rocks there are 5 fathoms water.

Lone rock, N. W. of the Middle ledge, nearly half a mile distant, is nearly or quite dry at low water, when there are 2½ fathoms round it. Between this rock and the Hussey rock is the entrance to Aponeganset river; depth of water, in the channel, 3½ fathoms. There is also a channel between the Hussey rock and White rock. Course from Quick's hole to entrance of Aponeganset river, N. N. W.

The White rock appears considerably high above water, and the two rocks to westward of it, called the Ragged rocks, are always to be seen.

A small rock to the S. W. of the North ledge (about one mile distant from the buoy) with only 7 feet water on it, and another small rock to the N. E. of the same ledge (about half a mile distant from the buoy) with 10 feet water on it, were recently discovered by Capt. Mosher. On the

‡ There is also a ledge directly south of Mishom point, one mile distant, on which there is not more than 3 fathoms at low water, and, at very low tides, still less.——☞ When bound to sea, a S. W. by S. course from the Dumplin rocks will carry you just without this ledge, and in fair channel way between the Sow and Pigs and Hen and Chickens.

former he struck with the brig Commodore Decatur, and on the latter with the brig Elizabeth.

Packet rock, a small sunken rock, on which there is 4 feet water, lies half a mile or upwards W. by N. from Black rock. The passage for coasting vessels bound from New-Bedford up the bay, is between this and Black rock.

The soundings across the western entrance of Buzzard's bay, between the Sow and Pigs and Hen and Chickens, and some distance within them, are very irregular, varying from 5 to 10 and 15 fathoms, and bottom generally hard.

A S. E. moon makes high water in the bay, and the average set of tide is 1½ knots.

Buoys in Buzzard's Bay.

There are five buoys placed in Buzzard's bay, viz.—a yellow buoy on the S. E. part of the North ledge, in 2½ fathoms water. A red buoy, lying in very shoal water on the centre of the Middle, which is a small ledge. A white buoy on the S. E. part of the Great ledge, in 3 fathoms water. A black buoy on the S. W. part of Wilkes' ledge, in 2½ fathoms water. All on the western side of the bay. And a white buoy in 2 fathoms water, on West's island ledge, on the eastern side.

All these buoys, except the one on West's island ledge, are taken up in the winter.

Bearings of Ledges from Clark's point light.

North ledge,	S. by E.
Middle ledge,	S. by W. ½ W.
Great ledge,	S. ¼ W.
Wilkes' ledge,	S. by W.
West's island ledge, (buoy)	S. E. by E.

Other bearings from the light.

Old Bart'l'mew rock,	E. 26° N. 1-6 of a mile distant.
Quick's Hole,	S. 9 E.
Dumplin rocks,	S. 21 W. or S. S. W. nearly.
White rock,	S. 25 W.
Round hills,	S. 29 W.

From the North ledge,

The light-house bears	N. by W.
Black rock,	N. E. by E.
Dumplin rocks	S. W.

From Middle ledge,

Light-house,	N. by E. ½ E.
Dumplins,	S. W. by S. ½

From Great ledge,

Light-house,	N. ¼ E.
Mishom point,	W. S. W.
North ledge,	N. N. E. 2 miles distant.
Dumplins,	W. ½ N.

From Wilkes' ledge,

Light-house,	N. by E.
Mishom point,	W. by N. ½ N. about 2 miles distant.
Dumplins,	N. by W. ½ W. about same distance.

From West's island ledge,

Light-house,	N. W. by W.
Mishom,	W. S. W.
Little Black rock,	N. by E.
Black rock,	N. W. ¼ W.

Bird island light-house, in Buzzard's bay.

Bird island is on the north shore of Buzzard's bay, near the east side of Sippican harbour, in the town of Rochester; about 12 miles E. N. E. from New-Bedford light-house. It is small, not containing more than three acres of land, and is about five feet above the level of the sea.

The light and dwelling-houses are built of stone, and are white-washed. The tower of the former is 25 feet high, on which is a lantern 7 feet high, that is lighted with ten patent lamps, with a 16 inch reflector to each, fitted on two sides of an oblong square, which revolves round once in 3½ minutes, at the distance of 5 leagues, which is as far as it can be seen for the land. The time of total darkness is twice to that of light. As you approach it, the time of total darkness increases, until you get within two miles of it, when there will not be a total darkness, but the greatest strength of light will be as 40 to 1, over that of the least light in the course of the revolution of the apparatus.

Bearings and distances from Bird island light-house.

The south point of West's island,	S. W. ¾ W. 10 miles.
West's island ledge,	S. W. ½ W. 11 miles.
The north entrance of Quick's hole,	S. W. by S. 25 miles.
Wood's hole, due	S. 10 miles.
The entrance of Monument river,	E. N. E. ½ N. 7½ miles.

West island ledge buoy.

West's island ledge is in Buzzard's bay, between 5 and 6 miles S. E. by E. from New-Bedford light-house, in from 4 to 4½ fathoms water.

A large white buoy has been placed over the ledge.

Bearings and distances of sundry places from Gay head light-house.

Noman's-land island, S. 8 miles distant.

Old Man, S. by E. This is a ledge of rocks which lies two-thirds of the distance from the Vineyard to Noman's-land island, which has a passage on both sides, that is but little used. Those who do go through must keep near Noman's-land island till the light bears N. You will have 7 fathoms water in this passage.

Sow and Pigs, N. W. by W. 3½ leagues. This is a ledge of rocks which is very dangerous, and bears S. W. by W. from the westernmost of the Elizabeth islands (called Cutehunk) distant 2½ miles.

N. E. from the light, 2½ leagues distant, is a spot of shoal ground, with 3 fathoms water on it.

Mananshaw bite, 3½ miles distant. In this harbour you will have good anchorage in from 8 to 6 fathoms, the light bearing W. by S. or W. ½ S. and lie sheltered with the wind from E. N. E. to W. S. W.

Block island, W. by S. distant 15 leagues.

Rhode island light-house, W. N. W. distant 12 leagues.

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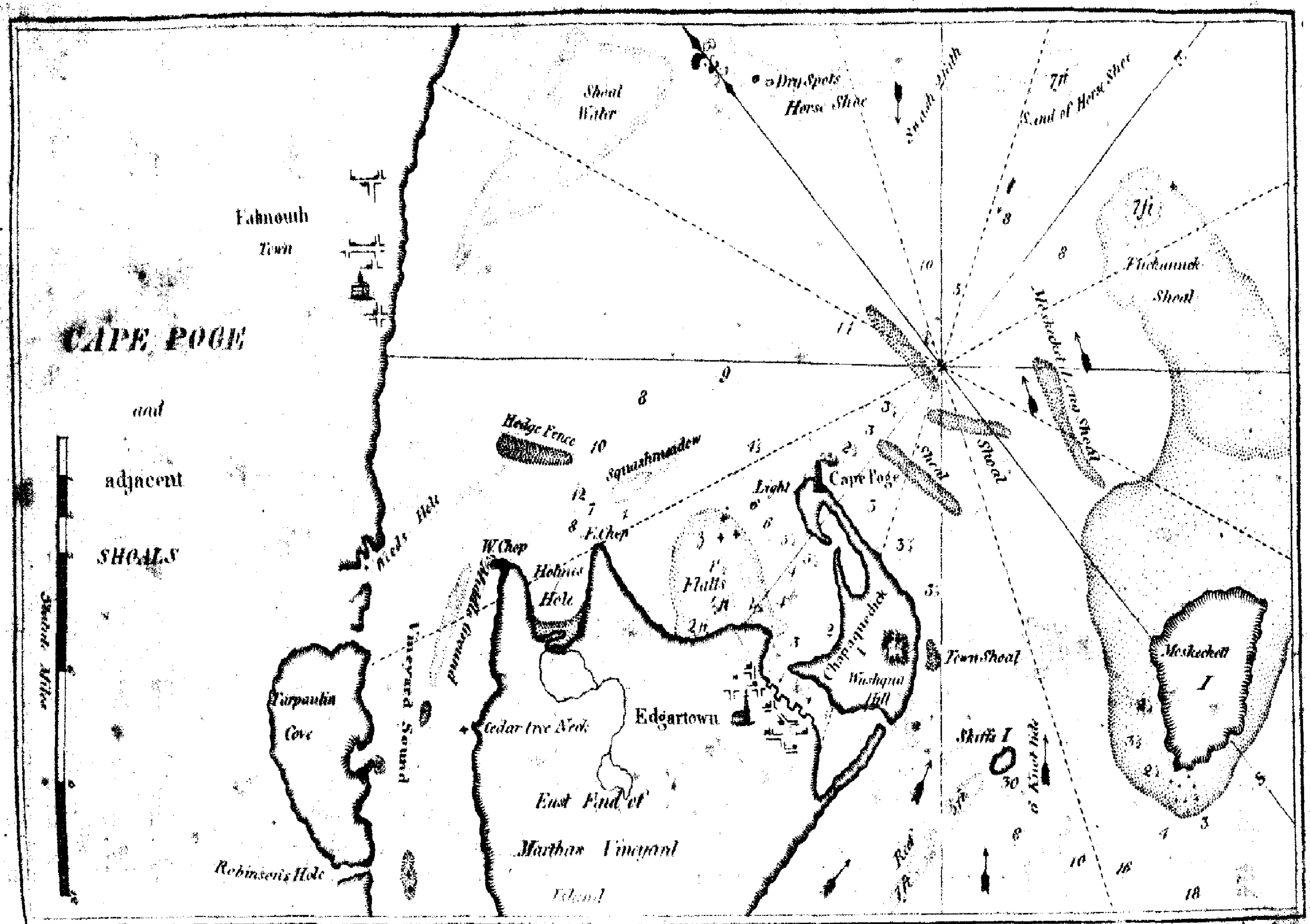

Hooker Sc.

Bearings and distances from the light on Cape Poge, *and depth of water of several most dangerous shoals in sight of* Cape Poge light-house, *and the bearings of the* East chop *of* Holmes' Hole.

East chop - - - -	N. W. by W. ¼ W.	from said light		7½	miles distant.
Squash meadow shoal - -	N. W. ¾ W.	5 feet	at low water	5½	do.
Norton's shoal - - -	E. ⅛ S.	9	do.	7½	do.
Moskeekett Long shoal - -	E. ¼ S.	6	do.	8	do.
Tuckernuc shoal - -	E. ¾ S.	7	do.	14	do.
South end Horse-shoe - -	E. ½ N.	7	do.	13½	do.
Dry spots Horse-shoe - -	N. E. ½ N.	dry		10	do.
Swash of Horse-shoe - -	E. N. E.	12	do.	9	do.
Tuckernuc shoal from Nantucket light	W. by N.	7			
Horse-shoe from do. - -	N. W. by W.				
Coast from Nantucket light bound westward	W. by N. ½ N.				
From Cape Poge to Skiff's island	S. ¼ W.	dry		9	do.
Hawse's shoal, the shoalest part	S. E. ½ E.	6	do.	3½	do.

In bad weather, coming from the eastward, and you wish for a harbour, and the wind admitting, you may bring Nantucket light to bear E. S. E. and run W. N. W. making your course good, until Cape Poge light-house bears W. by S. if bound into Edgartown harbour, then steer for the light until you get in 3 fathoms water; then run W. N. W. if it shoalens haul to the northward; if not, keep on until the light bears south, then run W. S. W. you will have 3 and 4 fathoms hard bottom. As soon as you get 5½ or 6 fathoms sucky bottom, then run S. S. W. until the light bears N. E. ½ E. then you may anchor in about 5 or 6 fathoms water with safety, in case your cables and anchors are sea-worthy; otherwise, if you wish to go into the harbour, when the light bears N. E. ½ E. you may run S. W. by W. until you get 3½ fathoms hard bottom, then run W. about half a mile, and you will be within the flats, which you leave to your starboard hand coming in; you will find it smooth, and about 3 and 4 fathoms water, where you may anchor with safety, though your ground tackling is poor.

If you wish to go to Holmes's Hole, or through the sound, bring Cape Poge light to bear S. E. by E. ¼ E. and run N. W. by W. ¼ W. you will run for the East chop, and leave Squash Meadow shoal on your starboard hand; get 3 fathoms water on the chop, then haul to the N. N. W. until you deepen to 7, 8 or 9 fathoms; then run S. W. by W. for Holmes' Hole roadstead, in 4 fathoms or 3½ or N. W. for the Sound, to clear the West chop and middle ground.

Directions for those who fall in with Block island, *when they are bound for* Rhode-island harbour.

From the S. E. part of Block island to Rhode island light-house the course is N. by E. ¾ E. and the distance 8 leagues; about midway between them, there are 24 fathoms water. If you are on the west side of Block island, with the body of the island bearing E. N. E. in 8 or 10 fathoms water, your course to Point Judith *light is N. E. by E. about 6

* The light-house on Point Judith is a stone edifice, 40 feet high. The lamps are 60 feet above the level of the sea, and contain a REVOLVING LIGHT, to distinguish it

leagues. This point appears like a nag's head, and is pretty bold; between Block island and the point there are from 30 to 6 fathoms water, except a small shoal ground, which, in thick weather, is often a good departure, say 4 to 5 fathoms. From Point Judith (when not more than a quarter of a mile from the point) to Rhode island harbour, your course is N. E. and the distance is about 5 leagues. When in 13 fathoms water, Point Judith light bearing W. or W. by N. the course to Rhode island harbour is N. E. by N. ½ N. and the distance to the light-house 3 leagues. The light-house, together with the Dumplins, must be left on your larboard hand; it stands on the south part of *Conannicut island; this point is called the Beaver's tail, and is about 3 leagues distant from Point Judith. After leaving the light-house on your larboard side, there is a sunken rock due south from the light-house, about 200 yards distant, called Newton rock. You must take care to avoid the rocks which lie off south from Castle hill, some of which are above water. Castle hill is on the east side of Rhode island harbour. If you steer N. E. from the light-house, 3 miles distance, you will have good anchoring without Goat island (off the N. E. point of which is a buoy in 16 feet water;) the shore is hard and rocky. A little within the light-house, and near to the shore on the west side there is a cove called Mackeral cove, the entrance to which is shoal and dangerous. About 5 miles within the light-house there is an island called Goat island, on which the fort stands; it lies before the town, and stretches about N. E. and S. W. After you pass the light-house, bring it to bear S. W. by W. and steer N. E. by E. 3 miles, which will carry you between Brenton's point and the south Dumplin, back of Goat island, in good anchorage and is the only course which will carry you clear. As both ends of these islands are pretty bold, you may pass into the anchoring at either end, and ride nearer to Goat island side than to that of Rhode island, as the other parts of the harbour are grassy, and would be apt to choak your anchors. Rhode island is navigable all round, by keeping in the middle of the channel.

Narraganset bay lies between Conannicut island and the main. Your course in, is about north, taking care to avoid the Whale rock: you may pass in on either side, and anchor where you please. From the light-house on Conannicut island to Gay-head, in Martha's Vineyard island, the course is E. by S. ½ S. and the distance 11 leagues. In little wind you must take care that the flood tide does not carry you into Buzzard's bay, or on the Sow and Pigs.

Providence is situated about 30 miles N. by W. ½ W. from Newport, and 35 miles from the sea, being the head navigation of Narraganset bay. Ships that draw from 15 to 18 feet water, may sail up and down the channel, which is marked out by stakes, erected at points of shoals and beds lying in the river. [☞ *See the Plate.*]

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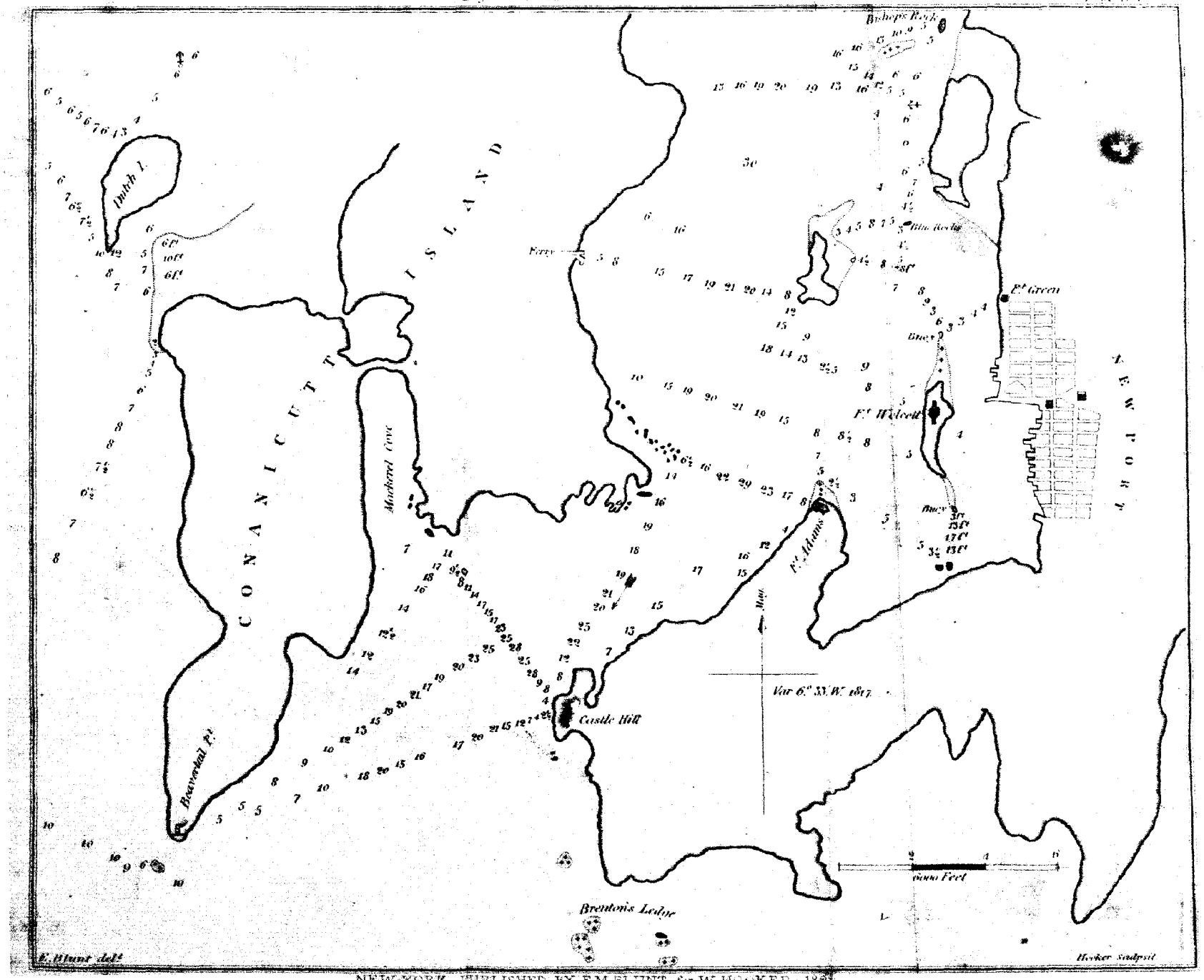
from Newport light, which stands on Conannicut island, which is a fixed one. The distance from the light-house to high water mark is as follows: east from the light-house to high water mark, 16 rods; S. E. 14 rods; S. 18 rods; S. S. W. 23 rods, which is the extreme part of the point, to which a good birth should be given. The light on Point Judith bears S. W. ¼ S. 3 leagues distant, from Newport (Rhode island) light-house. Point Judith light may be distinguished from Watch hill light by the light not wholly disappearing when within three leagues of it.

* Conannicut island lies about 3 miles west of Newport, the south end of which (called the Beaver's tail, on which the light-house stands) extends about as far south as the south end of Rhode island. The east shore forms the west part of Newport harbour. The ground the light-house stands upon is about 12 feet above the surface of the sea at high water. From the ground to the top of the cornice is 50 feet, round which is a gallery, and within that stands the lantern, which is about 11 feet high, and 6 feet in diameter. It contains a fixed light.



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The following are the bearings, by compass, from Rhode island *light-house, of several remarkable places, together with the distances, viz.*

Block island (S. E. point) S. W. by S. ½ S.
Point Judith light, S. W. ¼ S. distant 3 leagues.
Block island (S. E. point) S. W. ¾ S. or S. W. by S. nearly.
Block island (middle) S. W. ½ S. distant 8 leagues.
Block island (S. E. end) S. W. by S. ½ S.
Whale rock, W. ¾ S.
Brenton's reef, E. S. E. ¼ E.
South point of Rhode island, E. ½ S.
Highest part of Castle hill, E. N. E. ¼ E.
Brenton's point, N. E. by E.
Fort on Goat island, E. N. E. ½ N.
South easternmost Dumplin, N. E. ¾ E.
Kettle Bottom, N. E.
Newton's rock, S. near 200 yards.

N. B. The anchoring place between the town of Rhode island and Coster's harbour, N. E. by E.

Directions for sailing from Newport, *through the* Sound, *to* Hunt's harbour, *near* Hell-gate.

The first course from Newport light-house is S. W. by S. distant three leagues, to Point Judith light: thence from Point Judith light, through the Race to the *Little Gull island light, the course is W. by S. 16 leagues distance (leaving †Watch hill point light and Fisher's island on your starboard hand, from the W. point of which a dangerous reef runs off about one mile W. S. W. which in passing you must be careful to avoid, and the Little Gull light on your larboard hand, which bear from each other N. E. ¾ E. and S. W. ¾ W. distance 9⅔ miles) or you may continue your W. by S. course till the Little Gull light bears W. ¼ N. 3 miles distant, and then run N. W. 2½ miles, when, with New-London ‡light bearing N. distant 2½ leagues, you steer W. 10 leagues, which will bring you within 2 leagues of §Faulkland island light, bearing about W. by N. ¼ N. from you, when you must steer W. S. W. 12 leagues, which will carry you within 5½ leagues of Eaton's neck light-house, bearing from you W. ¾ S. when you must steer W. 9 leagues, then W. S. W. 4 leagues, after which S. W. 4⅓ miles, which will carry you up with ‖Sands' point light-house on your larboard hand, and the Execution rocks on your starboard hand, which have a spear on them. In case of a flood tide and a southerly wind, when you come through the Race, your course should be W. until

* Little Gull light is situated on Little Gull island, at the entrance of Long island Sound, through the Race. This light may be considered as the key to the Sound. The lantern is elevated 50 feet above the level of the sea, and contains a fixed light.

† Watch hill light is situated on Watch hill, at the entrance of Fisher's island Sound. The lantern is elevated 50 feet above the level of the sea, and contains a revolving light.

‡ New-London light is situated at the entrance of the harbour, on the western side. The lantern is elevated 80 feet above the level of the sea, and contains a fixed light.

§ There are two of these islands, on the largest of which is a light-house. S. E. from the light, four miles distant, you will have 3 and 4 fathoms, and on the S. and E. sides it is very bold. The light-house contains a fixed light, elevated 75 feet above the sea.

‖ Sands' point light-house is at the head of Long island Sound, containing a lantern 40 feet above the sea, showing a fixed light.

you come up with Eaton's neck, taking care to make proper allowance for the tide, which runs very strong, and flows on the change and full days of the moon half past 11 o'clock, and the water rises 5 or 6 feet.

If you are bound into New-London, after getting to the northward of the S. W. part of Fisher's island, keep New-London light bearing from N. N. W. to N. N. E. if you are beating to windward, but if the wind is fair, bring the light to bear N. when at the distance of 2 leagues, and run directly for it; leave it on your larboard hand in running in; when in, you may have good anchoring in 4 or 5 fathoms water, clayey bottom. In coming out of New-London, when you have left the harbour, bring the light to bear N. N. E. and steer directly S. S. W. till you come into 15 fathoms water, in order to clear a reef that lies on your starboard hand, when the N. part of Fisher's island will bear E. distant 2 leagues. If a ship could have a fair departure from the middle of the Race, and was compelled to run in a dark night, or thick weather, the best course would be west to *Stratford point, and would afford the largest run of any one course. If bound up sound, steer W. by S. 28 leagues, which will carry you up with Eaton's neck (on which is a †light-house.) On this course you will leave Faulkland islands on your starboard hand; you may go as near Long island shore as 2 or 3 miles, without any danger; but if you happen to get on the N. shore, take particular care to keep at the distance of 3 leagues, in order to avoid the reefs and shoals that lie along the shore.

About 8 leagues E. N. E. of Eaton's neck light-house lies a ‡shoal or middle ground, called Stratford shoal, on which there are but two feet of water, at low water. You may steer on either side of the shoal you please; on the N. are from 3 to 7 fathoms; on the S. side from 12 to 17 fathoms water. A ledge lies off the N. E. part of Eaton's neck, one mile distant.

From Eaton's neck to Lloyd's neck the course is W. ½ N. 5 miles; between which lies a deep bay, called Huntington's bay, where a ship of any size may anchor with safety, keeping the eastern shore aboard. From Lloyd's neck to Matinecock point, the course is W. by S. distant 10 miles, good soundings, borrowing on Long island to 7 fathoms. The course from Matinecock point to Sands' point light is W. S. W. distant two leagues; between these two points is a bay, called Hamstead's bay, in which is excellent anchoring, keeping the eastern shore aboard. To the northward of Sands' point light, distant one-quarter of a league, lie the Execution rocks, which have a spear on them with a board pointing to the S. W. which you must take care to avoid, leaving them on your starboard hand. From Sands' point light the course is S. W. 4 miles to Hart island, to the west of which, between that and City island, there is good anchorage for vessels of any size. If a vessel, in

* On Stratford point a light-house is erected, for description of which, and directions, see Appendix.

† The light-house stands on an eminence, about 73 feet high; the height of the walls is 50 feet more. The whole height from high water mark to the light is 126 feet. It stands about 300 feet from high water mark, is a single fixed light, and painted black and white in stripes, from the top to the bottom.

‡ Bearings of the Shoal—Stratford point N. N. W.—Mount Misery S. ¼ W.—Grover's hill (near Black rock harbour) N. W. The length of the shoal 1 league, running N. by E. and S. by W. Light-house on Eaton's neck W. by S. ½ S. The shallowest part is near the middle of the shoal, from whence the observations were taken, where there are 3 feet water in common tides. The centre of the shoal is near the middle of the sound, perhaps half a league nearest Long island shore. A light-house is erected on Stratford point, and for the bearings of the shoal from it, see Appendix.

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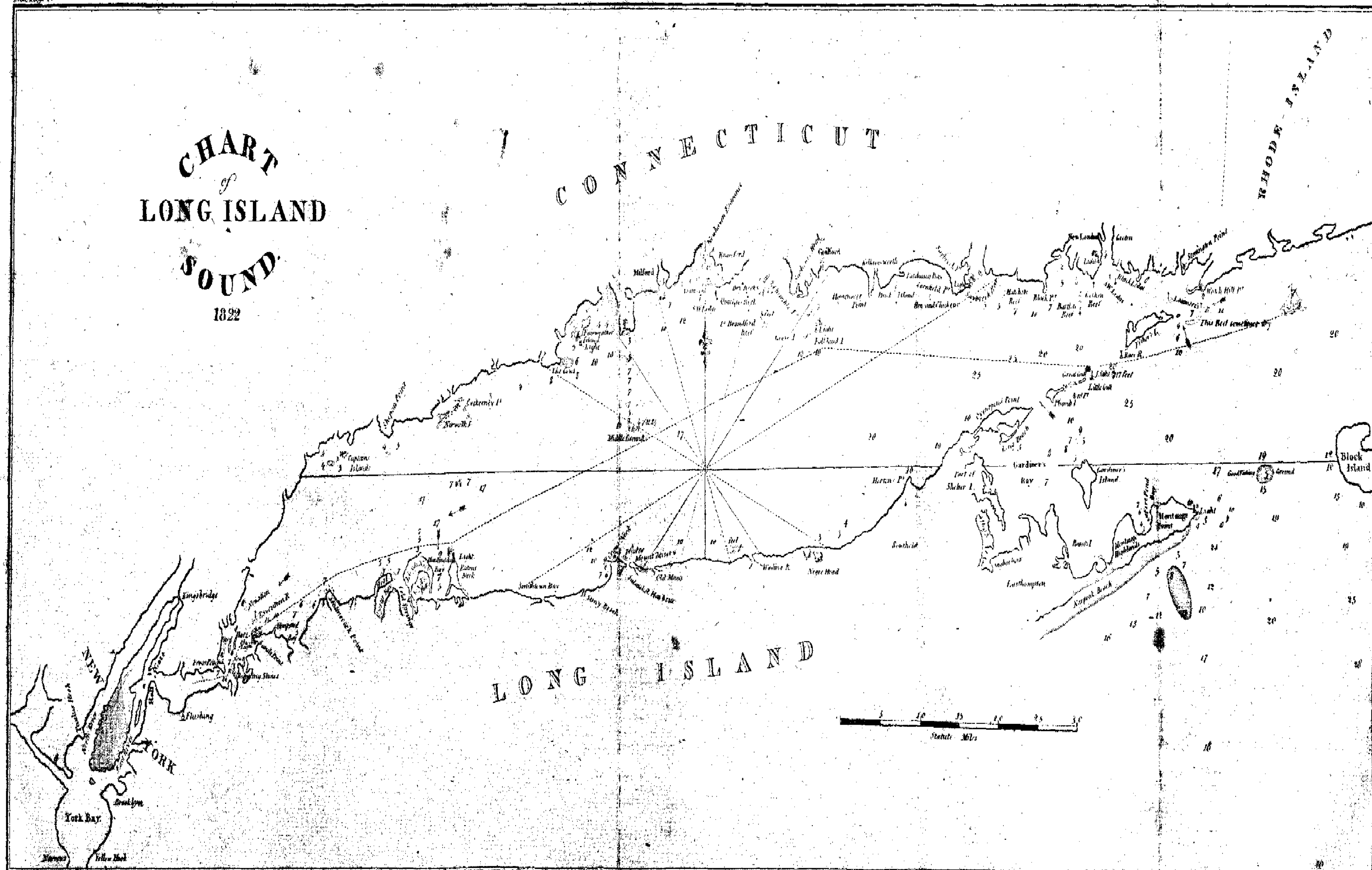
Engraved for the American Coast Pilot



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Hooker Sc.

making this course good, is obliged to turn to windward, they must be careful of two rocks, one called Gangway rock, which bears W. 28° S. from Sands' point light-house, distant about 1¼ mile, with a black spar floating perpendicular, which should be left on the larboard hand; and the other, called Success rock, bearing N. W. by N. from the east bluff of Cow bay, half a mile distant, on which an iron spindle is erected. On Gangway rock, which runs quite to a point, there are 6 feet at low water, making it very dangerous. Success rock is bare at low water; between the two there is a channel of about 2½ fathoms; they bear from each other N. 40° W. and S. 40° E. distant about one-third of a mile. The course from thence to *Frog's point is S. S. W. distant two leagues, taking care to avoid the Stepping stones, one of which has a spear on it, which lie on your larboard hand, and are steep too; the soundings on your starboard hand are regular to 3 fathoms. From Frog's point to Hunt's harbour the course is W. keeping as near the middle of the Sound as you can conveniently.

Oyster bay *and* Huntington,

Are principal harbours on the north shore of Long island, about 10 leagues to the eastward of Hell-gate. The channel into Oyster bay lies over towards Lloyd's neck until you have passed the tail of the Middle (which is a sand-flat extending from Hog island towards the neck, within the distance of 180 fathoms) thence the bay is clear with good anchorage throughout.

Huntington bay,

Has a fair entrance and sound ground. There are from 3 to 4 fathoms of water and muddy bottom within Lloyd's harbour on the W. and Cow harbour on the E. side of the bay. Fresh N. E. winds will swell the tides, which commonly rise about 7 feet perpendicular, to 10 or 11 feet.

Hell-gate,

And the narrow pass leading into Long island Sound, at the time of slack water and with a leading wind, may safely be attempted with frigates. Small ships and vessels, with a commanding breeze, pass at all times with the tide. On the flood, bound into the Sound, you pass to the southward of the Flood rock, which is the southernmost of the three remarkable rocks in the passage. On the ebb you go the northward of the Mill rock, the stream of the tide setting that way, and forming eddies in the flood passage, which at that time is rendered unsafe. The Pot, on which there are 10 feet at low water, shows distinctly by the whirlpools, as also the Pan which is a part of the Hog's back.

* On this point a light-house will be erected during the present year (1822.)

Directions from Block island *to* Gardner's bay.

Montock point, the easternmost part of *Long island, which has a light-house on it, is 7 leagues W. by S. from the S. W. point of Block island; between the island and the point there are 16 and 18 fathoms water. As you approach the point you will quickly come into 9, 7, and 5 fathoms water. A flat runs off from the above point, on the outer part of which are 5 fathoms water, rocky bottom.

Between Montock point and Block island there is a shoal, with only 4½ fathoms on its shoalest part. on which the sea breaks in moderate gales from the southward. It lies nearly half way between the point of Montock and the S. W. part of the island. W. by S. from the latter, and about E. ¾ N. from the light-house on Montock, distant 8½ miles, you suddenly shoalen your water from 13 to 6 fathoms on the N. W. side of the shoal, and before you get a second cast of the lead you are over the shoalest part, into 7, 8, 10, and 12, and then into 14 fathoms. The rippling of the tide is very conspicuous when approaching the shoal in fine weather; and the sea breaks on it so in bad weather that, even in small vessels, it is recommended to avoid coming near it, especially in southerly or S. W. gales. You will suddenly shoal from 13 to 9 fathoms, and Montock light bearing W. ¾ S. 8 miles distant, you will have 5½ fathoms. The soundings from the shoal towards Montock are 6, 9, 14, 13, 11, 10, and 9, fathoms. Towards the light-house when it bears from W. to S. W. by W. the bottom is strong; towards the shoal the bottom is coarse sand, and a very strong tide.

From Montock point a reef runs off in a N. E. direction, 1¼ mile, having a bed of rocks on its outer end, with 10 and 8 feet on them, on which the sea constantly breaks, or the tide causes a great rippling.—They may be easily avoided by keeping a good lead going. In rounding Montock come no nearer than 9 fathoms, or keep the two bluffs, or high parts of the land (to the westward of Montock) open one of the other, until Willis' point comes open of Montock False point. These marks will carry you clear of all the shoals in 3½ and 9 fathoms, and a N. by W. course will then carry you clear of the Shagesagonuck reef, which lies N. W. ½ N. 5½ miles from Montock light-house, and has 6 feet on its shoalest part, 6 fathoms on the N. E. and N. W. side, 3 and 4 fathoms on the S. E. and S. W. side, and 3, 4, and 5 fathoms between the shoal and Montock False point. The tides set strong round Montock point; the flood N. E. and ebb to the contrary. At the Shagesagonuck the flood sets W. by S. and ebb to the contrary. When on the Shagesagonuck, in 6 feet, anchored a boat and took the following marks:

1st. Willis' point in a line with the westernmost point of Ford Pond bay, or the bay closed by the points being brought in a line S. W. by W. ½ W.

2d. Montock False point S. about 3 miles.

3d. The white cliff, or high sand hills on the west end of Fisher's island, called Mount Prospect, N. by W. ¾ W.

4th. The Gull islands W. N. W. and the bluff sand cliff of Gardner's island W. S. W. ½ W. Montock False point is 3 miles N. W. from the light-house, Willis' point is the easternmost point of Fort Pond bay.

* The light-house on Montock point is on the east end of Long island, bearing W. by S. from the S. W. point of Block island, 7 leagues distant. From Montock light-house to the west point of Fisher's island, N. N. W. 8 leagues distant. The light-house contains a fixed light, elevated 100 feet above the level of the sea, and may be seen 9 or 10 leagues.

In rounding Montock in the night (when the land or light can be seen) with westerly gales, you may anchor when the light-house bears S. W. by S. in 8 or 9 fathoms, coarse sand. Having brought Montock to the southward of west, the weather thick, you cannot clearly ascertain the distance you are from the point; the lead must be your guide. Steer as high as W. N. W. until you have got into 9 fathoms. Steer off again into 13, and if you suddenly shoalen from 10 to 6, steer off E. by N. until you are in 11 or 12, which suddenly deepens (as a bank of not more than 5½ fathoms extends from the N. E. reef to the Shagesagonuck) and a good lead kept going will prevent you from going too near these shoals, by steering off into 12 and 13 fathoms, before you attempt to steer to the westward, after having sounded in 6 or 7 fathoms. In the day-time, having rounded Montock and bound to Gardner's bay, steer N. by W. until you clearly discover that Fort Pond bay, and the red cliff on the western point are open of Willis's point; you may then steer W. by S. for the bluff point of Gardner's island, and will pass between the Shagesagonuck and Middle ground, or Cerberus shoals.

The Middle ground or Cerberus, is a rocky shoal, having from 2¾ to 5 fathoms on the shoalest part: the N. and E. sides are steep, having 10 and 15 fathoms within half a cable's length of the shoalest part. It extends N. by E. and S. by W. three-quarters of a mile. The south and west sides shoalen gradually from 13, 10, 9, 8, 7, to 5 fathoms, sandy bottom. It lies N. W. by N. 9½ miles from Montock light-house; E. S. E. 9 miles from the Gull light; S. W. by S. 10¾ miles from the light-house on Watch hill point; 6½ miles S. by E. ½ E. from Mount Prospect, or the high sand hills on the west end of Fisher's island. The tide, in general, makes a great rippling over the shoalest part. To avoid these rocks, in the day-time, observe a conspicuous hill with a notch in its centre at the back of New-London, called Pole's hill. This kept a ship's length open, either to the eastward or westward of Mount Prospect, (or the sand hills of Fisher's island) will keep clear of the rocky shoal, in 10 or 15 fathoms to the eastward, and in 8 or 9 fathoms to the westward. The tide sets strong over the shoal. In calms or little winds, ships should anchor before any of the marks or bearings are too near. Being bound for New-London, and having brought the Gull light W. by N. or the light on Watch hill N. E. steer so as to open New-London light-house of Fisher's island; and when the spire of New-London church is in one with the gap on Pole's hill, steering with it in that direction will carry you between the Race rock (on which is a spindle or beacon) and the middle Race rock, on which are 17 feet at half flood, and lies about half way from the Race beacon and the Gull light: or you may bring New-London light-house a sail's breadth to the eastward of the church spire, bearing N. 5° E. will carry you to the westward of the middle Race rock, or between that and the Gull light-house. You may then steer direct for New-London light-house.

About 4 miles within Montock point, 1½ mile from the shore, lies a reef, bearing N. W. ½ N. from the point, on which there are 6 feet water, which is very dangerous.

S. by W. about 9 miles from Montock, is a small fishing bank, having 10, 11, and 12 fathoms on it.

In the offing, between Montock and Block island, it is high water at half past 10, full and change, but on the shore two hours sooner.

Montock False point is about 3 miles N. W. from the true point. The Shagesagonuck, (or Six feet rocky shoal, lies N. 3 miles from it, and has

been previously described. Willis' point is on the E. side of the entrance of Fort Pond bay. This bay is very convenient for wooding and watering; the ground is clear and good, and you may anchor in any depth you please. In a large ship you may bring Willis' point to bear N. E. and even N. E. by N. and then have in the middle about 7 fathoms water. Near the shore, at the bottom of the bay, there is a pond of fresh water.

The N. E. part of Gardner's island is 5½ leagues W. N. W. from Montock point; with westerly winds you may anchor off this part of the island, which is sandy; the marks for anchoring are the high lands of Plumb island N. W. and the S. part of Gardner's island in sight, bearing S. by W. or S.; you will have 12 or 10 fathoms water. The bottom is sand and mud. About 4 miles within Montock point, 1½ mile from the shore, lies a reef bearing N. W. ½ N. from the point, on which there are 6 feet water, which is very dangerous.

The entrance of Gardner's bay is formed by the north end of Gardner's island, and the south end of Plumb island. If you are bound through the Sound toward New-York, your passage from Gardner's bay is between the west end of Plumb island and Oyster pond, through which channel you will have from 4 to 20 fathoms water. When going into the bay you may go within a cable's length of Gardner's island, where you will have 10 fathoms water. You should be careful not to go too nigh Gull rock, as there is a rocky spot 1½ mile from it, on which there are about 3 fathoms at low water. This shoal lies with the following marks and bearings, namely—a house on Plumb island (standing about one-third of the way between the middle and the N. E. end) on with the northernmost of the two trees which appear beyond the house; the N. end of Gull island to bear N. N. W. or N. by W. ½ W.; and the southernmost end of Plumb island on with the northernmost point of Long island. In order to avoid this rock, when going into or coming out of Gardner's bay, you must be sure to keep the S. point of Plumb island open of the N. W. point of Long island, whilst the house on Plumb island is on with the northernmost of the two trees, as before mentioned. There are several trees, but they appear, when viewed at a distance, to be only two trees. This shoal is called, by some, the Bedford rock, because the English ship Bedford grounded on it, Aug. 15, 1780. E. by N. 1 league from Plumb island, lies a dangerous reef, which extends to the Gull islands, and the passage between is not fit to be attempted, as there are several rocks, some of which may be seen. In Gardner's bay you may anchor in what depth of water you please, from 5 to 8 fathoms.

On the S. W. side of Gardner's island there is very good riding. If you are to the eastward of this island, with an easterly wind, and wish to take shelter under the S. W. side, you must give the N. W. end of the island a large birth, as above directed, and as you open the W. side of the island, you may haul round the N. W. point, and anchor where you please. The soundings are regular.

Ships in turning up into Gardner's bay, and standing to the southward, will observe a single conspicuous tree on the S. E. part of Plumb island, and tacking before it is brought to touch the south end of the wood on Plumb island, will avoid the Superb's reef, which lies E. by N. ¼ N. from the low point of Gardner's island, one-third of a mile distant. It then extends S. E. by E. about two-thirds of a mile and is about 200 yards broad. Three fathoms on the middle, 6 fathoms close to the N. W. end, 4, 4½, and 5 fathoms close to the S. E. end; 5 and 6 fathoms close to the east side, lying parallel with the low point of the island. To avoid this shoal,

the leading mark into Gardner's bay is, to keep Plumb gut a ship's breadth open. Stand to the northward until Plumb gut is nearly closing on the N. E. bluff of Long island, nearly touching the S. E. point of Plumb island, and until New-London light-house is brought to the north and west of the Gull light-house; but tack before the points close, or stand into no less than 7 fathoms water, otherways you may shoot over on the Bedford reef, which is a bed of rocks, about 30 yards broad, and 400 yards long, lying S. E. and N. W. with 16 or 17 feet on its shoalest part. You may anchor in Gardner's bay in 5 or 6 fathoms. New-London light-house kept a ship's breadth open to the eastward of Plumb island, will run you up into the middle of the bay, in the deepest water, and out of the tide.

Ships, going in through the Race, or going out of New-London, in order to avoid the Middle Race rock (which has only 17 feet on it, at half flood, and lies about half way from the Race beacon and the Gull light-house) having from 30 to 32 fathoms on the north side, and from 10 to 30 on its south side, should observe the following marks:—Going out of the roads, and to the westward of the rock, which is the best channel, bring the spire of New-London church a sail's breadth open to the westward of the light-house; keep this mark until a grove of trees, standing on a high hill, on Fisher's island, comes on with the east side of Mount Prospect, or the white sand hills, on the S. W. side of Fisher's island, N. 60° E. or the Gull light W. S. W. The tide flows at the Gull, 11 h. 30 m. full and change.

To go to the northward of this rock, and to the southward of Race rock beacon, bring New-London church spire in one with the middle of the gap on Pole's hill at the back of New-London N. 8° W. Keep this mark until Watch hill light-house comes a little open of the south side of Fisher's island N. 70° E. and when the Gull light-house is in one with the middle of Great Gull island S. 73° W. you are then to the eastward of the rock. Coming up the Sound through the Race, bring Watch hill light-house just open of the south side of Fisher's island, until the south Dumplin comes open to the northward of the north part of Fisher's island, or until New-London light-house bears north; you are then to the westward of the Race rock, and may steer for the light-house of New-London and anchor in the roads, with Montock light-house S. E. by S. then just open of the west point of Fisher's island, Gull light-house S. W. by S. and New-London light-house N. by W. and the gap and spire of the church in one; you will have 12 fathoms, stiff clay bottom.

Going to the westward through the Race, and to the southward of the Race rock, steer for the Gull light-house, keeping it to the northward of west until New-London light-house bears N. ½ E. then steer for it, leaving the Gull light-house half a mile on the larboard hand. The above to be observed in case the weather should be thick, and New-London church spire not to be seen, or when the Gull light-house bears S. by W. you may then steer N. N. E. for the roads, making allowances for tides, which are very strong in the Race. Flood runs to the westward till 11 h. 30 m. full and change days of the moon: but in New-London roads only 9 h. 30 m. It rises 5 or 6 feet spring tides. The flood sets through the roads, first half flood W. N. W.—last half, W. S. W.—Ebb, first quarter sets S. S. E.—the last three-quarters, S. E. for the S. W. point of Fisher's island.

To go through Plumb gut to the westward, give Pine point, which is steep, a birth of 2½ cables' length, and steer so as to bring the north bluff of Plumb island N. by W. ½ W. Keep it in that bearing until you have

brought the poplar tree clear of the east end of Mr. Jerome's house, or until you have got Pine point to the southward of east; you will then observe a wood close inland of the high bluff of Long island, which when bearing W. ½ S. will be in one with the rocky point, which is the next point to the Oyster pond point. Steering with the wood and this point in one, will carry you clear of the reef, which lies off the north bluff.

In running through to the eastward, keep the point over the middle of the wood before mentioned, until the poplar tree is to the west end of the house; then steer to the southward, giving Pine point a birth as before. Pine point E. ½ S. will lead clear of the shoals coming to the eastward.

The tide runs 6 or 7 knots in the gut. The flood sets about N. N. W. and the ebb S. S. E. It flows at 10 o'clock in the full and change days of the moon.

Marks for the Valiant's or Middle Race rock, which has only 17 feet on it at half flood, and lies about half way from the Race beacon, and the Gull light-house.

1. New-London light-house in one with two conspicuous trees, which stand on the declivity of a hill, at the back of New-London, being remarkable for a gap on its summit, N. 4° W.
2. The west side of the south Dumplin just touching with the north hill or point of Fisher's island, N. 41° E.
3. The east bluff point of the Great Gull island in one with the west lower extreme of Little Gull island, or the Gull light-house, a small sail's breadth open to the eastward of the east part of Great Gull island, S. 64° W.
4. The north end of Long island just shut in with the N. W. point of Plumb island, S. 76° W. Gull light S. 63° W. and Mount Prospect or High white sand hills on Fisher's island, N. 60° E.

Marks for the New-Bedford reef, a bed of rocks, about 30 yards broad, and 400 yards long, lying S. E. and N. W. with 16 or 17 feet on its shoalest part.

1. The N. E. end of the northernmost grove of trees on Plumb island, touching the south declining end of the southernmost of the White sand hills on Plumb island. These sand hills are the two next south of the houses in the bay.
2. A large notch or gap in a wood on the main land, to the westward of Black point, a sail's breadth open to the northward, of a single black rock, which is between the south end of Great Gull island, and the N. E. end of Plumb island N. W. by N. Thus appears the rock

Marks for a bed of rocks about 40 yards square, lying three-quarters of a mile off shore, on the S. E. side of Plumb island. At low water the shoalest part has not more than 3 feet on them, and about the size of a small boat's bottom. It may be seen at low water. Three fathoms all around, not more than 3 feet from the rock. Other parts of the reef 8 fathoms are around the shoal.

1. The largest house with two chimneys in the bay, east side of Plumb island, in one with a large stone or rock on a hill behind the house, N. 33° W.
2. The Gull light-house touching the east end of Great Gull island, N. 65° E.
3. The White sand hills on the south side of Fisher's island, or Mount Prospect, half way open to the westward of Great Gull island. S. E. part of Plumb island, S. 74° W. and the N. E. end of ditto, N. 45° E.

Marks for a shoal in the middle of Plumb gut, which is a compound of rocks and large stones, with only 16 feet on it, having 16 and 17 fathoms on the N. E. side, 20 on the N. W. and 6 and 7 on the south side. When on the shoals look the following marks:—

1. A small poplar tree in one with Mr. Jerome's door, N. N. E.
2. A single conspicuous tree in one with the east side of a Gray cliff on Gardner's island, S. E. by E.
3. Oyster pond point W. ½ N. and the S. E. or Pine point of Plumb island E. by N. and the rocky point or bluff point of Plumb island north. The passage through Plumb gut is to the northward of this rock.

There is another rock, with only 24 feet upon it, about 400 yards from the rocky or bluff point of Plumb island.

Marks for anchoring in Plumb island roads.

Mount Prospect, or the high white sand hills of Fisher's island, touching the Gull light-house, N. 62° E. and the N. E. part o. Long island in one with the S. E. end of Plumb island, bearing West; or the east bluff points of Gardner's island in one with the low beach, which extends from the north side of the island, S. 45° E. With these marks you will have from 7 to 8 fathoms, soft mud, and quite out of the tide, and not more than three-quarters of a mile from the shore of Plumb island, where there is very convenient and good water.

From Block island a reef of rocks lies one mile distant from the N. end of the island.

Southwest ledge lies W. S. W. from Block island, 5 miles distant, having 4½ fathoms at low water, and breaks a heavy sea. As you open the passage between Montock and Block island, you will deepen your water and have soft bottom on an E. N. E. course, and when abreast of Block island, you will shoalen your water to sandy bottom; when past it you will again deepen to soft bottom.

[For more particular directions for passing Block island, see page 181.]

Bearings and distances of sundry places, from the light-house on Montock point, *taken by the Officers of the Revenue Cutter Argus.*

The S. part of Block island bears E. by N. from the light-house on Montock point, 20 miles distant.

The eastern rips lie E. by N. 1¼ mile from the light-house. The northern rips lie N. E. ½ E. 3 miles from the light-house. [These rips, although they may appear to the mariner dangerous, may be crossed with any draft, in 6, 7, 8, and 9 fathoms.]

Shagesagonuck reef, on which a spear is placed, bears N. W. ½ N. from the light-house on Montock point, 5½ miles distant; the reef ranges N. by E. and S. by W. about one-quarter of a mile in length. There is a good channel way between the reef and Long island, about two miles wide, in 3, 4, and 5 fathoms water.

Frisbe's ledge is only a place of hard rocky bottom before you approach the light-house to the westward, from 8 to 15 fathoms, and nowise dangerous to any vessel.—You may keep the shore on board from the high lands (say three-quarters of a mile) and haul round Montock.

The east end of Fisher's island bears N. by W. from the light-house on Montock, 17 miles.

Watch hill point light-house (which contains a repeating light) bears nearly N. from Montock point light-house, distant 18 miles; there is a reef extending from Fisher's island to Watch hill point, leaving a passage between the E. end of the reef and Watch point, half a mile.

The Race rock, where there is an iron spear placed, bearing S. W. by W. three-quarters of a mile from the W. point of Fisher's island, bears from Montock light-house N. W. 16 miles distant.

The Gull islands bear W. S. W. from the Race rock, 6 miles distant. The light-house standing on the West chop of New-London harbour bears N. N. W. 9 miles from the spear on the Race rock. On the Little Gull island there is a light-house, containing a fixed light bearing W. S. W. from the west point of Fisher's island, 6 miles distant.

Bartlet's reef, on which a buoy is placed, bears N. W. by W. ½ W. 8 miles distance from the Race rocks.

Little Goshen reef, where a buoy is placed, bears N. E. by E. about 3 miles distant from the buoy on Bartlet's reef.

The light-house at New-London harbour bears from the buoy on Little Goshen reef N. N. E. ½ E. about 2 miles distant, and contains a fixed light.

The S. W. ledge, where a buoy is placed, bears N. by W. from the Race rock [illegible] miles distant.

The E. chop of New-London harbour bears N. by E. ¾ E. from the S. W. ledge, 1½ mile distant.

The light-house bears from the buoy on S. W. ledge N. W. by N. 1½ mile distant.

Description of *Long island.

Long island, from Montock point to Red hook, extends W. by S. about 102 miles, and is at the broadest part about 25 miles across. The land is generally pretty low and level, excepting a few hills, which lie about 40 miles to the westward of Montock point. and Hempstead hill, which is 319 feet above the level of the sea. Along the south side of the island a flat extends about a mile from the shore; in some places it runs out a mile and a half. Your course along this flat from Montock point to Sandy-hook is S. W. by W. ¾ W. 14 leagues; and then W. by S. 22 leagues. The E. end of the flat is sand, the middle and west parts are sand and stones. About 4 leagues distant from the island there are from 15 to 18 fathoms water, and from that distance to 20 leagues, the water deepens to 80 fathoms; in the latter depth you will have oozy ground, and sand with blue specks on it. About 4 leagues off the E. end of the island, you will have coarse sand and small stones; and at the same distance from the middle and west end, there is small white sand and gravel with black specks. From the S. W. end a shoal extends about 6 miles towards Sandy-hook, which forms the East bank.

Directions from Gardner's island *to* Shelter island.

If you fall in with Gardner's island, you must sail on the N. side of it till you come up with a low sandy point at the W. end, which puts off two miles from the high land. You may bring the island to bear east, and anchor in 7 or 8 fathoms water, as soon as within the low sandy point.

Directions from Gardner's island *to* New-London.

Your course from Gardner's island to New-London is N. ½ E. about 5 leagues. In steering this course, you will leave Plumb island and Gull islands on your larboard, and Fisher's island on your starboard hand. In this pass you will go through the Horse race, where you will have a strong tide. The flood sets W. N. W. and the ebb E. S. E. This place breaks when there is any wind, especially when it blows against the tide. Your soundings will sometimes be 5 fathoms, at others 15 and 20. In passing the west end of Fisher's island, you must give it a birth of 3½ miles, as there are several rocks to the westward of it; then your course to the †light-house is N. N. W. distant two leagues; but in going in here you must not make long hitches; you will leave a sunken ledge on your larboard, and one on your starboard hand. When within one mile of the light-house, you may stand on to the eastward till the light bears N. N. W. and then run up about N. N. E. till abreast of the light, where you may safely anch[illegible], or run N. for the town. See page 201 for sailing out of New-London harbour.

* Long island Sound is a kind of inland sea, commencing at Sand's point, and extending to Gull island light. It is from 3 to 25 miles broad, dividing it from Connecticut, and affords a safe and convenient inland navigation.

† New-London light-house stands on the west side of the harbour, and projects considerably into the Sound. It contains a fixed light.

Directions for vessels coming from sea, and bound to New-London, *or the westward.*

Keep Gull island light to bear W. N. W. until you judge yourself within about two miles of the light, your course then to New-London light (after you pass Race rock, which lies W. S. W. from the point of Fisher's island, distance three-quarters of a mile) is N. N. W. In coming in or going out of New-London (when opposite the Gull light) bring the Gull light to bear S. S. W. and New-London light N. N. E. leave the light on your larboard hand in going into the harbour; keep well to the W. if it be winter season, and the wind at N. E. and stormy; your course to break off a N. E. gale, in good anchorage is W. N. W. from the Gull, distance 5 miles, then haul up, if the wind be N. E. and steer N. W. until you get into 10 fathoms of water, muddy bottom. Anchor as soon as possible; you will be between Hatchet's reef and Black point; this is the best place you can ride in, if you have a N. E. gale, and thick weather, and cannot get into New-London. Saybrook light will then bear W. by N. or W. N. W. which is a fixed light, elevated 35 feet above the level of the sea.

What makes me give these directions is because Saybrook is no harbour for vessels either day or night, except for those who are well acquainted; it will be well to give Saybrook light a birth of 3 or 4 miles, and steer W. by S. 22 miles. You will make Faulkland island light, which give a birth of 3½ miles, leaving it on the starboard hand; your Sound course then is W. S. W. ½ W. 45 miles distant, which will carry you up to Eaton's neck, leaving *Stratford shoal on the starboard hand. This shoal bears N. N. W. from Sataket (Long island) and south from Stratford point light. In leaving Faulkland island light 3 miles, steer W. until you get into 5 or 7 fathoms water, distance 25 miles to Stratford point light, hard bottom, which leaves Stratford shoal, that bears south from the light, on the larboard hand; then your course is W. S. W. to Tina Cock point.

Directions for New-Haven.

From Faulkland island (E. S. E. from which is a hard ridge, on which the tide rips and you have bold water all round) bound into New-Haven, give the island light a birth of 10 or 12 miles, then haul up N. W. giving New-Haven †light a birth of two miles, on account of a ledge bearing S. W. from the east point of the harbour, on which is a black buoy, bearing S. W. by S. from the light-house, distant 1¼ mile, and from the white buoy on Adams' Fall S. by W. distant three-quarters of a mile. There is a spindle on Quickses rock, which bears from the light S. by E. distant three-quarters of a mile. The buoy on Adams' Fall bears from the spindle N. W. by W. distant three-quarters of a mile. The buoy on S. W. ledge bears from the spindle W. S. W. distant half a mile.

Vessels bound in from the eastward, may pass between the buoy on S. W. ledge and the spindle, as there are three fathoms water in this chan-

* For description of Stratford shoal, see note to page 196.

† New-Haven light-house is situated on Five Mile point, at the entrance of the harbour, and lies on the starboard hand. The lantern is elevated 35 feet above the sea, and contains a fixed light.

nel, keeping about midway between them, and leaving the white buoy on Adams' Fall to the eastward of them 20 rods, and then steer for the end of the wharf. On this shore, in channel way, you will have 3, 4, and 5 fathoms water, muddy bottom. Bringing the light to bear S. E. you may anchor in Morris' cove, near the east shore, in two fathoms water, muddy bottom. Your course from this up the harbour, with a fair wind, is north. Give the Fort rock, in running for the pier, a small birth.

Vessels bound in from the westward, will leave both buoys on the starboard hand, and they may pass with safety within 20 rods of either of them. If beating in, your soundings will be from 2 to 3 and 4 fathoms. Stand in no farther than 2 fathoms upon the west shore, on which you will have hard bottom. In beating up, after getting in muddy bottom (which is channel soundings) it is best to keep the lead a going often, on account of bordering on the west shore, where you will have hard bottom and soon aground.

Directions for sailing by the light-house on Fayenweather's island, *at the entrance of* Black Rock harbour *on the north shore of* Long island Sound.

The harbour of Black rock, although safe and easy of access, is so situated that no direct course can be given to steer for the *light, that will carry you direct into the harbour, as that depends wholly on the distance you are from the light at the time you make for it; therefore judgment is to be used in varying the bearing of the light as you draw near in, which is easily done by observing the following rules. In coming from the westward, if you mean to harbour, to avoid the reef called the Cows, you may bring the light to bear N. by W. and run directly for it until within three-quarters or half a mile distance, when, if occasion requires, you may stretch into the westward in a fine beating channel, having from 5 to 3 fathoms water, and good ground. As you approach the light, which stands on the E. side of the harbour, the water grows gradually shoaler to about two fathoms. The mouth of the harbour, although not very wide, is not difficult; the light bearing east brings you completely into the harbour. The island on which the light stands, and the reef called the Cows on the south and west side from the harbour of Black rock. On the easternmost rock of this reef stands a spindle, distant from the light half a league, and from which the light bears N. The light stands 44 rods from the south point of said island, at low water. From this point puts off a single rock, 30 rods distant, on which is 8 feet at high water, making in all about 74 rods distance. The light bears from this rock, N. by E. ½ E. As soon as you pass this point or rock, the harbour is fairly opened to the northward, in any point from N. to W. N. W. You can run for the light with safety; observing, as you draw nearly in, the above directions, and a due attention to the lead. The bottom for some distance from this rock southerly, is hard, but you may continue your course, and it will soon deepen. It is safe and good anchorage to the eastward of the light, for all winds from W. S. W. to N. N. E. quite down

* Black rock light was erected on Fayenweather island, near Bridgeport, at the entrance of Black rock harbour, but blown down in Sept. 1821. We mention the subject presuming it will be re-built on the same spot, when these directions will apply. It contained a fixed light.

Engraved for the American Coast Pilot, 10th Ed.
NEW YORK CITY.
Powles Hook
Red Hook
STATEN I.
LONG I.
Bluff Pt.
Gravesend Bay
Coney I.
Buoy
West Bank
East Bank
Romer
The BAR.
Light
Sandy Hook
Highlands of Neversink
3 Statute Miles.
NEW-YORK, PUBLISHED BY E.M. BLUNT, for W. HOOKER, 1822.
E. Blunt del.
Hooker sculpt.

to the mouth of Bridgeport harbour, which is distant about two miles. The shore on the eastern side of the light is bold too, in 3 fathoms close aboard the light, and so continues until you are quite down to the south point of the island. This bay to the leeward of the light, between that and Bridgeport, is one of the best bays for anchorage on the north shore in Long island Sound, and affords from 4 to 3 fathoms water, the light then bearing west. In coming from the eastward, crossing Stratford point light close aboard, your course to Black rock light is W. by N. and you keep soundings on the starboard hand, not less than 4 fathoms nor more than 8.

Directions for vessels bound to New-York.

If you fall into the southward, and make Cape May, it would be prudent to keep about 3 leagues off, to avoid Herreford bar, which lies from 4 to 6 leagues from the cape, to the northward, and 8 miles from the inlet of that name. This inlet is frequented by the Delaware pilots, having no other harbour to the northward until they reach Egg harbour. After passing Herreford bar, you may then haul up N. E. in 9 fathoms water, which course continued will draw you into 5 fathoms: as you approach Egg harbour, you will there have fine white and black sand intermixed with small broken shells; by continuing the same course, you will deepen your water to 8 or 9 fathoms, and so continue till you draw near Barnegat, which will alter your soundings materially, as there is a channel runs in a S. E. direction from Barnegat. The soundings off the shoal is mud, shells, and gravel, mixed together. The shoal off Barnegat does not extend beyond 3 miles from the beach, and is very steep too; you may turn this shoal in 6 fathoms water, within pistol shot of the outward breaker. It would always be prudent in night-time to keep in 9 or 10 fathoms water at least, in turning this shoal. The soundings are so much to be depended on, that the moment you loose the above soundings you are past the shoal, when you will have fine black and white sand and very hard bottom; you then may haul in for the land N. by E. which course will bring you along shore in from 15 to 17 fathoms water; but if the wind and weather permit, I would recommend hauling in N. N. W. which will bring you in with the southernmost part of the Woodlands, which is very remarkable, having no other such land in the distance from Cape May up to the Highlands, and can be distinguished by its being very near the beach, and extends to Long branch. By passing Barnegat in the day-time, it may easily be known; should you be so far off as not to see the breakers, you will see a long grove of wood back in the country, apparently 3 or 4 miles long, known to the coasters by the name of the Little Swamp, and lies directly in the rear of the inlet of Barnegat, so that by sailing to the northward, your having the north end of this land directly abreast, you are certainly to the northward of Barnegat; there is also another grove directly in the rear of Egg harbour, known by the name of the Great Swamp, which has the same references as respects Egg harbour—but that the one may not be taken for the other, it must be observed, the Great Swamp of Egg harbour will appear much higher, and in length 8 or 10 miles: neither can they be seen at the same time, as Barnegat and Egg harbour are 15 miles apart. Barnegat bears due S. by W. 45 miles from Sandy-hook. In hauling in for the Woodland before mentioned, you

may, if the wind is off the shore, keep within a cable's length of it all the way, until up with the Highlands, and should your vessel not draw more than 10 feet water, you may continue until you come up with the northernmost part of the cedars that stand on Sandy-hook; then you must steer N. N. E. to give the False hook a birth, keeping about half a mile from the beach, until you bring the light-house to bear S. W. ½ S. then steer W. by N. till you bring the light-house open with the east point of the Highlands, then steer N. by W. which will carry you through the swash channel up with the buoy of the Middle leaving it on the starboard hand.

[NOTE. S. ½ E. from Sandy-hook light, 14 miles distant, is a ledge, about 3 miles from the shore, with not less than 3½ fathoms on it.]

To enter Sandy-hook *channel way.*

When up with the Highlands, keep 3 miles from the shore to avoid the Outward Middle, steering to the northward until you bring the light-house to bear W. then steer in for it, as the flood outside sets to the northward, but when a little way in, it sets to the westward. In approaching the light-house, you must not haul too nigh the shore, on account of the False hook—by keeping a mile from the beach you will avoid that shoal; when you have got in so far as the point of the hook, where the beacon stands, you must then haul in the bay W. S. W. but if you mean to anchor in the bay, haul in S. W. giving the point the distance before mentioned, until you bring the light-house to bear E. by N. or E. N. E. where you may anchor in from 5 to 7 fathoms water, soft muddy bottom. But should you wish to proceed to New-York, when you have come in as before directed, and got abreast of the beacon, or the point of Sandy-hook, steer up W. by N. until you bring the light-house to bear S. E. and Brown's hollow to bear S. ½ E. you must then steer up N. by E. ¼ E. for the bluff of Staten island, which will at that time bear exactly north from you; and that you may not be deceived with respect to Brown's hollow, it is the hollow which makes the termination of the high lands to the westward; by steering then as before directed, you will turn the S. W. spit—continue steering N. by E. ¼ E. until you shoal your water, which you soon will do if it is young flood, as it sets from 2½ to 3 knots, to the westward; here you will observe, at the time you turn the spit before mentioned on the Jersey shore, above the Narrows, two hummocks of land, each forming as it were a saddle, thus: The easternmost of the two is the mark for coming up the channel, so as to avoid the Upper Middle, by keeping it just open with the bluff of Staten island, which will be the case if you turn the spit as before directed; this will bring you up channel way, when you have sailed 5 or 6 miles the course described, and with this mark open, then you must haul more to the eastward, until you open the other hummock, which is called the Westernmost hummock; by keeping both easterly and westerly hummocks open to your view, you

* The light-house on Sandy-hook contains a FIXED LIGHT. It is lighted with 18 patent lamps, to each of which is fixed an eighteen-inch metallic reflector. The strength of light in this lantern is greater than any other on the coast, and if properly attended may be seen at the distance of 10 leagues.

avoid the Middle and West banks entirely, and come up channel way through the Narrows. When thus far, you must, to pass Fort Diamond, keep Staten island shore aboard. The mark to pass Fort Diamond is to keep Bedlow's or Pesto island open with the point of Long island; for if you can see Bedlow's island in coming through the Narrows, there is no danger from the Narrows to come up to New-York; you will steer up for Bedlow's island to avoid the Mud flat, which you leave on your starboard hand; this flat is a kind of oyster bed, or bank of mud and shells, and has not more than 11 feet on it at low water; but to avoid this flat do not stand too far to the westward on account of Robbin's reef, which to avoid, running on the west side of the channel, the mark is, to keep the point of land up the North river (on which Fort Lee stands) open with the east side of Bedlow's island, after which there is nothing material to obstruct the navigation to New-York, it being very steep near the point of Governor's island, and the rocks near the Battery do not exceed 100 yards from the shore. There are 3 reefs of rocks in the East river, viz. one off the north side of Governor's island with 15 feet water on it, one off the Battery having 9 feet over it, and one off Corlaer's hook, which is very dangerous; they may generally be distinguished at all times by the rip of the tide going over them, both flood and ebb.

Or you may, after making the Highlands of Neversink, run boldly in within 3 miles of the beach, and in steering along to the northward, observe to keep in about 8 fathoms water, until you get the light-house to bear W. ½ N. then if you have a round hill, called Mount Pleasant, some distance in Jersey, in one view with the land about one-quarter of a mile to the southward of the light-house, you are in a situation to pass the bar; steer in W. by N. until you are over it; you will have on it, at low water, 3 fathoms; when over you will be in 4½ fathoms—pass the Hook and light-house about half a mile, at which distance you will have 5 and 6 fathoms. When you have the point of the Hook, on which the beacon stands, bearing S. S. E. you may then haul to the southward, and round the Hook, and come too, from one to two miles distant, the Hook bearing from E. to N. E. in good holding ground, 5 fathoms water. When you make Long island, it is necessary to keep somewhat in the offing, on account of the East bank, and observe the same marks running in as above.

The following are the bearings, courses and distances of the buoys placed in the harbour of New-York.

The black buoy on the bar, bearing E. by N. from the light-house, distant 3½ miles.

The white buoy on the bar, bearing E. by S. ½ S. from the light-house, 3¼ miles distant, and S. ½ W. from the black buoy, 1¾ miles distant: between these buoys is the channel.

The black buoy on S. W. spit, 3¼ miles from the light-house, bearing N. W. by W.

The white buoy of the Nole, bearing N. W. by N. from the light-house, distant 5½ miles.

The black buoy of the Middle, distant 7½ miles from the light-house, bearing N. ½ W.

The white buoy of the West bank, N. ¾ W. from the light-house, 9½ miles distant.

Port of New-York.—Harbour Masters' Regulations.

No vessel shall lie moored in the stream nearer than two-thirds the distance from the wharves to Long island; nor shall any vessel lie at single anchor, within that distance, more than one day.

2. Any vessel which shall foul another, properly moored in the stream, shall be liable for all damages.

3. All vessels lying at the wharves or piers, or in the basins or slips, shall, unless otherwise directed, lie with their heads up the dock; have their lower, and topsail yards well topped by the starboard lifts; their moveable fore and aft spars and spritsail yards rigged in; stern davits, out-riggers, and bumpkins unshipped; and the anchors taken up, with the crown in upon the forecastle. And any vessel which shall, through failing to comply with this regulation, be the means of damage to another, shall be liable for the damage.

4. All vessels at the end of a wharf or pier, shall haul either way, to accommodate vessels going in or coming out.

5. All vessels not discharging or receiving cargoes, shall make room for vessels needing immediate accommodation; vessels wishing to discharge, to have the preference of birth to those loading. Vessels returning, or putting into port in distress, always to be first accommodated. As to the fact of vessels being *bona fide* employed in these particulars, the Harbour-master is sole judge.

6. All vessels shall have on board a ship-keeper, or person to take care of them—and, if any vessel shall be required to remove, and no person be found on board for that purpose, the harbour-master will cause the same to be removed, at the expense of the master, owner, or consignee, who shall also be liable for all damages occasioned by such vessel.

7. No vessel shall be moored or fastened in such place or manner as shall, in any wise, obstruct or interfere with the steam or team ferry-boats, at any ferry of this city.

8. No ballast shall be thrown overboard, on this side of Sandy-hook, below low-water mark; and in the harbour, all ballast must be landed above high water mark.

9. No person shall incumber any of the wharves, piers, or docks, with spars, boats, goods, or other things.

10. No vessel, loaded in whole or in part with loose hay or straw, shall be permitted to lie or come within 50 yards of any wharf, pier, or slip, while having on board any fire or lights, candle or lamp; and vessels having gun-powder on board, shall discharge the same before coming within that distance.

11. No fire shall be made or kept on board of any vessel, at any of the wharves, piers, slips, or basins, after 8 o'clock at night, or before day-light in the morning.

12. No pitch, tar, or other combustibles, shall be heated on board any vessel at any of the wharves, piers, slips or basins of this city; but all such business shall be done on floating stages or boats, or on the wharves, at least 6 feet from the edge of the wharf, and with a bucket of water always ready.

All persons failing to comply with the foregoing Regulations, are liable to a penalty of fifty dollars for each offence, and for all damages, with costs of suit.

Harbour-Masters' Fees.

On all vessels of the United States, and on all foreign vessels permitted by law to enter on the same terms as vessels of the United States, which shall enter and load or unload, or make fast to any wharf, *one cent and a half* per ton, according to the tonnage in the vessel's register or papers.

On all other vessels, *double that rate.*

The fees are payable in forty-eight hours after arrival, on penalty of paying double the amount, and costs of suit.

For adjusting any difference respecting the situation or position of any sloop or schooner engaged in the coasting trade, on the application of the person having charge of such vessel, *two dollars*, to be paid by the party in fault.

Description of the Coast to the eastward and westward of Sandy-hook.

If you come in near Cape Hatteras, be very careful of its shoals, and make your way to the N. N. E. which will carry you on the soundings of the Jersey shore. When you get 20 fathoms water in lat. 40° 00′ north, then haul in to make the land, by which you will avoid the difficulties of the coast and the shoals nearer in shore; but if you cannot follow this direction, see the following.

When you are up with Chingoteague shoals, in 15 fathoms water, it is near enough to approach them; from this station, steer N. by E. which will bring you up nearly with Great Egg harbour on the Jersey shore, but you must use your lead on approaching this shore, and come no nearer to it than 10 fathoms water; from Great Egg harbour to the lat. of 40° N. the Jersey shore trends nearly N. E. and from lat. 40° to the Highlands of Neversink, the land trends nearly north; in all this route, 10 fathoms water must be kept, or near it.

When you are full up with the Highlands of Neversink, if you see nothing of a pilot, you may stand on, but keep 3 miles off the bare part of Sandy-hook land, till you are up with the southern cedar trees on the Hook, then near the Hook, till you get 3 fathoms water on the Outer Middle ground, at which time you will be 2 or 2½ miles from the Hook. On this bank you must edge off and on, in 3 or 3½ fathoms, for the bank lies rounding as the Hook does, and stops a little short of its north point; but long before you reach that, you will bring the light-house to bear W. ½ S. or W. by S. when you must immediately steer in west; this will bring the light-house a little on the larboard bow, and if you see the Beacon light, near the extreme point of the Hook, you must take it on the same bow also, but pass it about two cables' length, when you must edge away to the W. S. W. about two miles, and anchor with the light bearing from E. to E. N. E..

If you should fall in with the east end of Long island, where there is a light-house, which does not differ much in latitude with Sandy-hook light (but differs very considerable in soundings) and bound to the westward for the light-house, or the Highlands of Neversink, you must come no nearer to Long island than 15 fathoms water; in this route, which is about 108 miles from Montock light to Sandy-hook light (and the courses between W. by S. and S. W. by W. ¾ W.) it is necessary to use the lead after you run 60 miles, to know how you approach the Jersey shore—10 fathoms water is near enough at night. On a clear day, and so far distant from the Highlands as to discern them from the deck of a large vessel, bearing N. W. by W. you will find soundings on a bank lately discovered by the pilots, in 10 fathoms: as you approach the Highlands you will have from 16 to 18 fathoms.

[NOTE.—*Masters and Pilots from New York will oblige the author of the American Coast Pilot in giving the soundings and extent of this bank.*]

If you should pass Nantucket shoals in 38° north latitude, or 38° 30' or 39° 00' or 39° 30' you will, if possible, observe when you leave the Gulf Stream, from which advancing about 10 leagues, you may begin to expect soundings, and a S. W. current as soon as you get soundings: then the observation by lead and line is to aid the navigator.

If you are on soundings, and running in for the land to the northward of both the Egg harbours, the northern one (which is often called the burning hole) lies in lat. 39° 30' north; being near the land, and steering the above mentioned course, and you find you have suddenly deepened your water from less to 13 fathoms, heave about immediately, for many vessels have been deceived by a hole in these soundings, of the dimensions of about four acres of ground, and have been totally lost.

If you are beating to windward, off the Hook, waiting for a pilot, or for wind (night or day) in standing to the northward, when you suppose the light-house of the Hook bears W. by S. it is near enough. When you approach Long island, the soundings are fine white sand and smal

ble; but on the Jersey shore the soundings are coarser and darker; there is what is called a Hook channel in this channel; the soundings are mud and sand.

W. S. W. and E. N. E. moon makes full sea at the Hook. Variation half point W.

Description of New-York bay.

York bay is 9 miles long, and 4 broad, and spreads to the southward before New-York. It is formed by the confluence of East and Hudson's rivers, and embosoms several small islands, of which Governor's island (on which are Castle Williams and Fort Columbus) is the principal. It communicates with the ocean through the Narrows, between Staten and Long islands, which are scarcely two miles wide. The passage up to New-York from Sandy-hook (the point that extends farthest into the sea) is safe, and not above 18 miles in length.

Directions for sailing from Sandy-hook *light-house to* Cape May, *or light-house on* *Cape Henlopen.

When sailing from Sandy-hook light-house, bring it to bear W. N. W. and steer E. S. E. one league, which will carry you outside the Middle ground; then steer S. if night, till you pass Barnegat; if day-time, when passing, you may go nigh the breaker, say 5½ fathoms. In sailing between the Highlands and Barnegat in the day-time, you may go within one-quarter of a mile of the land, if the wind is off shore. When you have passed Barnegat; steer S. W. by S. 10 or 11 leagues, which will carry you up with Great Egg harbour, which has a shoal bank one league from the shore, that has not more than 6 feet water on it.

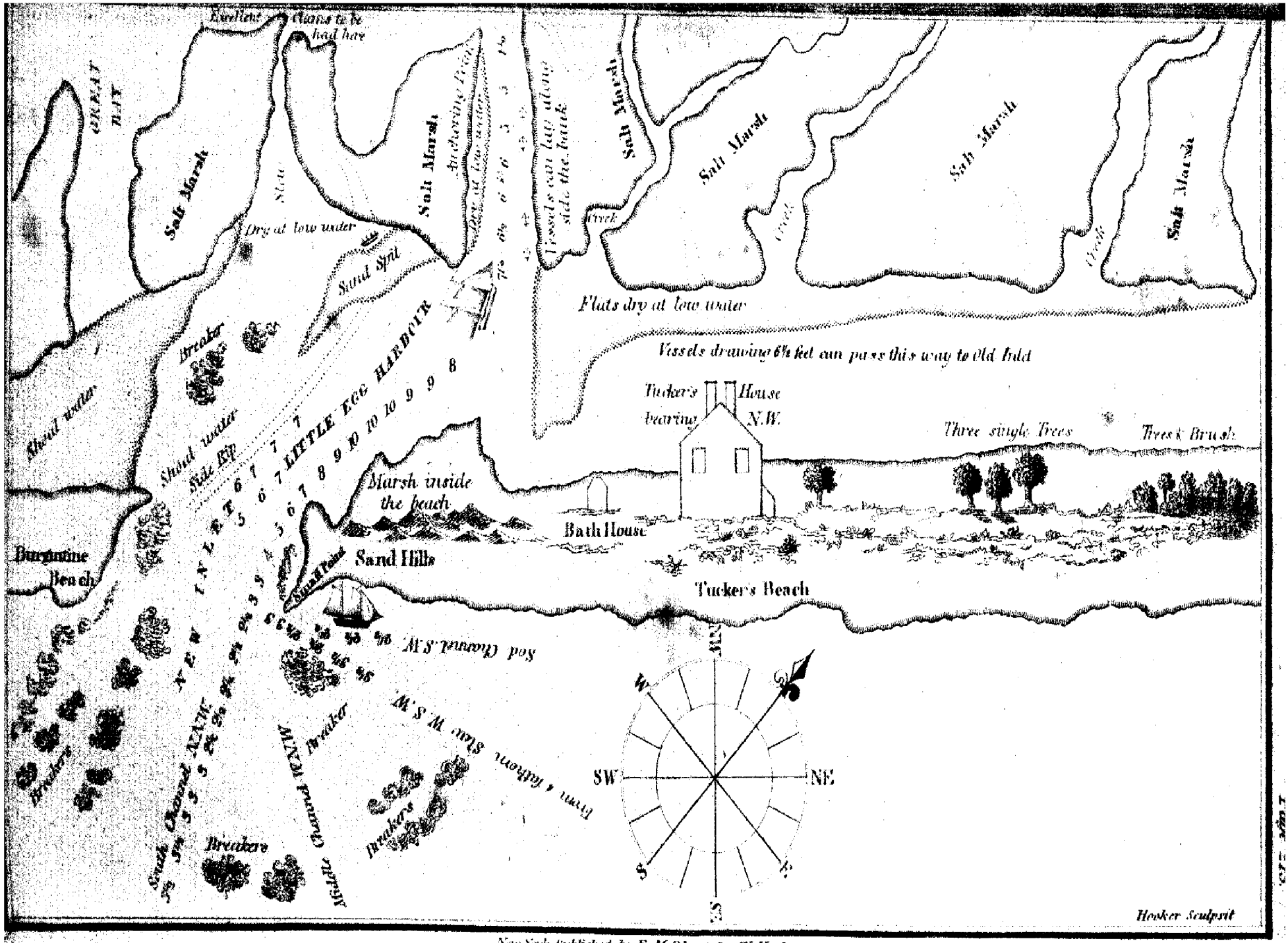
This land may be known by its appearing like broken islands, with the †Highlands of Neversink to the westward of Sandy-hook, which has a singular appearance from any land on that coast. In the day-time you may go within two leagues of the shore, but in the night it will be prudent to keep further off. When you have passed Great Egg harbour, steer S. W. by W. 10 leagues, which will bring you up with Cape May.

Between Barnegat and Cape May there are two inlets, one of which is fit at high water for vessels drawing 15 feet, viz. Little Egg harbour.—Great Egg harbour may be run for in time of danger, and will give 12 feet at high water; the navigation is not so safe as other places.

* This cape forms the S. W. point of Delaware bay, and is 20 miles from Cape May.

† Neversink hills extend N. W. and S. E. about S. W. from Sandy-hook, on the Atlantic ocean, to Rariton bay, and is frequently the first land discovered by mariners when they arrive on the coast. To the politeness of SAMUEL L. MITCHELL, late Senator in Congress, and now Professor of Natural History in the University of New-York, F. R. S. &c. we are indebted for the correct altitudes of the following places, which present themselves to mariners as they approach them:—

Mount Mitchell, the highest point of the Neversink, Monmouth county, New-Jersey,	232 feet.
Tompkin's Hill, on Staten island,	307
Hempstead Hill, Queen's county, Long island,	319



Hooker Sculpsit

New York Published by E. M. Blunt, for W. Hooker.
1822.

In running for Cape May, while steering your S. W. by W. course, you will pass five inlets before you come up with the cape, viz. Coston's, Townsend's, Herreford, Turtle gut, and Cold Spring, all which have bars lying off their entrances: when abreast of Herreford inlet, you may, if bound to Cape May, steer W. by S. but if bound to Cape Henlopen, steer S. S. W. till the light-house bears west, when you may run for it till within two miles.

E. by S. ¼ S. from Cape May, between 4 and 5 leagues distance, lies a shoal which sometimes breaks and has the appearance of danger; there are never less than 18 feet water on it at any season, and the passage safe.

Little Egg harbour.

During the winter season it frequently occurs that vessels are prevented entering the Delaware or Sandy-hook by violent north-west winds, and often driven off the coast into the Gulf: to remedy, so far as possible, this inconvenience, the Author inserts a plan of Little Egg harbour, which, with the directions, will enable them to make a safe harbour, viz.—

Running through the Sod channel, keep within 30 or 40 yards of Small point, and you will have 2½ fathoms; pass the point, then gradually haul round, giving the breakers a small birth; or steer in for the beach, when you are opposite Tucker's house, until you are in 4 fathoms, then steer W. S. W. which course will carry you through the same channel.

[☞ *See the Plate.*]

Directions for sailing in by *Cape May.

You may run in for Cape May till within three-quarters of a mile of the wind-mill, which stands on the shore, about two miles to the northward and eastward of the pitch of the cape, where are several houses which are inhabited principally by pilots.† From abreast of the wind-mill keep the shore close on board (when you will be in 5 fathoms water) till you double round the Cape, when you will leave the Great shoal on your larboard hand, over which it contionally breaks, when covered, bearing S. E. by E. from the Cape, distant 1½ mile, which is bare at low water. After you have doubled the cape, steer north till it bears S. E. ½ S. when you must steer N. W. till you deepen into 7 and 8 fathoms. In running the above course, you will have from 5 to 2½ fathoms, before you come into 8 fathoms, which is 3 leagues distant from the cape. After you have got into 8 fathoms, you will immediately come into 3 fathoms, when you must steer N. W. by W. 5 leagues, which will carry you into the main channel, between the Brandywine on your larboard, and Cross ledge on your starboard hand, bearing N. N. W. and S. S. E. from each other, distant 3 leagues. In running the above course, you will have 3, 3½, and

* This Cape forms the N. E. point of the mouth of Delaware bay.

† As soon as you are in sight of the Cape, and in want of a pilot, you better hoist some signal, as those who do not are considered not in want of one.

2¾ fathoms, till you come near the main channel, when you will deepen into 5 fathoms, which is a swash that runs up to the eastward of the Cross ledge; still keep your N. W. by W. course till you have crossed this swash, when you will shoal your soundings into 2½ fathoms, and then deepen into 7 fathoms, which is the main ship channel, when you must steer N. W. till you have only 5 fathoms, which is on the Fourteen feet bank, and then alter your course to N. N. W. for the buoy of the Cross ledge. One league distant from this ledge, lies a shoal, called Joe Flogger, bearing W. S. W. from the buoy.

Directions for sailing in by *Cape Henlopen.

Bring the light-house to bear west, and run for it till within two miles: When abreast of it you will have 15 or 16 fathoms water. After you have passed it, steer W. N. W. till you bring it to bear E. S. E. where you may anchor in 3 or 4 fathoms. If you intend running up the bay, bring the light-house to bear south, and steer N. by E. with a flood tide, and N. by W. with an ebb. The flood sets W. S. W. and the ebb E. N. E. In steering the above course 11 or 12 miles, you will make the Brown, which you leave on your larboard hand: it has a buoy on it. Continue your course north till you bring Cape May to bear S. E. by E. when you will make the Brandywine on your starboard hand, which has a buoy on it; then steer N. W. by N. or N. W. by N. ¼ N. and you will have 7 or 8 fathoms water. The channel between the Brown and Brandywine is not above one mile wide. South-east moon makes high water here at full and change. There are two banks about midway between the Brandywine and Cross ledge, called Fourteen feet bank, and Ten feet bank, the former you leave on your larboard, and the latter on your starboard hand. These banks are not in the way with a fair wind, for they lie about N. W. by W. and S. E. by E. Cross ledge lies 9 miles from the Brandywine, which you leave on your starboard hand; it has a small vessel with a mast in her, for a buoy, which you may see 2 or 3 leagues. Cross ledge is about 8 miles long, bearing N. W. by N. and S. E. by S. the Middle you leave on your larboard hand (on which the buoy is placed.) When you pass the Middle, steer N. W. 2 leagues for Bombay hook, and when it bears N. W. or N. W. by W. you must be careful of a bar that lies 1½ mile from it, called Bombay hook bar, which has not more than 6 feet on it, at low water. Your course to Reedy island, with a fair wind, is N. W. by N. distant 15 miles. If you have the wind ahead, be careful of Stony point ledge, which you leave on your starboard hand, as the channel is not more than 2 miles wide. This ledge is partly dry at low water, and bears S. E. from Reedy island, distant 4 or 5 miles.

* Cape Henlopen lies in north lat. 38° 47′, and in west long. 75° 06′. There is a light-house here, a few miles below the town of Lewis, of an octagon form, handsomely built of stone, 115 feet high, and its foundation is nearly as much above the level of the sea, containing a fixed light. The lantern is between 7 and 8 feet square, lighted with 8 lamps, and may be seen in the night 10 leagues at sea. Vessels off the Delaware, upon hoisting a jack at the fore-topmast head will be immediately furnished with a pilot.—None, however, are to be depended on, unless they have branches, and a certificate from the board of Wardens of Philadelphia.

Directions from Reedy island *to* Philadelphia.

When you pass Reedy island, be careful of a long shoal that lies to the N. N. W. of it 1½ mile in length, called the Pea Patch, which you leave on your starboard hand. In passing said shoal point, keep your larboard hand best on board till you bring the river to bear N. E. or N. E. by N. when you may stand up for New-Castle. This place is 40 miles from Philadelphia. When you have passed it about a mile, you give the larboard hand a birth, as there is a flat shoal near half a mile off. If you have a fair wind, you may keep in the middle of the river. This river winds from New-Castle to Marcus hook, from N. E. to E. N. E. distant 20 miles. Your course from this to Chester island is N. E. by E. 4 miles. You leave said island and a long low point that lies W. S. W. from it, on your larboard hand, giving it a good birth, and keeping your starboard hand best on board, till you come up with *Billings' port (which is 12 miles from Philadelphia) when you will haul up for Mud fort; but before you come up with this fort you will see a black buoy, in channel way, which you may go close to. Run direct for this fort, which is an E. N. E. course, till you are abreast of it, when you will see a small island on your larboard, and another on your starboard hand, which you must go between. When you have passed between these islands, steer E. by N. two miles, when you must haul up N. E. by N. for Gloucester point, distant 1 mile, from which you must keep your larboard hand best on board, and steer north 3 miles, which will carry you opposite Philadelphia.

TIDE TABLE.

MOON	S. E. by E. S. E. S. S. E. S. by E. S. S. S. W. S. W.	make full sea at	Cape May. Cape Henlopen. Bombay hook. Reedy island. New-Castle. Chester. Philadelphia.

SITTING OF THE TIDES WITHIN THE BAY OF THE CAPES.

First quarter flood,	W. N. W.
Second to last quarter,	N. N. W.
First quarter ebb,	E. S. E.
Second to last quarter,	S. S. E.

Directions from Cape Henlopen *to* †Cape Henry.

When you leave Cape Henlopen, bound to Cape Henry, give it a birth of 3 or 4 miles, and steer S. S. E. 11½ leagues, as there is a shoal bank that lies S. by E. ½ E. from Cape Henlopen, 11 leagues distant, called Finwick's island shoal, and 3 leagues from Finwick's shoal, S. by E. lies Winter Quarter shoal; the former has 10 feet water, and the latter 13

* This is a high sandy point and bluff.

† This cape lies 12 miles S. by W. of Cape Charles, both of which form the entrance of Chesapeake bay. On it is a light-house whose lantern is elevated 120 feet above the sea, containing a fixed light.

feet on it. They lie about 5 leagues from land. If you turn in or out by Cape Henlopen, be careful of the Hen and Chickens, which lie S. by E. from said Cape, one league distant. There is a bank that lies S. E. by S. from the light-house, distant 5 leagues, which has not more than 5 fathoms water on it. When you judge yourself to the southward of Winter Quarter shoal, then you may steer S. by W. 5 or 6 leagues, which will bring you the length of Chincoteague shoals, which lie in latitude 37° 58' N. bearing due south from Cape Henlopen, 17½ leagues distant, and 2 leagues from land: between it and the shore there are 10 and 12 feet water.

Remarks on the land from Cape Henlopen *to* Chincoteague shoals.

Rehoboth bay lies 9 miles to the southward of the light-house. This bay is only for small vessels that draw not more than 6 feet water. The N. end of Finwick's island lies 15 miles to the southward of the light-house, which island parts Delaware from Maryland. It has a grove of trees on it, and you will have 6 or 7 fathoms water, within a league of the land, and a strong current setting to the southward. When you are within half a mile of Finwick and Chincoteague shoals, you will have 12 fathoms water. The land from Chincoteague to Cape Charles makes broken land, with islands, and several small inlets. There is a good harbour within Chincoteague shoals, which goes by the same name. You leave Chincoteague shoals on your larboard hand, and Matomkin harbour about 3 leagues W. S. W. from Chincoteague. Matomkin harbour has 12 feet water on the bar at spring tides.

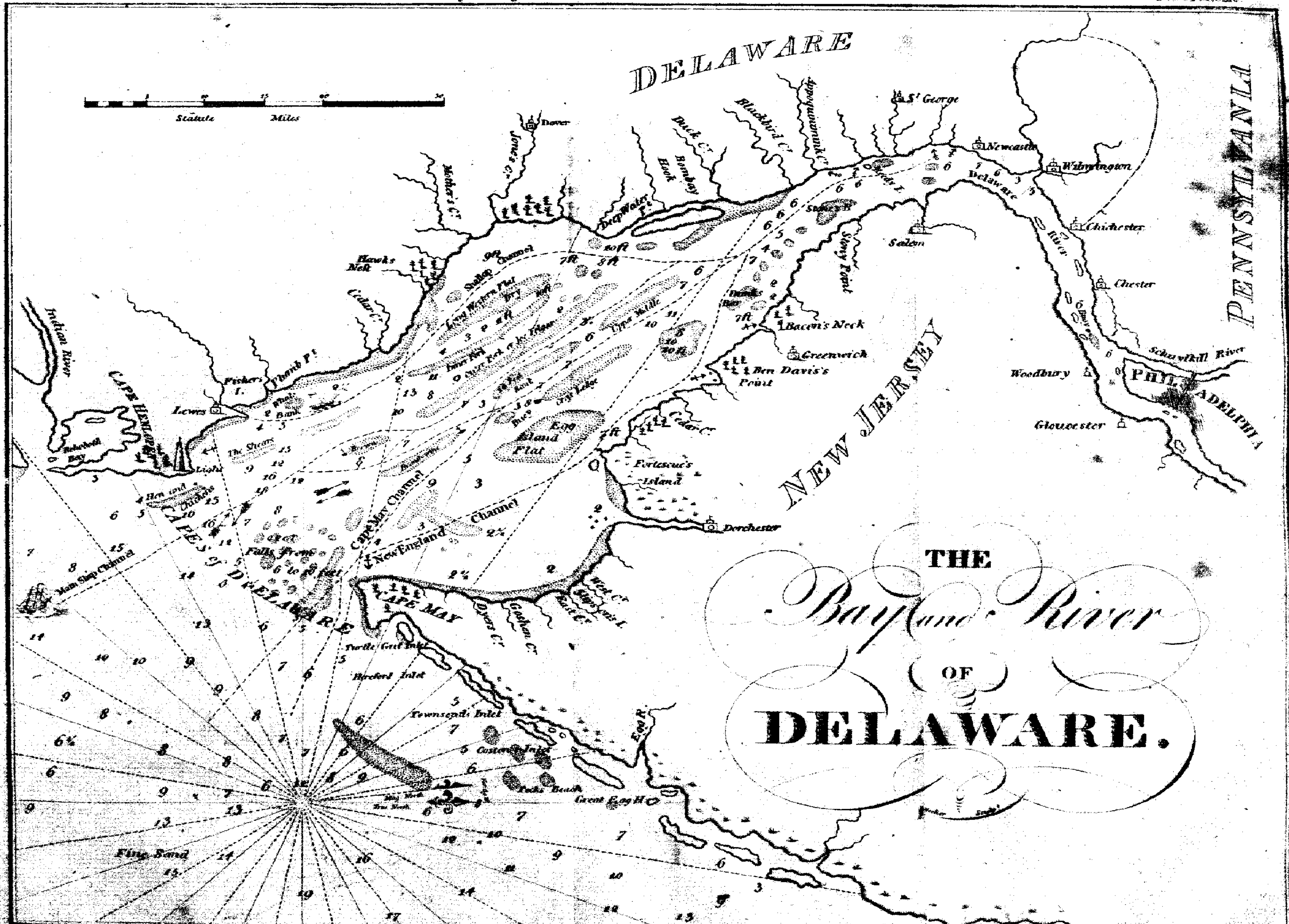
In running in for the bar you will have gradual soundings from 7 fathoms. One cable's length from the bar you will have 2½ to 2 fathoms.

In running over the bar, keep the north shore on board and steer S. W. On the larboard hand, one mile from the bar, give the point a small birth, and round in to the N. W. and anchor in 4 fathoms water.

To the northward of the bar, one-quarter of a mile, lies the wreck of a vessel. From the bar up the inlet the navigation is very dangerous, being filled with oyster beds.

These are very dangerous harbours in a gale of wind, but you may ride along shore with the wind from N. W. to S. W. When the wind blows hard at N. E. or E. N. E. and you are in sight of Chincoteague shoals, your only chance for safety is to stand to the southward, for you cannot clear the land to the northward, or go into the harbour of Chincoteague, which lies about N. W. 6 miles from the south end of the shoals. When the wind is to the eastward it is generally thick weather on the coast. After you pass the southward of Chincoteague, steer S. S. W. for the light-house on Cape Henry, for the northern parts of Machapungo shoals lie 4 or 5 leagues to the northward of Smith's island, and the southern part of them comes near abreast of said island. In steering to the S. W. westward 5 or 6 leagues S. E. of Smith's island, you will have 12 or 13 fathoms, and in some places 3 and 4 fathoms. When you are 20 leagues from land, in the latitude of 37° 30', you will have from 30 to 35 fathoms; but when to the southward of Cape Henry, you will have from 7 to 8 fathoms, within a league of the land, and a strong southerly current, which in general runs from 2 to 2½ knots an hour.

Engraved for the American Coast Pilot.



New York. Published by Edmund M. Blunt, for W. Hooker.

1822.

Directions for sailing in by Cape Henry light-house.

When coming from sea in the latitude of Cape Henry, you meet with soundings about 25 leagues off, which you may observe by the colour of the water. On the south edge of the bank you will have 40 fathoms water, which will shoal to 20, and still decrease as you approach the shore, generally sandy bottom. In clear weather, you may see the land when in about 10 or 11 fathoms, regular soundings, at which time you will be about 5 leagues to the southward of it. To the northward of the land, in 6 fathoms, the soundings are irregular, and the ground coarser. In coming in, with the wind northwardly, you must be careful of the outer part of the Middle ground, which lies 9½ miles E. N. E. from Cape Henry, and 7 miles S. E. by E. from Cape Charles. You may go so near it as to bring Cape Henry to bear W. ½ S. which will carry you round the tail of it in 4½ or 5 fathoms water, when you will deepen into 11, 12, or 13 fathoms, and then haul away for the bay, the cape being steep too. The channel between the cape and Middle ground, is about 4 miles wide, and 5 and 6 fathoms water close to the latter.

With a fair wind you may bring the light-house to bear west; but if you have the wind ahead, and are obliged to turn in, you may stand to the southward till the light-house bears N. W. by N. and to the northward till it bears W. by S. You will have 9 or 10 fathoms within a mile of the light-house, and from 6 to 5 fathoms close to the Middle ground.

General directions for the Horse-shoe.

In coming in by Cape Henry, and no pilot, with a free wind and commanding breeze, tide either ebb or flood, bring Cape Henry light to bear E. S. E. and steer W. N. W. and you will get soundings on the Shoe 7, 6, to 5 fathoms, as after described; after that make towards the south side and follow directions given for Hampton Roads, page 219.

Directions for *New Point Comfort.

When you bring Cape Henry to bear S. S. E. you may steer N. N. W. 3 leagues, which course and distance will carry you to New Point Comfort. There is a shoal which lies east from the point, distant 2 miles, and four rivers that empty into this bay or harbour, viz. Severn river, Way river, North river, and East river. These rivers are all navigable for vessels of 50 or 60 tons, and considerable places of trade.

Vessels at anchor in New Point Comfort are exposed to the wind from E. S. E. to S. E. and I would therefore recommend in that case to go into Severn river, where they will lie safe from all winds. Your directions for this port are to bring the south point of New Point Comfort to bear E. by S. and steer W. by N. 2 leagues, which course you will continue till Severn river bears W. S. W. when you must steer into the river W. S. W. or S. W. by W. which will carry you safe, where you may lie land-locked

* On New Point Comfort is a light-house containing a fixed light.

from all winds. In running for this river you will make two bunches of trees on your larboard hand, which at a distance appear like two islands, but as you approach them you will find they are on the main land. In going into the river, you must keep your lead going, and keep in the middle, and go between two points of marsh; and you will have no more than 3 fathoms between New Point Comfort and Severn river, muddy bottom. You may go to sea from this river with the wind from S. W. to N. W.

Directions for those bound to the Capes *of* Virginia.

In coming from sea and falling into the northward, you may make an island called Hog island, and also Machapungo island; the latter is a small island. Hog island and Smith's island are about 6 or 7 leagues from each other, and a stranger may take the one for the other. Hog island is longer than Smith's, and the trees stand more open and are not so thick as on Smith's island, and in going on to the southward from off Hog island, you will make sand hills which lay between Hog island and Smith's island, being a sure mark you have not passed Smith's island. Be careful not to come nearer than 7 fathoms when off the sand hills, as nearer than 7 fathoms the ground is broken.

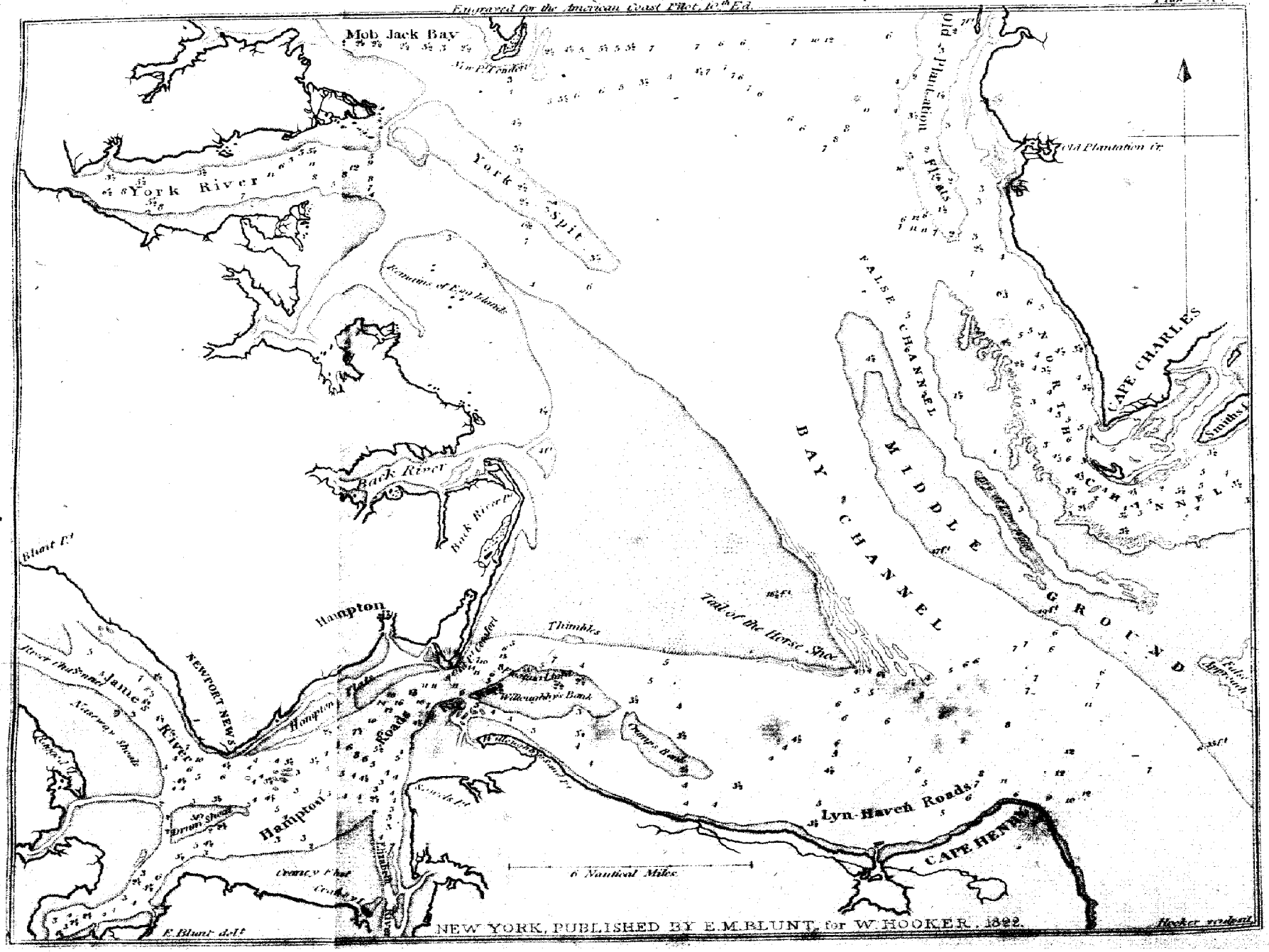
Smith's island is the first island after passing the sand hills above mentioned; on the northern end of it there are some straggling trees which appear like a grove, but which join on to the island. As you draw up with Smith's island, you may haul into 6 and 5 fathoms, till you get near abreast of it.

Smith's island is a good place to anchor under, with the winds from N. N. W. to W. N. W. and vessels often come too there if the wind is coming out from N. and westward.

If you intend to anchor there, bring it to bear W. S. W. and run for it, and you may go in as near as your draft of water will admit, into 3 fathoms or less, if you choose: you will have blue mud and sand, and when you get under way from thence steer S. by W. till you cross the North channel in 7½ fathoms; keep on until you raise your ground into 5 fathoms on the Middle ground, then steer S. W. which will cross the middle in 4 fathoms, keep on S. W. until you deepen into 6 or 7 fathoms, ship channel; then with a strong breeze steer W. by N. which will carry you across in deep water until you raise your ground on the Shoe. When at anchor under Smith's island, Cape Henry light bears about S. S. W.

In coming in from the southward, bound to Cape Henry, keep in 7 fathoms until you begin to draw up with False Cape which lies about 7 leagues from Cape Henry towards Currituck; then 9 to 10 fathoms, is full near enough to go to False Cape. After you have got to the northward of False Cape, you may then keep again in 7, 8, and 9 fathoms (ship channel) till you get up with Cape Henry. From off Roanoke the soundings along shore is hard sand all along until nearly up with Cape Henry, when it is sticky bottom, and you will be in channel way.

The shore between False Cape and Cape Henry makes in like a bay, something like Lynn-Haven bay, and in thick weather a stranger might mistake it for Lynn-Haven bay, and False Cape for Cape Henry, if it is so thick that the light-house on the latter cannot be seen; but in round



NEW YORK, PUBLISHED BY E.M.BLUNT, for W.HOOKER, 1822.

False Cape, it is all hard bottom, and in Lynn-Haven bay it is soft or sticky bottom, and in some places very tough bottom.

The passage between Cape Charles and Outer Middle is little known, and not frequented by large vessels. It is only used by small vessels of 8 or 10 feet water.

Directions for Hampton Roads.

When abreast of *Cape Henry light steer W. by N. or W. ½ N. till you get on the Horse-shoe, in 5 fathoms, sandy bottom. There are no soundings at 5 fathoms on those courses between Cape Henry and the Shoe. The first soundings on the Shoe, on those courses, are 6 or 7 fathoms, a sticky or tough bottom, and the distance about 4 miles from Cape Henry light, but the 5 fathoms sandy is about a mile farther on the shore (say about 5 miles from Cape Henry light) where vessels can anchor. Then steer west until you get on the south side of the channel for an ebb tide; but tide aflood, steer W. ½ N. or W. by N. Those courses will carry you into 5 fathoms on the south side, then you may steer W. N. W. which will carry you into 6 or 7 fathoms, sticky bottom, until nearly up with †Willoughby's point; then bring Old Point Comfort light to bear west, or W. by S. and run for it until nearly up with it (say within half a mile) but take care and go no nearer to Hampton bar on the north side, than 10 fathoms, it being steep too; then haul up S. W. by W. till you bring Old Point Comfort light to bear about N. W. then steer S. W. for the Roads, 5, 6, or 7, fathoms, good anchoring, but go no nearer to the south shore than 9 fathoms, lest the bar off Sowell's point hooks you in. Should you, after passing Willoughby's point, fall in 14 or 15 fathoms, ‡Old Point Comfort light-house bearing W. N. W. steer up S. W. by W. but go no nearer to Hampton bar on the north side than 10 fathoms, it being steep too, until you pass Sowell's point, when Old Point Comfort bearing N. E, you will fall into 7, 8, and 9 fathoms, good anchoring.

Remark. In steering W. N. W. as above, should you deepen your water to 9, 10 fathoms, or more, you may know you have passed the bar off Willoughby's point.

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* Cape Henry light-house is situated on the larboard hand going in, is about 120 feet from the surface of the water, containing a fixed light, and cannot be seen a great distance. There is a house erected near the light-house, for the accommodation of pilots.

† A floating light vessel has been stationed off Willoughby's spit, in 3½ fathoms water :—

Old Point Comfort light bearing W. ¼ N. distant	2 miles.
Back river point, N. ¼ W.	3½ do.
Cape Henry light, E. S. E.	13 do.
Willoughby's bluff, S. S. E.	2 do.
The Rip-Raps, W. S. W.	3 do.

Vessels going out or coming into Hampton Roads, should not pass to the southward of the light vessel—she may be distinguished from the light at Old Point, by having 2 lanterns—one more elevated than the other.

Each vessel is furnished with a bell, which will be rung in foggy weather.

‡ Old Point Comfort light-house lies on the starboard hand, bears W. N. W. from Cape Henry light, 5 leagues distant, and is the guide to vessels bound to Norfolk or James river. It contains a fixed light,

If going along on the south side you shoalen your water from 5 fathoms, haul off to the northward and keep in about 6 or 7 fathoms, till you judge yourself nearly up with Willoughby's point; go no nearer to it than 7 fathoms. By hauling to the northward you will deepen your water.

On the Horse-shoe side, the bottom is hard sand, and on the south side it is soft bottom until drawing on to Willoughby's point, where it is hard: therefore being on the south side where the ground is soft, you may always know drawing up with Willoughby's as soon as you get hard sand bottom. Then haul off as before directed for Old Point Comfort light.

Of the Thimble. It is a small lump S. W. from the Horse-shoe, with about 2 fathoms water on it. It is steep too, say 7 fathoms, but being small it is quickly passed. It lies a little below Willoughby's point, on the oppo-site side, to avoid which is the reason why it is necessary to get soundings first on the Horse-shoe. The Thimble is about 1½ or 2 miles off the shore. Near the Thimble you will have sticky bottom, and on the Horse-shoe hard sand.

Black river point bearing N. N. W. you are abreast of the Thimble.

There is good anchoring all over the Shoe, from 3½ to 4 miles from land to the tail or outer part of it, and nigher in shore for small vessels.

As the setting of the tide varies much at different stages thereof, attention should be paid as well to the bearing of the light as the soundings, when running up from the cape to Willoughby's point lest you cross the channel.

From Hampton Road to Norfolk the channel is too intricate for strangers to approach without a pilot, and they must anchor in the road.

A vessel having a light at her mast-head has been placed at the extremity of Craney island flats in Elizabeth river, in 4½ fathoms water.

NOTE.—For the benefit of strangers we add, that the present regulations for pilots are:—If you are bound into Hampton Roads, and are so far in as to bring Cape Henry light to bear S. by E. before you receive a pilot, a Hampton pilot cannot demand more than half pilotage, which is six dollars; twelve dollars is full pilotage for large or small vessels up to the Roads; after that, there is another pilotage, at a certain rate, which is 88 cents per foot.

Directions for running from Cape Henry *up the* Bay *to* Baltimore.

When you come in from sea and are bound up the bay, bring Cape Henry light to bear S. S. E. and steer N. N. W. about 4 leagues, which will carry you to the northward and westward of the Middle ground that lies between the two capes, and when you have Smith's island (off Cape Charles) to bear E. by S. you will be to the northward of the shoal part. If you have the wind ahead, and are obliged to turn to windward, you must not stand further to the eastward after the light-house (or the cape) bears S. S. E. as the western part of the Middle ground is steep. In standing to the westward, you may go into 3½ and 4 fathoms without danger; but in standing to the eastward, you must not go into less than 8 fathoms as you will be near the Middle ground. If you wish to anchor at New Point

Comfort, which bears from the cape about N. W. by N. distant 8 leagues, you must take care of the spit that runs off the point about S. E. 2 miles. Keep to the westward of this point of sand, and you may run in under the point and anchor in 4 or 5 fathoms water, fine bottom, where you will be secure from northerly or N. E. winds. In running from York river, when you open Iron point east of New point light, and bound up the bay, you will pass York spit, in 3 fathoms water. After you are clear of the Middle ground, as before directed, and have the cape to bear S. S. E. and a fair wind, you may steer up the bay north; come not to the westward of north till you have Gwin's island to bear W. to avoid a shoal called the Wolf trap, which lies N. N. E. 2½ leagues from New Point Comfort, and S. E. by E. 1½ league from Gwin's island, which is but small. [Gwin's island lies off Hills bay, north from Point Comfort, 3 leagues distant.]—From the Wolf trap steer N. about 15 leagues, which will carry you to the mouth of the Potomack. When you have New Point Comfort to bear west, you are within 10 leagues of Watts' island. In running the above course and distance you will have from 10 to 4 fathoms before you come up with the islands. If you should come into 3 fathoms as you approach these islands, you may haul a little to the westward, when you will deepen your water. Off Watts' and Tangier's islands the soundings shoal gradually. If you want to go into Rappahanock river, which is about 6 leagues to the northward and westward of New Point Comfort, and 1½ league from Gwin's island, you must, when it bears about N. W. run for it, leaving Piahitank on your larboard hand, where you will have from 7 to 3 fathoms. As you come up with the larboard head of the river, keep your soundings on the larboard hand from 3 to 7 fathoms, and not deepen your water more than 7 fathoms to the northward, to avoid a long spit of sand that runs off 2 miles S. E. from the northern head of the river, which is very steep, but keep round the southern head, in the above depth of water, where you may anchor in 7 or 8 fathoms, good bottom, and lie safe from all winds.

After you are up the bay, as far as Watts' island, and have it to bear about E. S. E. you will deepen your water from 5 fathoms to 10 and 12, muddy bottom. Continue your course N. until Watts' island bears S. E. and *Smith's point light (which is the southern head going into Potomack river) bears W. southerly, when you will be in 10 or 12 fathoms water. If you deepen your water to 15 or 20 fathoms, you will be very near the bad spit or shoal that runs off from Smith's point into the bay 1½ league. Keep your soundings into 10 or 12 fathoms on the Tangier's side, as before directed; you may then haul up N. W. by N. for Point Lookout, which is the northern point of Potomack river, and come to within 1 mile of the point on the western side of the bay, and have 4 and 5 fathoms water, muddy bottom. When you are up with Potomack river, and would wish to harbour, having the wind down the bay, you may run in round Point Lookout, giving it a small birth, and anchor, where you will be sheltered from all northerly winds.

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* A light-house has been erected on Smith's point, at the entrance of the Potomack, containing a fixed light. Off this point is a shoal, on which a floating light vessel has been stationed, in 4¾ fathoms water, shewing but one light:—It bears from Smith's point light E. ½ N. 4½ miles.

Vessels passing up or down the bay, should avoid going between the light vessel and Smith's point.

When you are up as far as Point Lookout, and have the wind ahead, you have a good channel to beat in, up as far as Patuxent river. You may stand on each tack to 4 or 5 fathoms; but in standing to the eastward, when you have 9 or 10 fathoms, it is best to tack, as the ground rises suddenly to 4 or 5 fathoms, and then lessens into 2, hard sand; the western side is more regular. Your course from Point Lookout to Patuxent river, with a fair wind, is N. by W. ½ W. and the distance 5 leagues, in 7 and 10 fathoms water, which will carry you up with Cordar point, which is pretty bold, and makes the south point of Patuxent river. If the wind is to the northward, and you cannot get into Patuxent (which is often the case) you may run in under Cordar point, and anchor in 3 or 4 fathoms, good bottom, and secure from the wind down the bay.

Patuxent is as remarkable a river as any in the bay, having very high land on the north side of the river with red banks or clifts. If you go into this river, give Cordar point a small birth, and stand to the northward till you have the river open, when you may run in for Drum point, which is on your starboard hand. This is a sandy bold point, with some small bushes on it. Double this point, and come to in 2½ and 3 fathoms water, where you will be secure from all winds. In beating into this place, you may stand to the north side for the high red clifts to 3 fathoms, and to the south side to 5 fathoms water, and in the channel you will have 7 fathoms water. When standing to the south side of the river, you will see some buildings on the north side of the river, above Drum point; as soon as these buildings come on with Drum point you must tack, to avoid a spit that runs off from the south side of the mouth of the river.

If you cannot get up the bay, you may anchor under the high cliffs, and lie safe from northerly winds in 4 or 5 fathoms water.

If you should harbour in Patuxent, when you come out, bound up the bay, give the high land on the northern side of the river something of a birth, and also give Cow point a good birth, as a large spit runs off some way, which is very bold. You will have 8 fathoms, and before the next cast of your lead you may be ashore. Run from Patuxent into the bay till you have 9 or 10 fathoms water, when you will be near mid-channel. Your course up the bay, when in the channel, is N. by W. ½ W. to Poplar island, distant 8 or 9 leagues. In running this course, you will have from 10 to 15 fathoms. When Sharp's island bears E. you may find 18 fathoms, muddy bottom. After leaving Patuxent river, if you intend to go into Great Choptank river, you must leave James' island (or point) on your starboard, and Sharp's island on your larboard hand, giving both a good birth, as there are long spits off from both these places. After you have passed James's point, steer away about N. N. E. in 7 and 8 fathoms, which will carry you in under Sharp's island, where you may anchor within half a mile of the island, and lie secure from northerly and N. W. winds, and, if you wish it, take a pilot at this place. After you are up with Poplar island, and it bears E. you may then steer away about N. distant 5½ leagues, which will carry you up to Annapolis river. After leaving Poplar island, the next you come to is Kent island, between which makes Wye river. If the wind comes ahead when you are up as far as the southern part of Kent island, you may run in under it, opposite Poplar island, and anchor in 6 or 7 fathoms water, and lie secure from all winds except S. W.

The land on the western side of the bay, from Patuxent to Annapolis river, is something high, with several bays, such as Herring and West ri-

ver bays, where the soundings are gradual on both sides. You will have, in running from Poplar island to Annapolis or Talley's point (which is the southern point of Annapolis river) from 7 to 15 fathoms water. Give Thomas' and Talley's points good births, as there are long spits off from both places. If you go into Annapolis river, give Talley's point a good birth, and haul into the westward for the mouth of the river, taking your soundings off the south side in 3 and 4 fathoms water, and pass in between Talley's and Green bush points, which you leave on your starboard hand, giving said points a birth of an equal width, and run just above them, where you may anchor in 3 and 4 fathoms, and lie secure from all winds.

After you are up with Annapolis, and bound to Baltimore, when in the middle of the channel, your course is N. by E. about 5 leagues, which will carry you up to Baltimore river. Come not to the northward of N. by E. for fear of Rattle Snake point and the Bodkin shoals, which you leave on your larboard, and Swan's point on your starboard hand; this point is on the eastern side of the bay, to the northward of Kent's island.

From Annapolis to the mouth of Baltimore river, you will have from 4 to 10 fathoms. Come no nearer the western side than 4½ or 5 fathoms, till you have the river open, at which time Swan's point bears about E. S. E. when you may haul in for the river. The best mark is the north point a little open with a gap of woods on Sparrow's point, which will carry you in 3 fathoms water, which is the most you will have in this channel, soft bottom. Keep these marks till Bodkin point bears S. S. W. then steer W. or W. by N. into the river, giving North point a birth of about one mile. When abreast of North point, steer away for the White rocks, which you will see on the south side of the river, until you are abreast of them, when you must haul to the southward till you bring Leading point (which is high bluff woods) within two sails' breadth of Hawkins' point, and keep it till you are almost abreast of the rocks, when you must again haul to the southward, till you bring the said points within a small sail's breadth of each other, which must lead you up to Hawkins' point, to which give a birth of one-quarter of a mile. There are several small shoals of about two fathoms, on each side of the channel, which are steep, and the channel between them not more than a quarter of a mile wide. When you come up with Hawkins' point, you may steer away for the Narrows (on which the fort stands) about N. W. by N. which course has nothing to obstruct you; you will have from 2½ to 5 fathoms. When you are up with the Narrows, pass between the two points, and give the larboard side a good birth, to keep clear of a shoal just above the Narrows: then haul to the S. W. up for the wharves, on the point which is on the starboard hand, and there anchor, or proceed to Baltimore. If you leave the point keep your larboard hand on board, when you will find good bottom, from which you may proceed to the wharves, or come too with safety. (☞ *See chart of Chesapeake.*)

Rates of Pilotage.

American vessels pay	$3 00	down,	and	$4 00	up,	per foot.
Foreign do.	do.	4 00	do.	4 33	up,	do.

Directions from New Point Comfort *to* Potomack river.

From this point a spit extends S. E. 2 miles, which you will avoid by not going into less than 4 fathoms water. About 2½ leagues N. N. E. from New Point Comfort, and two leagues E. from Iron point, lies the Wolf-trap rock, on which there are 12 feet at low water; between this rock and Point Comfort there are 8 and 9 fathoms. From the spit, which runs off from New Point Comfort, to the entrance of Rappahanock river, the course is N. by W. and the distance 6 leagues. You may keep in 5 or 6 fathoms water. Near to the Wolf-trap rock, there are 7 fathoms.

From the entrance of Rappahanock to the flat which runs off from *Smith's point light (which is the south side of Potomack river) the course is N. and the distance 6 leagues. You may run in 5, 6, or 7 fathoms water. When you draw near the shoal which runs off from Smith's point, you should not go into less than 7 fathoms. This shoal extends about 2½ miles E. S. E. from Smith's island; on its extremity there are only 2 fathoms water, and very near to it, eastward, there are 10 or 12 fathoms. The mark for the shoalest part of this sand, is a house with a white chimney, standing among the trees on the shore within Smith's island, open to the northward of the island, and bearing west. When this house bears W. by N. you are to the southward of the extremity of the shoal; and when it bears W. by S. you are to the northward of it. That which adds considerably to the danger of this shoal, in going either up or down the Chesapeake, is the broken islands which lie on the east side of the channel, and the flats of sand which extend from 5 to 8 miles to the westward from them.

The Tangier islands lie to the southward of Cooper's island, and the Tangier islands and Watts's island make the entrance of Pocomoke bay, which bay separates Virginia from Maryland on the eastern shore.

Potomack river separates Virginia from Maryland; its entrance is formed by Smith's point on the south side, and Point Lookout on the north side; the distance between these two points is about 3½ leagues. On Smith's point is a light-house, as described in page 221.

If you are bound to St. Mary's river, you must give Point Lookout, and also the shore about it, a good birth; and when you approach St. George's island, you must keep nearer to the main than to the shoal, which extends from the island. Your course into the river is N. W. and as it is all open to your view, you may anchor where you please in 5 or 6 fathoms water.

If you are bound to Wicocomack in Potomack river, your course from the east end of St. George's island to Ragged point is N. W. ½ W. and the distance 4 leagues. On the south or larboard side, there are flats lying off from the shore, which in some places extend one mile; come no nearer to them than 7 fathoms: in the middle of the channel, you will have 11, 10, 13, 10, and 8 fathoms. You must give Ragged point a good birth, to avoid the shoal, which extends from it nearly one mile From Ragged point to Clement's island your course is W. ½ N. and the distance 2 leagues. In the middle of the channel you will have 6, 5, 4½, and 7 fathoms water. On the south side, a little below Clement's island, is Nomine bay From abreast of Clement's island steer W. N. W. in 6, 5, and 4 fathoms water, until you have Wicocomack river open; then pass pret-

* See note to page 221.

ty near to the island, which is on the east side of the entrance, in order to avoid the shoal which runs off from the point on the west side. Steer about north into the river, and anchor on the south side of Newton's point, in 5 or 4½ fathoms water.

Directions from Potomack river *to* Patuxent river.

From Point Lookout a flat runs off a considerable way, which you must be careful to avoid, by not coming any nearer to it than 7 or 8 fathoms water. Opposite this point, the flat of Tangier islands extends so far to the westward as to narrow the channel of the Chesapeake to about 4½ miles. This part of the flat is steep, and has 13 fathoms close to it.—About two leagues to the northward of Point Lookout is Point Again, off which above 2 miles, there lies a shoal. About 3 leagues to the northward of Point Again, is Cordar point. Between them, 7 or 8 fathoms is a good depth to keep in; near to the flat on the east side, there are 10, 16, 9, and 11 fathoms.

Cordar point is on the south side of the entrance of Patuxent river: the ground is low and sandy, and has some straggling trees standing on it. From this point a flat extends to the eastward, and also to the northward. On the north side of this river there are high hills, called Clifts, with trees on them; and from this side also a flat extends, but the shoalings on each side of the channel are gradual and the ground soft. In the middle of the channel there are 8 fathoms water. Higher up is Rously's point on the south side, and Drum point on the north side; the latter is a low sandy point. You may anchor without these points, or you may go further up the river, always observing the following general rule in all the deep bays throughout Virginia and Maryland, namely—to every point, more especially where the land is low, give a good birth in passing, because spits or flats of sand extend from them, and consequently the water is shoal in such places.

Directions for going from Cape Henry *or* Lynn Haven Bay, *to* York River.

As Cape Henry S. S. E. would lead you near the tail of the Middle ground, and as the proceeding with it at S. E. would carry you on the tail and north edge of the Horse-shoe, your keeping the cape on any bearing between S. S. E. and S. E. will carry you through between the two shoals. On the tail, and along the north side of the Horse-shoe, the shoalings are gradual. With Cape Henry bearing S. S. E. or S. E. by S. steer N. N. W. or N. W. by N. until you bring Cape Charles to bear E. by N. you are then to the northward of the Horse-shoe, and may steer N. W. or N. W. by W. according as you have the wind and tide. As the ebb sets strong out of the Chesapeake over the Horse-shoe, you must not, with a northerly wind and ebb tide, approach any nearer to the shoal than 5 or 6 fathoms water. When you have brought New Point Comfort to bear N. and Black river point to bear S. by W. you are then on the tail of York spit, in 3 fathoms water. When you are a little above Long

isle, you must not come any nearer to the shore than 5 fathoms, until you enter the river above the marsh; then keep in 9 or 10 fathoms, and run up and anchor between York and Gloucester, in what depth you please.

With a contrary wind, stand towards the Horse-shoe in 4½ or 5 fathoms, and from it into 6½ or 7 fathoms, until you are abreast of the entrance of Pocasan, where there is a gut of 7 fathoms, which runs close to the entrance; you should therefore be careful to avoid going too far in, and thereby getting on the tail that extends from Toes marsh. When you have got thus far up, you should go no nearer to the shore on this side, than 7 or 6½ fathoms all the way up to York Town. On the other side, you should not stand any nearer to the small isles on York spit, than 10 or 11 fathoms: close to the tail of this spit there are 6 fathoms: close to the middle of it there are 10 fathoms; and close to it, abreast of the islands, you will have 13 fathoms, and before you can get another cast of the lead, you will be ashore. When you have entered the river, you must not come any nearer to the flat than 8 or 9 fathoms water. This flat extends from the north shore almost one-third over the river.

*Cape Hatteras.

This Cape lies about S. S. E. 37 leagues from Cape Henry; between them lie the inlets of Currituck, which is shoal, and New inlet, on which are 10 feet water. About 6 leagues N. by E. from the Cape lie the Thimble shoals, on which are 3 and 4½ fathoms water, extending N. by W. and S. by E. about 3 miles, and is about 3 miles wide. The inner edge of this shoal is about 3 miles from the shore, and the soundings between them, 9, 10, and 7 fathoms. About 5 miles N. by W. from the north end of this shoal, and 3 miles S. E. from the north end of Hatteras island, there lie some small knowls, on which are only 9 feet at low water.

Cape Hatteras shoals extend 8 miles in a south-easterly direction, with 5 and 6 fathoms on the extreme parts. The most dangerous shoal lies in lat. 35° 11′ N. the middle of which is 4 miles distant from the cape, and has barely 9 feet water. This is called the Diamond shoal, between which and the cape there is a good passage for small vessels, in moderate weather, or when the wind is off the land, but it would be always safest to go round the shoal in 10, 12, and 15 fathoms.

* On the pitch of this Cape (which is low sandy land) a light-house is erected 95 feet above the level of the sea, containing a fixed light, which is painted white; there is a good channel 3 miles from the light, keeping the land on board; the light bears from the S. W. part of the outer shoals, N. by W. ½ W. and from the S. E. part, N. W. distant 3 leagues—from the S. W. part of the middle shoals, within which vessels bound along the coast generally pass, the light bears N. N. W.

The light at Cape Hatteras, being 95 feet above the level of the sea, will be seen from a considerable distance without the outer shoals, and to a vessel steering for Ocracock, W. by N.—W. N. W. or even N. W. by W. the light on the Cape will first show, and will continue to be seen till after the light appears within the bar.

The point of Cape Hatteras having made out into the sea since the light-house was built, the light now stands 1¾ mile back from the point of land that makes out from it.

Though the bearings of the Brown at Shell Castle island from Ocracock bar, has been stated, yet it is not expected that any vessel will attempt to cross in the night; it has been mentioned merely that the master, in coming up with the bar in the night, may be enabled thereby to take that situation which may be most favourable for receiving a pilot, and crossing in the morning.

The light-house at Cape Hatteras exhibits a fine light when in order, and can be seen very plainly in 9 and 10 fathoms water on the outer part of the shoals, when only 10 feet above the level of the sea; but when on board a large vessel, it might be seen in 20 or 25 fathoms. The soundings from the cape are 2, 3, 4, 4½, 5, 6, and 7 fathoms, and then deepens to 9, on the S. S. E. part.

It is high water at Cape Hatteras shoals, on full and change of the moon, at 3 o'clock and 45 minutes, and the tide flows from 4 to 5 feet, being governed by the winds in the offing, and in easterly gales it runs several feet higher. W. S. W. from Cape Hatteras, 8 leagues distant, is Ocracock inlet, on which are 12 feet water.

From Cape Hatteras to Cape Henry the ground is fine sand, and to the northward of Cape Henry, coarse sand with some shells among it.

*Cape Lookout.

Cape Lookout lies in 34° 37′ N. lat. and 76° 33′ W. long. and the cape woods (where is a light-house) in lat. 34° 39′ N. and long. 76° 32′ W. The shoals extend from the cape 8 miles, in a S. S. E. direction, being broken ground as far as lat. 34° 28′ N. In that lat. there are 14 fathoms water, and from thence to the Gulf Stream, the soundings are gradual, 95 fathoms; the tracks are faithfully laid down in the chart (published by the author) together with all the soundings from the outer part of the shoal to the edge of the Gulf Stream.

The outer part of Cape Lookout shoals lie S. W. ¼ W. 22 leagues from Cape Hatteras, and 22 leagues S. W. ¾ W. from the outer part of Cape Hatteras shoals. Seven miles from Cape Lookout light lies a shoal which is dry at low water, bearing S. ½ E. from the light; the sea breaks constantly S. E. from this shoal for the distance of two miles, which is the S. E. point of breakers. Between this shoal and the shore there are numerous spots on which are 1½ and 1¼ fathoms; south of this shoal the least water is 2½ fathoms. On the eastern part of Cape Lookout shoals there are 2½ fathoms, near them on the northern and southern sides are 4, 5, and 9 fathoms.

Old Topsail inlet, or entrance to Beaufort, lies about 3 leagues W. N. W. from Cape Lookout. It has 2½ fathoms water, but the eastern side of the entrance is formed by a long spit, extending westward The channel in lies first N. E. by E. and then alters gradually round the flat, which extends from the larboard or western side to the N. N. W. In proceeding up to Beaufort, you will have 3, 4, and 3 fathoms in the channel, and may anchor in 3 fathoms at low water.

If you wish to come within the shoals of Cape Lookout, after making Beaufort, keep along the shore at the distance of two miles, until you come up with the point of sand forming a pretty good harbour, with the wind from the N. W. to E. for small vessels; if bound to the northward

* Cape Lookout light-house contains a fixed light, 100 feet above the level of the sea: the tower is wood, painted in stripes horizontal, alternately red and white. At a distance it has the appearance of a ship of war with her sails clewed up. The light may be seen from the outer end of Cape Lookout shoals, but vessels passing it, ought rather to trust to the lead than to making the light.

keep as near as you can judge the same distance, or a little less from the beach, until you bring the light-house to bear N. W. by N. you will at that distance have not less than a quarter less three; then keep N. E. and you will deepen to 5 and 6 fathoms in a few minutes.

W. 10 leagues from Cape Lookout lies Bougue inlet, on which are 8 feet water: W. by S. ½ S. 4½ leagues from Bougue inlet, lies New river, on which you have 8 feet water: S. W. ¾ W. 6 leagues from New river lies New Topsail inlet, on which are 10 feet water. S. W. ¼ W. from New Topsail inlet, 3 leagues distant, you make Deep inlet, on which are 10 feet water. S. S. W. from Deep inlet, 6 leagues, lies New inlet, on which are 7 feet water. This inlet is between the sea coast and N. E. end of Smith's island. It will admit vessels drawing 6 feet, and is about two miles wide at its entrance, having 7 feet water at full tide over the bar. It continues its breadth to the flat, and is navigable for large vessels 21 miles from its mouth, and 14 miles from Wilmington, to which town vessels drawing 10 or 12 feet can reach without any risk. S. by E. 8 leagues from the New inlet, will carry you into 15 fathoms S. from the Frying Pan shoals. You may then keep to the westward till the light on Bald head bears N. by W. ½ W. when you will be clear of Cape Fear shoals.

Directions for Cape Fear *light-house.*

Bald Head, a noted bluff at the mouth of Cape Fear river, is at the S. W. end of Smith's island, which, with Oak island, forms the main entrance into the river. Oak island is long and narrow. On the bar, at high tide, you have 14½ feet, and it rises 5 feet.

The light-house on Bald Head is painted black, in order to distinguish it from the beacon on Federal point, from which it bears about S. S. W. It stands one mile from the sea, is 90 feet high, and contains a fixed light. The lamps are 100 feet above the level of the sea, and 50 feet above the tops of the trees which stand on the hills between the light and the sea. The iron lamp is 10 feet 9 inches in diameter, and about 15 feet 9 inches in height from the floor to the top of the roof.

From the point of the cape the light-house bears N. W. distance four miles, and from the extremity of the Frying Pan shoal, N. W. by N. ½ N. 5 leagues.

It may be necessary to observe to strangers, that, in passing the shoals, especially in a dark night, it is most prudent to steer west, in lat. 33° 20′ or 25′ at most, until they shoal their water to 7 or 8 fathoms; by doing this, they may be sure of being to the westward of the bar.

Your course from Cape Fear bar, when in 9 fathoms water, to clear Cape Roman shoal, is S. W. and distance 72 miles. When sailing towards these coasts, it is prudent to keep nearly a degree to the southward of the latitude of the place you intend to make, until you reckon yourself on the edge of the Gulf Stream, when you must be directed by judgment, according to circumstances. Do not, if possible to avoid it, sail to the northward of 33° 20′; or at the highest 33° 25′ until you obtain 10 fathoms water. In this depth you will be within the south or outer end of the Frying Pan shoal, which lies in latitude 33° 36′. In approaching the coast, in 33° 20′ your first soundings will be from 30 to 35 fathoms; in

this depth you will be very near to the edge of the Gulf Stream; you will have fine grey sand, with black spots, when you get into 17 fathoms, there is a long flat in this depth of water. In steering west you will, for the first 5 or 6 leagues, shoalen the water very little. When you come in 14 fathoms, you shoalen your water quicker, but gradually. You will see the land from 10 fathoms water, if the weather be clear, and may then be sure that you are within the Frying Pan, from the outside of this shoal. To the westward of northwest no land can be seen, when without the shoals.

The currents on the coast of North Carolina are governed mostly by the wind—during the summer months, the prevailing winds are southwesterly, and the currents then set in the direction of the coast to the eastward, and when the southerly winds cease blowing, it changes suddenly to the contrary direction, which is a sure precursor of a northeast wind.

The land on Cape Lookout is very low, and cannot be seen more than a league in the clearest weather from on board a small vessel.

[We decline giving directions for sailing into many ports in North Carolina, as all the harbours are barred, and always subject to alteration by every gale, particularly in the equinoctial storms; but the bars create only a part of the danger in sailing into those ports; it is the vast bed of shoals that lie within the bars, with their innumerable small channels which give to tide so many different directions that even the pilots, who live on the spot, find it difficult to carry a vessel in without some accident.]

The North Bar *of the* New Inlet.

To enter, the marks are, to bring the west end of Buzzard's bay point of sand on H. Kelly's large white house in Smithville, and the bearings will be S. W. by W. keeping the point of Smithville with these bearings until over the bar, then keep the spit of sand or beach that makes off from Federal point close on board, which will carry you into the river channel, where there is good anchorage all along this sand, in three and four fathoms water. On this bar there are 10 feet at low, and 14 at high water.

The Old Bar *at* New Inlet, *or as now called the* South Bar.

In running in when the beacon on Federal point bears W. or W. by S. you will make a thick and high hummock of woods, called Merryck's wood bluff, before you make the beacon; but should the beacon bear to the north of west, you will make the beacon and bluff at the same time, the former of which may be seen in clear weather, about 15 miles from a ship's deck, in about 10 or 11 fathoms water, and when first discovered has the appearance of a distant sail. As you approach the bea-

con, the water becomes gradually shoal. In 4 to 5 fathoms water one mile and a half from the beacon bearing W. S. W. to W. there is good anchorage, soft bottom.

In running in, bring the beacon on with the south end of the barracks, which you will continue until over the bar, and near the beach, and so along the beach, until you are in the river. On the bar, at high water, 11 to 12 feet, at low water 6 feet only. The depth of water and channel, however, are subject to variation, so that it is not adviseable for strangers, except in cases of necessity, to run in without a pilot.

The beacon on Federal point is 40 feet high, painted white, and stands on the main land, the north side of the entrance of Cape Fear river.

The Main Bar *of* Cape Fear River.

Vessels running down from the westward should not approach nearer the Middle ground than to bring the cape (which is the most eastern part of the Bald head woods) to bear E. by N. when you bring the light-house to bear N. ½ E. in about 4 fathoms water, steer immediately for the light-house, which will be a little open to the eastward of a pole beacon with a cask on the top painted black—A continuation of this course will carry you clear of the Fingers, when you will see a buoy ahead or a little on the larboard bow, which you will pass, leaving it on the larboard hand; as soon as you leave the buoy, steer N. W. or keep the breakers close on board the larboard side, when you will luff or bear away, as the water may deepen or become more shoal, to be ascertained by heaving the lead. This will carry you clear of a long sand shoal that makes off the point of Bald head, which is dangerous to ground upon, as the flood tide sets directly over and breaks upon it with the wind from the S. W. In approaching Bald head caution is necessary, as the shoals on both sides are very steep, frequently from 6 to 3 fathoms at one cast of the lead. Keep close to this shoal by sounding as above directed, until you reach Oak island, when you may steer direct for Smithville. Outside of the bar, in 5 or 6 fathoms water, the light-house bearing N. there is good anchorage in soft bottom. There is on the bar at low water 10 feet, and at high water 14½ feet; and the sea is scarcely ever so rough as to prevent a pilot's boarding a vessel at the buoy.

The Western or Oak Island Channel,

Is to bring the point of Oak island to bear N. E. by E. keeping this course until you get close in with the beach, thence along the beach until you pass Oak island. There are 7 feet at low, and 11 feet at high water on this bar.

Other directions for Oak Island Channel.

Vessels drawing not more than 9 feet water, running into Wilmington

through Oak island channel, may bring the easternmost part of the lump of trees on the east end of Oak island to bear N. E. by E. and run for it, which will carry them over in the best of the water, 7½ feet at low water, and 11 feet at high water; as soon as you deepen your water over the bar, steer for the end of the sandy point of Oak island till close up with it, then steer E. S. E. for opening Cape creek, till you deepen into 4 fathoms, then haul up N. or N. N. W. along the beach until you get up with Fort Johnson, where you may anchor.

RATES OF PILOTAGE *for Cape Fear Bars and River.*

BARS.

						Open Boat.	Decked.
For vessels drawing	6	feet, and under	7	feet,		$5 60	$8 58
	7	- -	8	-		6 25	9 37
	8	- -	9	-		7 25	10 87
	9	- -	10	-		8 37	12 55
	10	- -	11	-		10 00	15 00
	11	- -	12	-		12 00	18 00
	12	- -	12½	-		13 33	19 99
	12½	- -	13	-		14 27	21 40
	13	- -	13½	-		15 33	22 99
	13½	- -	14	-		16 53	24 89
	14	- -	14½	-		17 73	26 59
	14½	- -	15	-		21 80	32 70
	15	- -	15½	-		23 10	34 66
	15½	- -	16	-		25 5	37 57
	16	- -	16½	-		26 70	
	16½	- -	17	-		28 60	
	17	- -	17½	-		32 70	
	17½	- -	18	-		39 20	
	18	- -	18½	-		42 00	
	18½	- -	19	-		44 80	
	19	- -	19½	-		48 65	
	19½	- -	20	-		52 50	

That 30 per cent. upon the present established rates of pilotage, as above, be allowed to decked boats, piloting vessels into this port and out to sea (which is comprised in the last column.)

For the RIVER, from Fort Johnson to Wilmington

For vessels drawing	6	feet, and under	7	feet,	-	-	$7 00
	7	- -	8	-	-	-	8 00
	8	- -	9	-	-	-	9 00
	9	- -	10	-	-	-	10 00
	10	- -	10½	-	-	-	11 00
	10½	- -	11	-	-	-	12 00
	11	- -	11½	-	-	-	13 00
	11½	- -	12	-	-	-	15 00
	12	- -	12½	-	-	-	16 00
	12½	- -	13	-	-	-	18 00
	13	- -	13½	-	-	-	20 00
	13½	- -	14	-	-	-	22 00
	14	- -	14½	-	-	-	24 50
	14½	- -	15	-	-	-	25 00

From Fort Johnson to Brunswick, or from Brunswick to Wilmington, or *vice versa*, one half the pilotage from Fort Johnson to Wilmington.

From Fort Johnson to Five Fathom Hole, from Five Fathom Hole to Brunswick, from Brunswick to Campbell's island, and from Campbell's island to Wilmington, or *vice versa*, one fourth of the pilotage from Fort Johnson to Wilmington.

From Cape Fear *to* Georgetown.

Georgetown entrance is 18 leagues S. W. ¼ W. from Cape Fear; between lies a bank, on which there are 5 fathoms water. The north end of this bank lies about 5½ leagues S. W. by W. from Cape Fear; it thence extends S. W. ½ S. 8½ leagues. The inner or N. W. side of this bank is about 4 leagues from the shore; near to this edge, there are 10, 9, and 8 fathoms water; it shoals gradually, as you advance towards the shore; this is called Long bay. Near to the north end of this bank, there are 10 fathoms; along its S. E. side there are 8, 7, and 6 fathoms; to the southward of this bank there are several shoals.

In sailing to Little river inlet, which divides North from South Carolina, you pass Lockwood's Folly inlet, which lies W. from Cape Fear light 3¾ leagues distant. The land appears broken, and contains no safe harbour,

In continuing your course towards Georgetown, several other inlets may be discovered in clear weather, and at length you pass North inlet, about 3 leagues from Georgetown light-house; this inlet is the northern boundary of North island, on which island the light-house is situated; the entrance into this inlet is from the northward, the south breaker forming nearly a crescent, runs apparently across the mouth of the inlet: there is generally not less than six feet water on the bar at low water, but the depth varies with the direction and violence of the prevailing winds. The direction of this channel has been within a few years considerably, though gradually changed by the elongation and curve of the south breaker throwing the channel more to the northward: in entering it in its present situation, Georgetown light-house will bear about S. by W. distant 3 leagues; a small but distinct sand hill (the most northern on the north end of North island) S. W. ½ S. the most southern building on the south end of the opposite island W. by S.; you may then run in between the heads of the two breakers, rounding along the edge of the south breaker, and thus passing between the breakers into the harbour. The flood tide comes in from the S. E. and sets across the S. breaker, towards the N. breaker. On the N. end of North island, about 3 leagues from the light, there is a village of about 20 or 30 dwelling houses (a summer residence) which is distinctly seen from sea, and often mistaken for Sullivan's island near Charleston; there are several houses on the N. point of the opposite island. To small vessels this inlet affords a safe harbour: there are two passages leading from it up to Georgetown, but from the shoalness of the water they cannot be conveniently navigated except by boats; in cases of necessity, however, vessels of 6 or 7 feet draught may be navigated with some delay through the most southern, which is the deepest passage into the bay, or river, leading to the town.

Directions for sailing into Georgetown *harbour.*

The light-house is situated in latitude 33° 19′, and is erected on the southern point of North island, on a low sandy spot; this island is on the northern and eastern side of the harbour: the light-house is a lofty, circular, white tower. In approaching it from the northward, the harbour is shut out from view by North island, and the light-house appears to be

situated in a low wood. The light-house bears N. $\frac{3}{4}$ W. from the easternmost part of Cape Roman shoal, 11 miles distant, and N. by E. $\frac{1}{2}$ E. from the southwestern part, 20 miles distant. In passing the light, either northerly or southerly, vessels will find 5 fathoms water, within five miles of the land; on this shoal there are about 7½ feet at low water, about 12 feet at high water, and 5 fathoms all round it. The principal entrance into the harbour lies to the southward of the light; vessels drawing from 7 to 8 feet water may (if a pilot cannot be procured) enter near high water, by bringing the light-house to bear N. ½ W. and running directly for it till within 100 fathoms of the land; they will then have deep water on both sides for several miles up the bay. Several buoys are anchored on the bar, to mark the best water; in sailing by these, the following directions must be observed; the first buoy (the most southern) is on the S. E. point of the south breaker—this, in entering the harbour, you keep on the larboard hand; the second buoy is on the N. W. point of the north breaker, which you keep, in entering, on the starboard hand, and continue your course to the third buoy, which is on the N. W. point of the Newcome shoal; this buoy you must also keep on the starboard hand. The channel here trends to the eastward for about a quarter of a mile to the fourth buoy; you then give this last a birth to the westward, or larboard, and steer about N. N. W. directly into the harbour. Vessels drawing 11 feet water may, with the assistance of a pilot, pass securely through this channel without the aid of spring tides. There is also an entrance which lies to the northward, under the southern point of North island (as before described) near the light-house; through this, if a pilot be procured, vessels drawing 8 or 9 feet water may be brought with safety. Vessels at sea will find deep water, and when the wind is to the southward and westward, convenient and safe anchorage near the land, about 1½ or 2 miles to the northward of the light-house. A common flood tide rises nearly four feet; it is high water on the bar at the full and change of the moon, about 7 o'clock.

NOTE.—Georgetown light-house is situated on North island, at the entrance of Winyaw bay, and contains a fixed light.

Cape Roman.

Cape Roman is very low land; it has neither tree nor bush, and appears, when seen at a distance, to be a sand left dry by the tide.* From the south entrance of Santee river, to about two miles S. W. of Cape Ro-

* A wind-mill is erected on the point of Cape Roman, which at a distance, having the appearance of a light-house, especially in hazy weather, will easily deceive strangers, who, from want of exact latitude in approaching the coast, may mistake it for Charleston light-house. In falling in with this wind-mill, you must not come into less than 7 fathoms water, bringing it to bear W. N. W. Then you are abreast of the Cape Shoals, and Charleston light-house will bear W. S. W. about 15 leagues. In consequence of its resemblance to the light-house, it has engaged the notice of the Legislature of South Carolina, who have passed a resolution appointing certain persons to fix a mark of distinction upon the building, to prevent the repetition of accidents to vessels on that coast.

man, there is a shoal which extends to a considerable distance from the land; the S. E. point of it lies about 5 leagues S. by E. from Georgetown light-house, and the S. W. point lies about 2½ leagues S. E. from Cape Roman. Close to this dangerous sand there are 4 and 3 fathoms; the land is so low, that you cannot see it from the deck of a ship, at the extremity of the shoal.

The outer shoal of Cape Roman bears (as described in page 233) S. ¾ E. and S. by W. ½ W. from Georgetown light-house; the entrance of Santee river lies between the shoal and the light-house. The south entrance is 2½ leagues from the entrance of Georgetown river, and 3 leagues from Cape Roman. Ships that fall in with the shoals of Georgetown entrance, should not come into less than 4 fathoms water; and although the muddiness of the water is apt to frighten strangers, there is no real danger to be apprehended. The land here is low, and appears, when viewed at a distance, in hummocks, like the range of islands.

By steering W. N. W. from the S. W. part of Cape Roman shoal, you will soon see the island called Racoon Keys; it is a long narrow island, and lies about W. by S. from Cape Roman. When you see Racoon Keys, steer W. S. W. or S. W. by W. in about 5 fathoms water. As there is a shoal runs off about 5 miles S. E. by E. from the N. E. end of Bull's island, you should take care to avoid it in passing. Senee bay, or Bull's harbour, lies between Racoon Keys and Bull's island. There are shoals lying off the west end of Racoon Keys, and you should anchor near to Bull's island, in 6 fathoms water.

From the shoal off the N. E. end of Bull's island to Charleston bar, the course to go clear of the Rattle Snake, is S. W. by W. and the distance seven leagues. There are four islands between Sewee bay and Charleston bar, viz. Bull's, Cooper's, Devies, and Long island. Flats extend from all the islands, along which the soundings are regular.—With Charleston churches to the northward of Sullivan's island, you will be in 5½ fathoms water, on the edge of the Rattle Snake; and, when the churches are open to the southward of Sullivan's island, you are clear of that shoal. You should approach no nearer to this bank than 5 fathoms water.

Directions for sailing into Charleston (S. C.)

The entrance of Charleston bar lies in lat. 32° 44′ N. In running in for Charleston* light-house, which may be seen some distance at sea, you will have gradual soundings. When you come near the bar you may see the north and † south breakers, between which is the entrance over the bar. In running over the bar, you must have the light-house to bear W. by N. ¾ N. and run in, which course will carry you clear of the north sand, which lies within the bar. Continue this course between the two breakers, when you will find from 12 to 17 feet water, according as

* Charleston light-house contains a revolving light—at the distance of 8 or 9 leagues, the time of darkness will be twice to that of light; as you approach it, the time of darkness will decrease, and that of light increase until you get within three leagues, when the light will not wholly disappear, but the greatest strength of light will be as one to forty-four to the least.

† The south breaker has a buoy on the east end, in 12 feet water, and in the middle of this channel is a buoy, with a small white flag upon it, in 19 feet water, low tide, on either side of which you may go when running in.

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the tide may be. Follow the above course, taking care that the tide of flood does not set you on the north breaker, till you come within half a mile of the light-house, when you may anchor in 3 fathoms water. Buoys are, in general, placed on the bar, in 12 feet water at low tide. The buoys are black.

There is another ship channel to the southward of this, called Lawford's channel, where you will have from 10 to 12 feet, according as the tide may be. In going into this channel, the course is N. N. W. There is a buoy here also. This anchorage is called Five-fathom hole, but it has no more than 3½ fathoms. From thence your course is about N. by E. 3½ miles, in 6 or 8 fathoms water, which will carry you abreast of Cumming's point; when this point bears west, half a mile distant, steer N. N. W. for the S. W. part of Sullivan's island; you will have from 7 to 10 fathoms water. You may go within a quarter of a mile of Sullivan's island, as it is bold. Your course from thence to Charleston is about W. ½ N. and the distance 4½ or 5 miles. When you bring Hog island to bear N. and Fort Johnson to bear S. by W. you are up with the eastern end of the Middle ground, which you must not go nearer to than 3 fathoms. You may then steer nearly W. keeping in 4 or 5 fathoms water, which will carry you between the Marsh or Shut's folly and the Middle ground. This channel is narrow, not being more than a quarter of a mile broad, as the flats lie off from Shut's folly one quarter of a mile. Continue your west course till you come up to the town, where you may anchor in 5 or 6 fathoms water. In running up from Sullivan's island, stand no nearer to the southward than till you come into 3 fathoms, for fear of the spit (a Middle ground that lies off to the N. E. and E. from Fort Johnson's point) as far as Cummings' point, nor to the northward nearer than 3 or 4 fathoms.

After sailing from Sullivan's island, as before directed, you must, if bound through the S. W. channel, or by Fort Johnson's point, bring the point of land, on which the fort is, to bear S. S. W. and run directly for it, where you will have from 4 to 6 fathoms. When abreast of this point, direct your course about N. W. by W. in 6 and 7 fathoms, about one mile, or till you bring a point of woodland to the northward of the town of Cooper's river to bear N. N. W. when you may run N. W. by N. about one mile, which will carry you up to the town, and anchor as above directed.

You may see Charleston light-house, in clear weather, in 10 fathoms water. The winds on the soundings govern the current. Var. 4° E. 1819.

[☞ *See the Plate.*]

NOTE.—As St. Michael's church steeple has been newly painted a very brilliant white, and can be seen 20 miles at sea, mariners are informed of the circumstance to prevent any mistake.

Orders and regulations for the port of Charleston, (S. C.)

The harbour-master of the port shall keep an office at some convenient place, to which all persons having business with him, may, at any time, repair between the rising and setting of the sun, and in some conspicuous part of said office he shall affix the regulations of the harbour, copies of which he shall cause to be furnished to each captain or commander of a vessel, immediately on his arrival.

No ship or vessel shall be allowed to haul into any dock or to a wharf, upon any pretence whatever, until her yards are top'd, jib and spanker booms rigged in, spritsail yards

fore and aft, and such anchors as are not in use, on the forecastle deck, or such other part of the vessel as not to obstruct other vessels passing her sides.

The harbour-master shall have full power and authority, and he is hereby required to order and direct the anchoring and mooring of all vessels coming into port, as also to fix their proper births, and upon application to order any vessel in ballast, light, or taking in cargoes at any of the wharves, to slack their fast and give an inside birth to a loaded vessel; provided that, at the time of the application, there shall be no other birth vacant, or as suitable at the wharf in question, or at the adjoining wharves—and that no loaded vessel be allowed more than ten days for the discharge of her cargo. It is further enjoined on the harbour-master, to take care that no vessel be permitted to remain at anchor in the river, within the distance of fifty fathoms, from the outermost vessel lying at any of the wharves.

If any captain, commander, or owner of any vessel, shall refuse to anchor, moor or slack his fasts as aforesaid, when required so to do by the harbour-master, it shall be the duty of the said harbour-master immediately, and without delay, to procure the necessary aid and assistance to anchor, moor, or slack the fasts of said vessel, and the expense thereby incurred, to charge to the captain, commander, or owner thereof, and if the same be not paid within twenty-four hours after their being furnished with the amount, such charge shall be recoverable in the inferior city court, at the next term thereafter, with full costs, without the right of imparlance.

The docks and channels of the harbour shall be under the direction of the harbour-master, who is hereby required to prevent any ballast or rubbish being thrown therein, and to keep the same open and free from obstruction; and every person or persons offending in the premises, is and are hereby made liable to be fined in the sum of twenty dollars for every such offence, with costs, to be recovered in the inferior city court, without the right of imparlance: and the harbour-master, as a compensation for his attendance to prosecute said suits, shall be entitled to receive one half of all the fines so recovered; the other half to go to the use of the city; and the said harbour-master is hereby declared a good witness, in all cases, notwithstanding he may be the informer.

If any person or persons shall molest or attempt to obstruct the harbour-master in the execution of the duties of his office; all and every such person or persons shall, upon conviction in the inferior city court, be liable to be fined in the sum of 20 dollars, and all costs attending the suit.

The harbour-master shall be amenable for all such losses as shall arise through his neglect, and upon his omitting to perform the respective duties assigned him by this or any other ordinance, he shall forfeit and pay, for the use of the city, the sum of twenty dollars, for every such offence, upon conviction in the inferior city court, with costs, and shall be liable to be dismissed at any time, for any cause or matter which to the council shall appear sufficient.

The harbour-master shall take all lawful means to prevent negroes and other slaves being clandestinely or illegally carried away in any ship or vessel from this port; and to secure them in the work-house for the use of the owner, who shall pay a reward of ten dollars to the harbour-master, for every such negro or other slave so secured as aforesaid, and every constable or constables aiding and assisting in the taking and securing such negro, shall be entitled to receive from the owner aforesaid five dollars each; and in case of refusal on the part of the owner, the parties shall recover the same in the inferior city court, with full costs.

To prevent paupers and others, who are likely to become a charge and burthen to the community, from being brought into this city from any of the United States, or from any foreign country; that every master of a vessel arriving at the port of Charleston, shall, as soon as he has entered his vessel with the collector of the customs, deliver to the master of the said port of Charleston a perfect list or certificate, under his hand, of the christian and surnames of all passengers, as well servants as others, brought in such ship or vessel, and their circumstances, so far as he knows, noting their places of nativity, or residence; and their occupation or profession, and whether he considers such passenger or passengers as likely to become burthensome to the community, on pain of forfeiting the sum of ten dollars for every passenger whose name he shall omit to enter in such list or certificate, to be recovered in the inferior city court, in the same manner as all fines and forfeitures have heretofore been recoverable. And should it so happen, that any passenger or passengers so brought in, is or are likely to become a burthen to the city; if such person or persons shall refuse to give security, or cannot procure sufficient security or securities to become bound for his saving the city from such charge; in such case the master of the vessel in which such person or persons came, shall and he is hereby obliged and required to send him, her, or them, out of the city again, within the space of three months next after their arrival, or otherwise to give security, to indemnify and keep the city free from all charge for the relief and support of such pauper or paupers, unless such person or

persons was before an inhabitant of this state, or that some infirmity happened to him or her during the passage; and the harbour-master of the port of Charleston is hereby required to notify to all masters of vessels entering this port the purport of the above clause, free of reward.

The harbour-master shall have authority to appoint one or more deputies, to be approved of by the intendant, who shall take the same oath of office as himself, and be subject for the same penalties for neglect of duty.

From Charleston bar *to* *Port Royal.

From 5 fathoms water off Charleston bar to North Eddisto inlet, the course is S. W. by W. ½ W. and the distance 5½ leagues; this course will carry you clear of the shoals which lie off Stono inlet, which lie further off than any that are in your way to Eddisto. Stono inlet is about two leagues from the south channel of Charleston; between them lie two islands, viz. Morris island, on which the light-house stands, and the island called the Coffin island. With the light-house open of the Coffin island, you will go clear of the Stono shoals, in 6 fathoms water; but if you shut the light-house in with the Coffin island, you will not have more than 5½ fathoms off Stono shoals: you will pass close to the breakers, and consequently be in danger; the breakers, unless the sea be smooth, shew where the shoal is. In Stono inlet there are 9 or 10 feet of water, at low water, but it was not much frequented until Charleston was blocked, in the year 1775.

From Stono inlet to North Eddisto inlet, the course is S. W. by W. ½ W. and the distance 11 miles; between them the soundings are regular, and the shoalings, when you are coming from the offing towards the shore, are very gradual; the bar off North Eddisto, and the shoals which are contiguous to it, lie off about 4 or 5 miles from the land. Close to the bar and shoals there are 3 and 4 fathoms water; on the bar, there are 9 or 10 feet at low water. South Eddisto is 3 leagues W. S. W. from North Eddisto. The shore of the islands, which lie between them, may be approached with your lead, without danger. The shoalings toward it are gradual.

If bound to the southward or northward, and obliged, through stress of weather, to make a harbour in North Eddisto, you must, when within about 6 miles of the land, open a tree (which resembles an umbrella) with the south point of the harbour, and then steer in N. W. without any danger, and anchor in 6 fathoms water, on the northern side of the harbour. [*The tide here is very rapid.*] In the harbour, 4 miles west from anchorage, you may get good water.

When you are coming from sea for Port Royal harbour, you should get into the latitude of St. Michael's head, which is 32° 6′ N. then steer west for the head, and when you come within 15 leagues of it, you will have from 20 to 25 fathoms water. Continue your west course until you make the land, which you will do, if the weather be clear, at a distance of 6 leagues in 12 fathoms water. The land hereabouts is generally low, but the trees are high. Port Royal entrance is known by a small grove of trees, which stand on the north side of it, and tower above all the other trees, like a high crowned hat; hence this grove is called the Hat

* Port Royal is 6 leagues N. E. ¼ E. from Tybee light-house, at the entrance of Savannah river, and has a harbour sufficient to contain the largest fleet in the world.

of Port Royal. Continue to steer, as before, keeping your lead going until you get into 8 fathoms water, when you will be about 3 leagues from St. Michael's head. You may then steer a point to the southward of west, until you get into 5 fathoms water; then steer more southerly, taking care not to bring St. Michael's head to the northward of N. W. by N. until you see the great north breaker, called Cole's Care, close to which there are 4 fathoms water; this shoal must be left on the starboard side. As you approach this breaker, from the northward, you will see another breaker to the southward, called Martin's Industry; between these two breakers lies the entrance of the channel into Port Royal harbour, which is about a mile wide. The mark to go clear of the north breaker is, a parcel of high trees which stand near the mouth of the river May, and appear like an island, kept just open of Elizabeth point. Your course through, between the two shoals, is W. ½ N. or W. by N. In this channel there are not less than 3½ or 4 fathoms, at low water. Continue to steer as aforesaid, between the two breakers, until you bring Phillip's point to bear N. N. W. then steer directly for it, and you will have, as you proceed, 9, 8, and 7 fathoms water. When you are abreast of Phillip's point, give it a small birth, and steer up N. by W. ½ W. in 6 and 5 fathoms water; in the latter depth you may anchor in a very safe harbour.

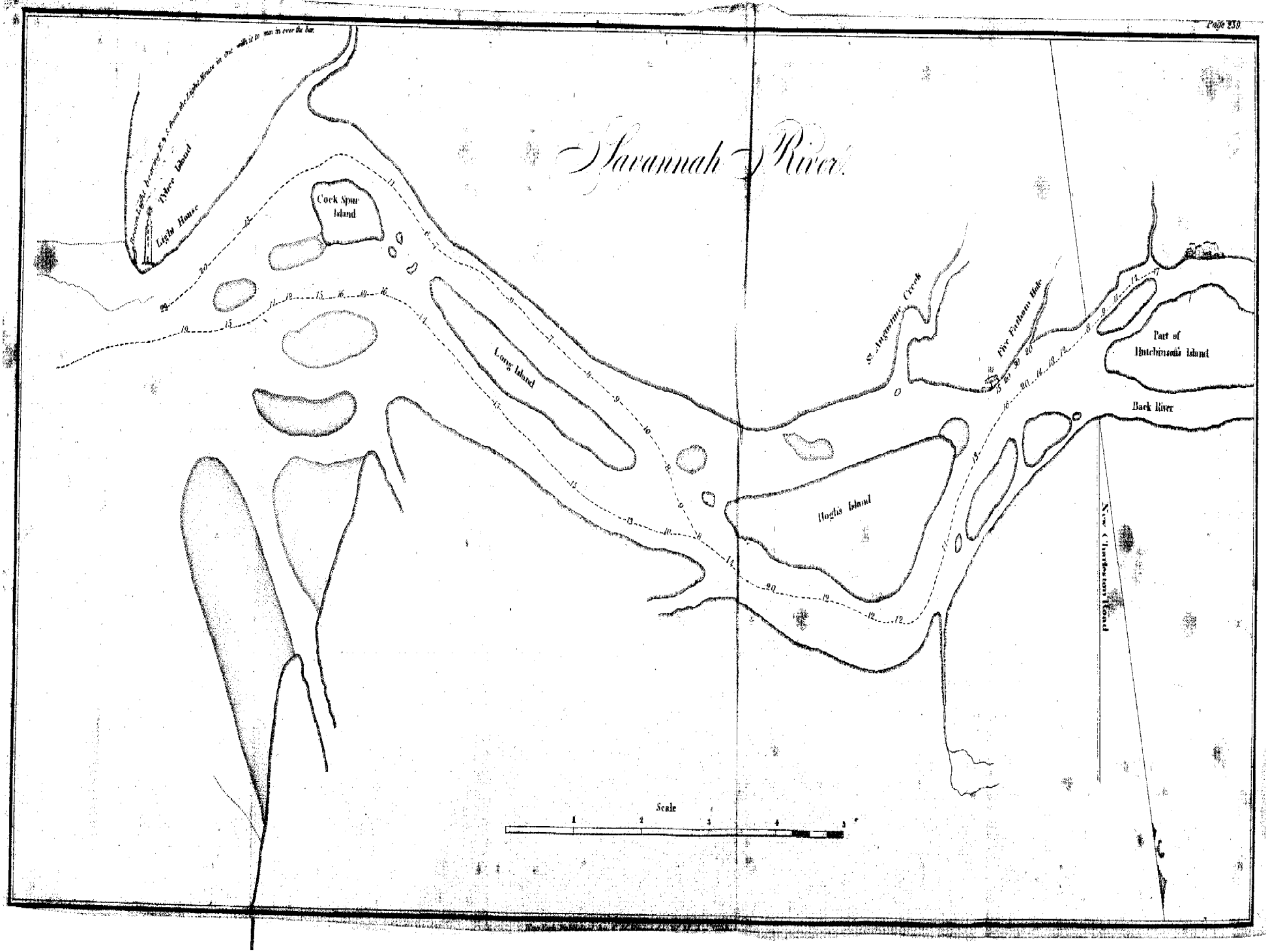
There is also a channel between Martin's Industry and Gaskin bank, called the South channel, in which there are not less than 12 feet at low water. In order to go in through this channel, you must, when in 7 fathoms water, bring Hilton's head to bear N. W. by N. and then steer with an ebb tide N. W. and with a flood tide N. W. by N. until Phillip's point bears N. by W. ½ W. You may then steer for the point, and proceed as before directed.

About 3½ miles S. E. from Hilton's head, and 4 miles S. by E. from Phillip's point, lies the east end of the Joiner's bank; it thence extends W. N. W. about 2½ miles, and has 3½ fathoms on it at low water. Hilton's head is on the south side of the harbour, and is a higher bluff point of land than any thereabouts.

Tybee inlet lies 6 leagues S. W. ½ W. from the entrance of Port Royal south channel; between them is Hilton's head island; it is large, fertile, and well inhabited. From this island the Gaskin bank extends about 8 miles on the broadest part. You may proceed along this bank in 5 fathoms water.

Some, when bound to Port Royal, reckon it best to make the land about Tybee, because the light-house makes that part of the coast distinguishable from any other part. Tybee inlet is the entrance of Savannah river. Ships which draw 14 or 15 feet water, may go in at Tybee, and proceed through land to Beaufort in Port Royal islands, and from Beaufort, vessels of 8 or 9 feet water may go through land to Charleston. From Charleston, vessels drawing 7 or 8 feet water, may go through land to the river Medway, in Georgia, which lies 30 miles south of Savannah.

On this coast it is observed, that N. E. easterly, and S. E. winds cause higher tides than other winds, and also somewhat alter their course. At Port Royal entrance the tide flows on the change and full days of the moon, one quarter past 8 o'clock. About 6 leagues from the land, in 12 fathoms water, the flood sets strongly to the southward, and the ebb to the northward; further off from the shore there is no tide at all. Near to the entrance of the harbour there is a strong indraught, during the flood tide, and an outset with an ebb tide.


Savannah River.
Tybee Island
Light House
Cock Spur Island
Long Island
St. Augustine Creek
Five Fathom Hole
Part of Hutchinson's Island
Back River
Hogis Island
New Charleston Road
Scale
1
2
3
4
5

Winds and weather on the coast of South-Carolina.

When the wind blows hard in the N. E. quarter, without rain, it commonly continues to blow violent for some time, perhaps 3 or 4 days; but if such winds are attended with rain, they generally shift to the E.—E. S. E. and S. E.

S. E. winds blow right in on the coast, but they seldom blow dry, or continue long; in 6, 8, or 10 hours after their commencement, the sky begins to look dirty, which soon produces rain. When it comes to blow and rain very hard, you may be sure that the wind will fly round to the N. W. quarter, and blow very hard for 20 or 30 hours, with a clear sky.

N. W. winds are always attended with clear weather. They sometimes blow very hard, but seldom do so longer than 30 hours.

Gales on the coast of South Carolina frequently increase much in violence toward their conclusion, and then break off at once, leaving a cross sea, with almost no wind.

The most lasting winds are those which blow from the S. S. W. and W. N. W. and from the N. to the E. N. E. When the wind is in any of these quarters, the weather is the most settled.

Thunder gusts are very common on this coast in the summer time; they always come from the N. W. quarter, and are sometimes so heavy that no canvass can withstand their fury; they come on so suddenly, that the greatest precautions are necessary to guard against the effects of their violence.

St. Helena Sound.

The entrance of this sound lies between South Eddisto island and the northernmost Hunting island; it is about 2 leagues wide. This place is navigable by vessels of 7 or 8 feet water only; it is full of sand banks, many of which are dry at low water. Six rivers empty themselves into this sound, viz. South Eddisto, Ashappo, Cumbahaw, Chehaw, True Blue, and Corsaw. These rivers are all navigable; some of them come 200 miles down the country, but few of them can be navigated by vessels of 6 feet water, far more than 38 or 40 miles from the sound. From the entrance of St. Helena Sound, along the Hunting islands, to the entrance of Port Royal, the course is S. W. ½ S. and the distance about 5½ leagues. The soundings are regular; you will have 5 or 6 fathoms water.

From Charleston bar *to* Tybee.

When over the bar, in 8 fathoms water, the course is S. W. distance 22 leagues. As you come near the latitude of Port Royal entrance, which is 32° 8′ N. be careful to avoid a very dangerous shoal, called Martin's Industry; it lies 4 leagues from the south side of the entrance of Port Royal, which is the north side of Hilton head, the highest land in sight; come no nearer than 7 fathoms, keeping your lead going; and,

in the night or thick weather, do not approach nearer than 10 fathoms; the tide of flood sets boldly in. When you get to the southward of Hilton head, you will see the light-house which stands on the island of *Tybee.

If in the night, and you are to the northward of Tybee, be careful of going nearer the Gaskin bank than 5 fathoms. In fresh winds, you take a pilot abreast of the light-house—in moderate weather, without the bar. In clear weather you may see the light-house at the distance of 12 miles.

Near the Gaskin bank and Martin's Industry, the flood runs strong into Port Royal, to which may be attributed the loss of so many vessels on these banks.

Off Tybee there are two large coppered buoys, one on the tail of the knoll in two fathoms water, bearing from the light-house N. N. W.; the other in 4¼ N. E. by N. from the light-house, in mid-channel, where large vessels may anchor with safety when wind and tide will not permit to proceed higher up.

Vessels entering Savannah river must run till the beacon erected on Tybee bears nearly with the light-house (the latter bearing west); and then they will cross the bar in the best water. On the bar is a buoy with a white top, in 4½ fathoms water, distant 4½ miles from the light-house. The deepest water is between the buoy and the south breaker head. [The beacon is a mast with a black cask on it.]

On Savannah bar there are 18 or 19 feet at low water. On the south breaker there are not more than 7 or 8 feet water; and 1¼ mile from the light, it is bare at low tide. On the north breaker there is not less than 12 feet for the distance of a mile.

After getting into 4 fathoms water you will be over the bar, when you must haul up W. N. W. until the light-house bears S. S. W. then anchor.

The point of shoal which runs down from Cockspur island, and separates that channel from the ship channel, bears N. ½ W. from the light, and has not more than 5 feet on it at low tide. When to the northward of this point, the light bearing S. S. E. you may anchor in 4 or 5 fathoms.

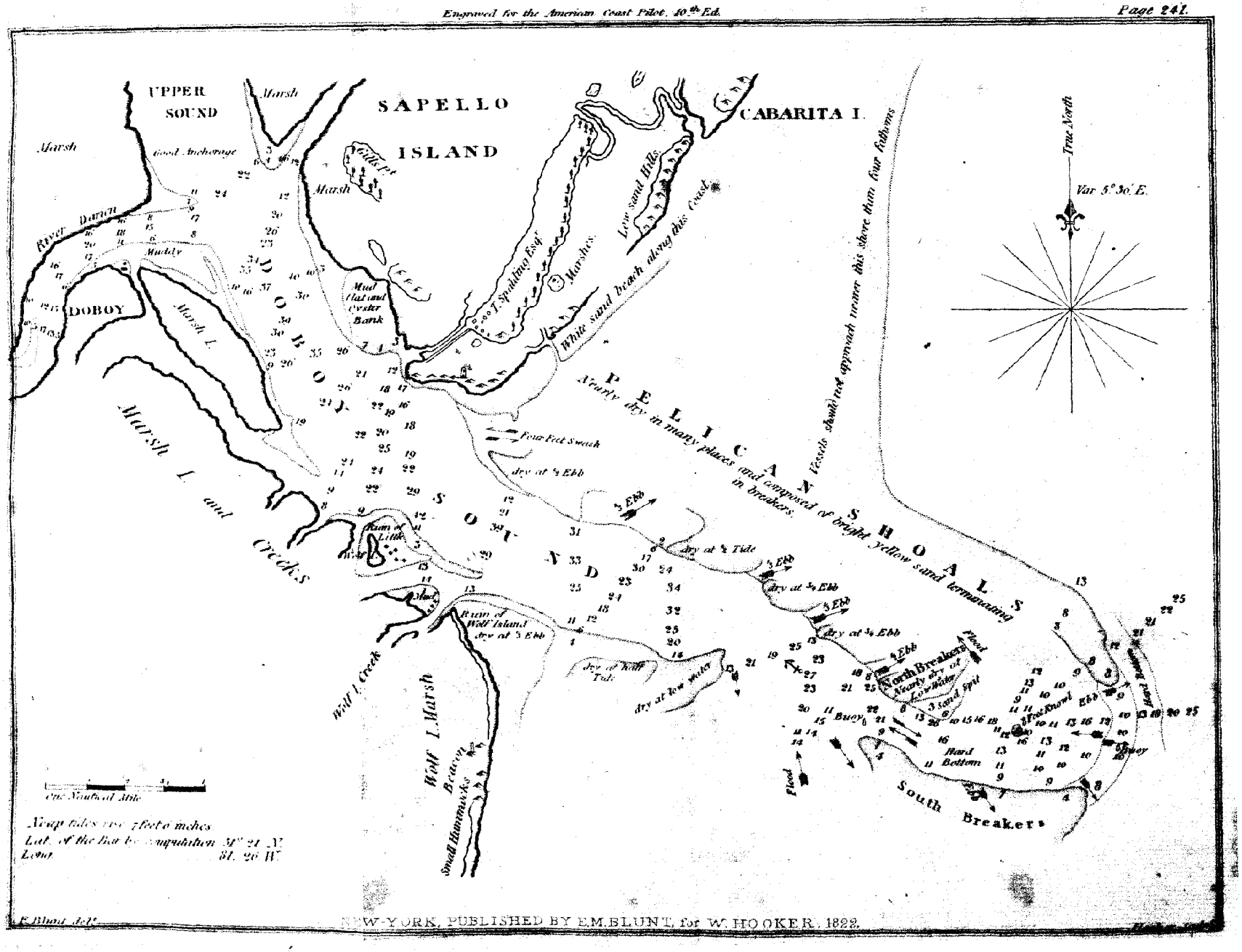
Vessels drawing not more than 8 or 9 feet may keep the light or island side on board, and run into Cockspur and anchor, as they cannot pass the upper end of the island until half flood, there being only 7 or 8 feet at low tide.

There are three bars, having from two to three fathoms, on the back of Tybee and Cabbage island; but they are never to be attempted but in absolute necessity.

NOTE.—Sailing into Savannah you will observe the following marks and buoys, viz. a large buoy lies on the outer edge of the bar in the deepest water, having all the leading marks on the beacon and light-house in one, bearing W. ½ N. distant 4 miles. Another buoy lies in the same direction, one mile within the bar; a third buoy lies one mile farther W. by N. from the second; a fourth buoy lies N. W. by W. from the third; after passing which there is safe anchorage for a large fleet, in 4 or 5 fathoms, at low water, the light-house bearing S. S. W.

The buoys lie and lead in the deepest water, having a channel half a mile to the northward, and one quarter of a mile to the southward of them (in the narrowest place)

* Tybee island lies at the mouth of Savannah river, to the southward of the bar. It is very pleasant, with a beautiful creek to the west of it, where a ship of any burthen may lie safe at anchor. A light-house stands on the island, 80 feet high, containing a fixed light, is 17 miles E. S. E. ½ E. from Savannah, and 6 leagues S. W. ½ W. from Port Royal. Warsaw sound is formed by the southern end of this island.



E. Blunt delt.

NEW-YORK, PUBLISHED BY E.M.BLUNT, for W. HOOKER. 1822.

nearly the same depth of water, and there are 20 feet on the bar at lowest tides; you may sail either side of the buoys.

[☞ *See the Plate.*]

Tybee creek has 11 feet through it at low water.

Forty miles south of Savannah lies Sunbury, a port of entry, at the head of St. Catharine's sound, between Medway and Newport rivers, about 15 miles S. of Ogeeche river. There is a bar here, but the harbour is capacious and safe, and has water sufficient for ships of great burthen.

Wassaw has 10 feet on the bar, but it is too intricate for strangers.

Directions for Hogoheehee River.

Hosaba bar, at the mouth of the river Hogoheehee, has 18 feet water on it, to cross which, bring Green island to bear N. W. by W. steer in W. by N. till you deepen your water, then haul up N. W. by N. and you will soon get in 8 or 9 fathoms, when your eye and lead will be your best directions; at the extremity of the channel you will keep Hosaba nearest on board, until nearly up with the lower part of Buzzard island, when the channel will be close under the starboard shore.

Green island (the seat of hospitality) is much higher land, has taller timber than the surrounding forests, containing several hundred acres, covered with pine, which generally has a greenish appearance.

St. Catharine's Bar,

Which is difficult for strangers, lies one mile south of the north point of the island, has but 8½ feet at low tide; channel not more than 200 yards wide, the shoals generally dry each side of the bar. It is better for vessels bound to Newport, Sunbury, or up these streams, to enter at Sappello or Hosaba, and go the inland passage, which is not difficult.

Directions for Darien.

Doboy bar lies in lat. 31° 21′ N. long. 81° 34′ W. Vessels making the land, when in 5 or 6 fathoms water, will, during clear weather, see the beacon on Wolf island, which must be brought to bear W. ½ S. Run exactly in this course till the buoy, on the outer edge of the bar, is made, which may be passed on either side. Continue this W. ½ S. course till near the inner buoy, opposite the north breaker. In passing them, the north breaker is to be kept on the starboard and the buoy on the larboard hand, taking care at the same time that the flood tide does not set the vessel on the north breaker. In running this course, the bar is crossed with not less than 12 feet at low water. When abreast of the inner buoy, run from it 1¼ mile in a direction exactly N. W. by W. where the anchorage

is excellent in 4 fathoms at low water, which will bring the vessel in the vicinity of the *light-house. The neap tide ebbs 7 feet.

The following are the depths of water, bearings and distances of two buoys, placed in Doboy inlet, leading to Darien, Georgia:

Buoy No. 1, sunk in 18 feet water at low water, on the outer edge of the bar, bearing E. ½ N. from the beacon on Wolf island, 3¾ miles distant, and 4½ miles from the S. point of Sapello, in an E. S. E. direction.

Buoy No. 2, sunk in 21 feet water at low water, off the north breaker-head, bearing E. ½ N. from the beacon aforesaid about 2½ miles, and in a S. E. by E. direction, 3½ miles from the south point of Sapello. This buoy is S. E. by E. ½ E. 5½ miles from Doboy island, and from the most southern part of the north breaker one-third of a mile W. by S. ½ S.

Tybee *to* St. Simons.

Bring Tybee light-house to bear N. W. in 10 fathoms water, then steer S. W. by S. distance 24 leagues, to go clear of the shoal of St. Simons, which lies off St. Simons E. S. E. 4 leagues. There are 4 and 5 fathoms close to this shoal; to avoid which, come no nearer than 8 or 9 fathoms. The island of †St. Simons is on the north side of the sound or harbour of the same name, which lies in lat. 31° 01′ N. and may be known by four trees standing thus, † † † †. On the south side of that harbour lies Jekyll island, on which are remarkable trees, appearing like umbrellas, and thence called the umbrella trees. St. Simons and Jekyll island beaches are remarkably white. The bar at the entrance of St. Simon's sound lies 9 miles from the light.

Other directions.

Bring the light-house on St. Simons to bear W. N. W. northerly, and steer right for it until you get within the bar, which will be known by the southern extremity of Jekyll island bearing S. W. by S. you will give the point of the light-house a birth of about a cable's length.

The tide of flood sets S. S. W. and the ebb N. N. E. It flows at full and change, at St. Simon's bar, E. S. E. and W. N. W. 7 h. 30 m.

From St. Simons to St. Johns the flood sets S. by W. and ebb N. by E.

The tide flows on the change and full days of the moon, as follows, viz. in the Sound 9 o'clock; on the bar, half past 7 o'clock; and in the offing, three-quarters past 6 o'clock.

* The light-house is erected on the south point of Sapello island. The lantern is elevated 74 feet above the level of the sea, and contains a revolving light, which revolves once in every 5 minutes, during which period the greatest power of light, and a total darkness will be produced 3 times, each alternately, at any distance between 10 miles and 8 leagues; when you approach the light within 3 leagues, it will not totally disappear, but the greatest strength of light, to that of the least, will be as 40 to 1.

To distinguish this light-house from any other on the neighbouring coasts in the day, the tower is painted in stripes horizontally, red and white, which gives it the appearance of a ship with the sails clewed up.

† A light-house is erected on the S. W. end of St. Simons' island, containing a fixed light. It is a stone edifice, 50 feet high, the lamps 60 feet above the level of the sea.

Directions for St. Mary's *and* Amelia Bar.

Vessels from the northward, after passing Jekyll island, which lies in lat. 31°, ought to keep in 7, 6, or 5 fathoms water, as weather and size of the vessel may admit. As you proceed towards the southern part of Cumberland you will open Dungeness House, which is about 1¾ miles distant from the south point of said island, and is the only conspicuous large building on this coast, and is hid by the trees when you are to the northward. Southward of this house there is a space of about two miles with no trees on it, which makes the south point of the island appear (at a distance) like an island of about two miles in length.

In running southwardly for the bar, keep in 6 or 7 fathoms water, until the light-house* bears N. W. ¼ W. then steer for it; when on the bar there will be 12 feet at low water; within the bar, where a buoy is placed, 3 fathoms. Leaving the buoy on your starboard hand, steer N. W. by N. 3 miles, which will bring you on the tail of the middle ground, lying on the larboard hand; continuing this course, you will open the pilot's house on the south point of Amelia, keeping in 3 fathoms water. When the south point of Cumberland bears N. E. distant half a mile, there is good anchorage.

Full sea at St. Mary's bar on full and change at half past 7 o'clock, slack water at 8. Average tides 7 feet.

St. Mary's *to* St. John's.

The course is S. ½ E. distance 8 leagues to St. John's; in making this place when bound into St. Augustine, there is a round high bluff, at the south side of the river, known by the name of the General's Mount; the small craft running in from Amelia to St. Augustine generally make it, and take their departure. On the north side of the harbour is Talbot island, in length 5 miles; it is low and full of trees, lying north and south; there are 16 feet water on the bar at high water. The latitude is 30° 32′ N. The St. John's is a long and broad bay, which receives the impressions of the tide at more than 150 miles from its mouth, running parallel with the ocean. This bay affords the finest navigation that I am acquainted with; you will find in all parts of it, after passing the bar, up to the entrance of Lake George, 20 feet water; this lake, to its south-east extremity, is upwards of 10 feet in depth.

Lake George is a little sea, of nearly sixty miles circumference, at the extremity of which is found a bank of shells, on which you have only about five feet water; but at two or three miles above this the branches of the St. John's re-unite, and a broad and deep channel conducts you to a lake. At full and change it flows S. E. by S. and N. W. by N. 9 h. 45 min.

Note.—The brig Young Maria struck several times on a sunken rock, and immediately after had 5 fathoms water, while running between St. Augustine and Amelia island.

St. John's *to the* Bay *of* St. Augustine.

St. Augustine is situated on the Main, about two miles within the bar,

* The light house is on the south point of Cumberland island.

immediately opposite the inlet; it is not passable for vessels drawing over fifteen feet of water. The island of Matanzas runs parallel with the ocean, and forms a point of the south end of St. Augustine inlet. When in 9 fathoms water, off the Bar of St. John's, the course is S. S. E. distance 10 leagues. The northernmost land of the bay is called Point Cartel. When you are as far to the southward as this point, you will see the island Anastatia, in length 18 miles, and on the south side of the bay; the north side of which has a high white tower, like a light-house, where a look-out is kept. When a vessel appears in sight, a signal is made to the town of St. Augustine, by hoisting their colours and firing a gun; if the vessel appears to the northward of the bay, and is a three-mast vessel, they hoist an ensign, and hang out a pole in the form of a triangle, with three balls on the north side of the tower; if to the south, the balls are hung out on the south side of the tower; if a two-mast vessel, two balls and a Jack hoisted; if a sloop, one ball and a pendant; for a fleet, they fire five guns and an ensign hoisted. The bar of St. Augustine has no more than 10 feet water on it at high water, spring tides, and at low water 5 feet, which at times makes it impossible for boats to pass. There is a swash to the northward of the bar, with 11 and 12 feet water; but the sand shifting often, and the passage being so narrow and crooked, the pilots seldom attempt it. The latitude of this signal tower is 29° 57′ N. It flows, at full and change S. E. by S. and N. W. by N. 9 h. 45 min. The variation off St. Augustine 7° E. 1819.

To anchor in the Bay of St. Augustine. *Observations on the Weather, and on the* Gulf Stream.

Bring the signal tower to bear S. W. ½ W. and the fort which stands to the northward of the tower W. ½ N. the new barracks will then be open of the northernmost part of Anastatia island; then bring up and you will have 10 fathoms water, and good holding ground: the northernmost land in sight will bear N. W. by N. the southernmost land S. S. E. and you will be near the middle of the bay, it being immaterial which way you cast your ship. But should you be too far to the northward or southward, there would be danger in casting the wrong ways, and more so on the tide of flood, which sets strongly into the bay. If it should be likely to blow from the eastward, do not attempt to get under way whilst the tide of flood runs.

From the 1st of November to the last of February, the hardest gales prevail that blow on this coast; and in general from the N. N. E. to the S. S. E. the wind any way easterly comes on very suddenly to a gale during the season above mentioned; and these gales give but very little warning. An experienced navigator says, "In the year 1777, I was at anchor in St. Augustine Bay, when it came on to blow at E. N. E. and in 15 minutes time I was obliged to slip, and had we not carried sail to the utmost, we should not have cleared the land to the southward. N. B. When the wind backs against the sun, with a small rain, you will perceive the sea to rise before the wind comes; then prepare for a gale, which in general will last 50 or 60 hours. If you should be obliged to cut or slip, carry all the sail you possibly can, to get an offing before it increases, so as to put you past carrying any sail, which is always the case; and observe that the flood tide setting to the southward will be of no service to you

farther out than 12 fathoms water, when you will be in the southern current until you get into 46 fathoms, which is about 15 leagues from the land. Then you are in the Gulf Stream, issuing out of the Gulf of Florida, and which runs strongly all along the edge of soundings about N. N. E. as far to the northward as the latitude 35° 15′. Then it sets more easterly, or about N. E. by N. as far as the latitude 37°. from thence as far as the Capes of Delaware or Philadelphia, in latitude 38° 50′, its direction is about E. N. E. and from thence, in the latitude of 38° 57′ N. it sets away nearly east." [*See page* 247, *for Gulf Stream.*]

Directions for making a speedy passage through the Gulf *to* New-York.

When in sight of Memory Rock, steer N. N. W. to lat. 29°, then N. to lat. 30°, (allowing, however, for the effects of strong breezes any way to clear dangers on both sides) which will keep them in the whole force of the stream, then N. E. till in the lat. of 32°, then steer N. E. by N. until you get into the latitude of Cape Hatteras, which is in 35° 14′ N. then you may haul up more northerly half a point, till you get on soundings in or near the latitude of the capes of Virginia. When in 18 or 20 fathoms, and near that latitude, steer N. by E. 78 leagues, and look out for the Highland of Neversink, which lies in lat. 40° 28′ N. and very remarkable, being 282 feet above the level of the sea, and lies S. W. from the entrance of the harbour of New-York. When you have nearly made the distance before mentioned, be careful not to run in the night or thick weather; and come no nearer than 12 or 14 fathoms. To come into the Bay of New-York, bring the light-house W. by N. or W. N. W. in 10 fathoms, and the southernmost part of the Highland of Neversink S. W. by S. [*See page* 207.]

Note.—Along the southern coast of America, you will find no tide farther out from the shore than 10 or 12 fathoms water, from that depth until the edge of soundings, you will have a current setting to the southward, at the rate of one mile per hour; when out of soundings, you will have the Gulf Stream setting to the N. E. quarter, and the farther you get to the northward, it sets more easterly, but not so strong as before mentioned; and when you get to the northward of 39° it sets about east.

The Setting of the Tide along shore from New-York *to* St. Augustine.

	Flood.	Ebb.
From the west end of Long Island to Cape May	W. by S.	E. by N.
From Cape Henlopen to Cape Charles	S. by W.	N. by E.
From Cape Charles to Cape Hatteras	S. S. W.	N. N. E.
From Cape Hatteras to Cape Lookout	S. W. by W.	N. E. by E.
From Cape Lookout to Cape Fear	S. W. by W.	N. E. by E.
From Cape Fear to Cape Roman	W. S. W.	E. N. E.
From Cape Roman to Charleston	W. S. W.	E. N. E.
From Charleston to Tybee	W. S. W.	E. N. E.
From Tybee to St. Simon's	S. S. W.	N. N. E.
From St. Simon's to St. John's	S. by W.	N. by E.
From St. John's to the Bay of St. Augustine	South.	North.

[We shall, in a subsequent part of the work, give a description of East and West Florida, commencing at the latter, which will embrace all the islands, keys, &c.]

General instructions for making the Bermuda Islands.

	Latitude.	Longitude.
Saint George's town, at the eastern end	32° 22′ N.	64° 33′ W.
Wreck Hill, at the western end	32° 15′ N.	64° 50′ W.

High water, full and change, at St. George's, half past 8. Common tides rise about 4 feet; but on the springs, or in gales of wind, frequently to 7 feet. The floods in the offing set to the N. E. and ebbs to the S. W.; but near the shore they run in various directions.

These islands being surrounded with innumerable shoals, much precaution is necessary in approaching them. The principal dangers lie to the westward and northward, and extend, from the land, between 3 and 5 leagues, in a due west line, from their southwestern point (round northerly) to a N. N. E. one, from David's head, their eastern extreme. The remainder of the coast, forming their southern and eastern boundary, may be approached in every part within a mile, and in several places to less than half that distance.

On account of the prevalence of westerly winds in the Atlantic, it has become the general practice for all vessels bound to the Bermudas, to make the land from the westward, by getting into their latitude about the 68th degree of longitude, and then steering an east course until they become visible.

The latitude of 32° 8′ N. being two miles to the southward of every danger, seems best adapted in fine clear weather for this purpose, and will bring you in sight of Wreck hill, which being of a conic form, and having a volcanic appearance, is the more remarkable. The moment this hill becomes shut in with the other lands, or is no longer distinguishable, you will have passed the only danger to be apprehended off the southern part of these islands, called the S. W. breakers (which do not, however, lie more than 1½ mile from the land) and may then immediately close with and steer along the south-eastern shore, within a mile, till you have got the length of Castle harbour, or brought David's head to bear about N. by E. where you must wait to receive your pilot, taking care during that time not to be drifted to leeward, as the currents generally set to the eastward.

Should you meet with a contrary wind, or the weather be extremely hazy, before you have got sight of the land, it will be prudent in the night not to stand to the northward of 32° 4′ or 5′; and if the wind should be inclining to the southward, I would recommend not beyond 32°.

If bound to the Bermudas from England, or from any part of Europe, I should recommend a direct course to be steered as long as the winds permitted; but the moment they become contrary, to get to the southward into the trades, and then run down the remaining longitude, taking care to haul to the northward in sufficient time to reach the latitude of 32° 8′ about the 68° of longitude, and then proceed as above described: but should fair winds continue the whole passage, the land may be made with equal safety from the eastward, by steering for them in the latitude of 32° 18′ N. which is two miles to the southward of David's head, their south-eastern extreme; and off which head there is no danger beyond half a mile, care being taken not to come to the northward of that latitude until you have brought the head to bear W. S. W. on which bearing it may be approached with safety till within one mile thereof, or till you receive your pilot.

In the course of making the land from the eastward, should the wind become contrary, or the weather prove dark, hazy, and tempestuous, come not during the night to the northward of 32° or 32° 6′; in which latitude, if you should be found to have run past the islands, you must proceed as before directed, in making them from the westward.

As the soundings do not extend more than two miles from the land on the southern side of the islands, a correct latitude and a good lookout, together with a strict attention to these instructions, is absolutely necessary.

Remarks on the Gulf Stream, *and the means of ascertaining when in its vicinity.*

The rivers emptying into the Gulf of Mexico, from August to February are all low, and in the other part of the year they are all high: consequently, the land (which is low) bordering on the most of these rivers, which are innumerable, requires the exhalation from the Gulf of Mexico to supply its moisture in the low stage of the rivers, between August and February. In the other parts of the year the low lands are generally covered with water, and are supplied, without the aid of the ocean, with all the moisture necessary. This, therefore, must be the cause why the Gulf Stream runs with more velocity between the months of February and August than in the other part of the year. But it is known to do so; as in the month of May the Gulf, in the Narrows between the Great Isaacs and Florida shore, runs at the rate of four knots, and in the month of November only about two and three-quarters; the current increasing and decreasing as you draw near or recede from the middle of those two months, which may be considered as the two points of time wherein the current runs with the greatest and least velocity. I shall here call from August to February the low, and from February to August the high stage of the water, and any one can proportion the rate of its force at any intermediate time between these two points. The true rate and course of the current cannot be properly given, as every blow and calm alters both its force and course; but in good weather and a steady breeze, the following comes near to the truth.

The Gulf Stream passes close to the extreme S. E. point of Cape Hatteras shoals, and 18 miles from the land; the soundings are from 12 fathoms on the outer part of the shoal, to 60 fathoms close on the edge of the stream.

The nature of that immense current, which continually sets from the Gulfs of Mexico and Florida, to the northward and north-eastward, along the greater part of the navigation described in this work, is already well understood; and, though we have noticed it, as to its effects, in several parts of the preceding directions, we yet deem that an unbroken view of it, in its whole course from the Gulf to the north-eastward, may still be acceptable; and this we shall attempt in the present edition.

Ships, in coming down the Gulf, often get from the middle, on the eastern edge, and experience a S. W. current rather than a N. E. one; the fact is, the Stream sets about N. ½ W. from the bank to lat. 30°, where it makes something of a short bend to the eastward, and if navigators, in sight of Memory rock, will steer N. N. W. to lat. 29°, then N. to 30° (allowing however for the effects of strong breezes any way to clear dan-

gers on both sides) they will find themselves to have been in the whole force of the Stream, and in a fair situation to steer N. E. and retain its propelling force of from 2¾ to 2 miles per hour. It thence suddenly turns to N. E. by E. or a little more easterly, to lat. 35° or about the parallel of Cape Hatteras.

From off Cape Hatteras its direction is E. by N. or a little more northerly, to longitude 70°, then east, rather southerly; and thence, diminishing in strength, it falls away to the E. S. E.

It has been stated, generally, by writers of ability, from the information of American coasters, that the northern edge of the Stream extends to the latitude of 41° 20′, or 41° 30′ in the meridian of the Isle of Sable; but this assertion has been controverted by others, who have averred, that its northern edge never ascends beyond the parallel of 40°, and that it does not always border on the shoals of Nantucket. We think the former correct.

It is, however, to be considered that a north, N. E. or east wind forces the stream towards the coast, contracts its breadth, and thus increases its rapidity. On the contrary, S. W. west, and N. W. winds force the stream farther into the ocean, and diminishes its strength. It is clear, then, that the stream fluctuates in its direction and force, according to circumstances; and no absolute rule can be given for ascertaining its more ordinary boundaries: it therefore follows, that a description of the indications, by which it may be known, is of the more importance.

These are the appearance and the temperature of the water. The stream in its lower latitudes and usual course in fair water, where it flows uninterruptedly, may be known by its smooth and clear blue surface; for, without the line formed by a ripple on its edge, the water, in some places, appears like boiling water of a blue colour; and, in other places, it foams like the waters of a cataract, even in dead calms, and in places which are fathomless.

On the outer edge of the stream, especially in fair weather, there are great riplings, which are very perceptible; and it has been observed, that within it, the water does not sparkle in the night. The appearance of the sea-weed, called gulf-weed, by day, is an indication of the edge of the stream.

Besides the effect which different winds have upon the Florida Stream, it is subject to another cause that also directs it towards or from the coast; and that is, the moon; which, according to her position, has different effects upon it, not, however, in equal power with those of the wind; but the disposition of the stream is increased to its extreme, if the effects both of the winds and moon are combined; for, at this time, the ocean rising highest, this regulates the flood and ebb, and divides them in proportionate times; consequently, it directs and increases them with the assistance of easterly moons and winds to the west, and with that of westerly moons and winds to the east; so that the west and east shores are at times deprived of, and at other times overflowed by tides, occasioned by these vicissitudes.

The boisterous east, N. E. and north winds, which affect the Gulf Stream, generally begin in September, and continue while the sun is in the south until March; when, if the moon happens just at the time to be on the full or change, they commonly end with a hurricane.

From what has been said, it is clear, that the eddies about the edges of the stream must vary according to the circumstances above explained.

Along these edges, but more particularly along the outer edge, there is generally a current running in a contrary direction, which is accelerated by the wind in proportion to its strength, blowing contrary to the stream, and retarded, or perhaps altogether obstructed, by the wind blowing in the direction of the stream. In the latter case, the limits of the stream will be extended.

In the winter, when the cold upon the land is most intense, which is generally between December and March, heavy and continued gales very frequently prevail, which commonly proceed from between the north and west across the course of the Gulf Stream, from Cape Hatteras until past George's bank, and bend its direction more to the eastward; being aided, at the same time, by the discharge of the great bays and rivers, increased by the force of the wind blowing down them, and the constant supply of stream that passes along the coast of the Carolinas, the whole produces so strong a current to the eastward, as to render it impossible for a ship to approach the coast until a change of wind commences.

During the prevalence of a southerly or easterly wind, which is not so common here, it has been found that the current is forced close to, and in some parts upon, the edge of soundings. From a scientific nautical gentleman, we received the following, viz. while off Cape Lookout, 17 fathoms water, he had a strong current from the southward, owing entirely to the Gulf current. This proves the Gulf governed entirely by winds. Being thus pent in between the wind and the shoal grounds near the shore, the breadth is greatly diminished, and the velocity proportionably increased. This circumstance has been, in particular, observed from about the longitude of Block island, along the edge of Nantucket shoals, thence beyond George's bank; and also, along the coast of Georgia, and part of South Carolina. In the first place, that the southerly winds forced the current to the edge of soundings, where it then ran from 1½ to 2 knots; and, in the latter place, that the easterly wind forced the current upon soundings. With west and N. W. winds, the stream would be removed some leagues farther off.

These remarks are sufficient to show the uncertainty of the boundaries or edges of the stream. These eddies, on the inner edge, are inconsiderable; but, on the outer one, in fine weather, they are strong, and of considerable extent.

Another indication of the Stream is, the *temperature of its water*, which is considerably warmer than the water on either side of it. By an ingenious work, entitled "THERMOMETRICAL NAVIGATION," written by Mr. John Williams, and published at Philadelphia, in 1799, we are informed, that *Commodore Truxton*, has often ascertained the velocity of the Gulf Stream, to the northward of Cape Hatteras, and found it to be seldom less than one knot, and never more than two knots, an hour. The temperature of the air and water without the Stream was generally about the same; that is, the difference seldom exceeded 2 or 3 degrees; the air being sometimes the warmest; at other times the water.

This gentleman has observed, "In the Stream the water is much warmer than the air; indeed I have known it 10 degrees warmer; but, so soon as you get within the Stream (that is between it and the coast) the water becomes colder than the air; and the more as you get on soundings and approach the shore.* If mariners, who have not the opportunity of de-

* By the journals of Capt. W. Billings, of Philadelphia, it appears that, in June, 1791, the water on the *coast* of America was at the temperature of 61°, and in the Gulf

termining their longitude by celestial observations, will only *carry with them a good thermometer*, and try the temperature of the water, and compare it with that of the air every two hours, they may always know when they come into, or go out of, the Gulf Stream. Indeed I have always made a practice, when at sea, of comparing the temperature of the air and water daily, and often, very frequently during the day throughout my voyage; whereby I immediately discovered any thing of a current that way going, and afterwards found its strength and direction by observations for the latitude and longitude. It is of the utmost consequence, in making a passage to and from Europe, to be acquainted with this Gulf Stream; as, by keeping in it, when bound eastward, you shorten your voyage; and, by avoiding it, when returning to the westward, you facilitate it inconceivably; so much so, that I have frequently, when bound from Europe to America, spoke European ships, unacquainted with the strength and extent of it, off the banks of Newfoundland, and been in port a very considerable time before them, by keeping out of the stream, whereas, they lengthened their passage by keeping in it. The general course of the Gulf Stream is marked on the chart, published by the author of this work in 1812, and improved to 1821, and I would advise those who make the northern passage from Europe, never to come nearer the inner line of it, by choice, than 10 or 15 leagues: and then the probability will be, that their passage will be assisted by the help of a counter current, which often runs within it. In coming off a voyage from the southward, be sure to steer N. W. when approaching the stream, if the wind will permit you; and continue that course till you are within it, which may be easily known by the temperature of the water, as before mentioned. I have always considered it of the utmost consequence, when bound in, to cross the stream as speedily as possible, lest I should be visited by calms or adverse winds, and by those means drove far out of my way, which would prolong the voyage considerably, especially in the winter season.

By the advantage of knowing how near to the coast a ship may venture, and how to distinguish the Gulf Stream from the water between it and the coast, we can be sure of a favourable current either way, and a small vessel might make a short voyage from Halifax to Georgia, which is thought by some a longer one than to Europe. Suppose you had the wind a-head all the way; take your departure, and stand for the stream; so soon as you find the water to increase in heat, about half as much as you know it would when in the stream, heave about and stand for the coast; you will infallibly discover the edge of soundings by the cooling of the water; then stand off again, and so on to the end of the voyage; when it is almost certain, that the distance would be run in a shorter time than if there were no stream; for you would have a favourable inside or eddy current. On the return passage, take your departure, and run off till you get into the warmest water, which will be the middle of the stream, and take the advantage of its current.

Stream at 77°.—By those of Mr. J. Williams it appears that, in November, 1789, the water on the coast was 47°, and in the Gulf Stream at 70°, viz.

1791, June,	Coast 61°	1789, Nov. Coast 47°	Difference between June and Nov.	Coast 14°
	Stream 77	Stream 70		Stream 7
	Stream warmer 16	Stream warmer 23		

The difference of heat is, therefore, greater in winter than in summer. See the concluding observation hereafter, and also the pamphlet published with "Blunt's Chart of the Western Ocean."

The following fact may serve to illustrate the propriety of these directions. In June, 1798, the mail packet, for Charleston, had 25 days passage in going, but returned in 7. The captain accounted for this by having calms, or very light airs, and a northerly current. This was the true cause. He was in the middle of the stream, where there generally are calms or light winds; the edges, only which come in contact with colder regions, being tempestuous. After being in the latitude of Cape Hatteras, he found himself in that of Cape Henry (37 leagues to the northward.) The vessel, however, arrived at last; and, on the return voyage, the captain steered the opposite course back again, and, with the same light airs, he performed the voyage in 7 days. Had this captain known the use of the thermometer, need he to have been much longer in going than in coming?

A vessel on her voyage from Marblehead to Havanna, after getting into lat. 23° 56′ N. was set by the gulf so far as lat. 32° 50′ N. and compelled to go into Charleston, after being 40 days at sea.

It appears also, by the work above quoted, that the thermometer is not only useful for ascertaining the current of the Gulf Stream, but that it is likewise advantageous in discovering the approach to soundings from deep water.

In June, 1791, Captain W. Billings, of Philadelphia, in latitude 39 deg. longitude 56 deg. abreast of the banks of Newfoundland, found that the mercury in the thermometer fell 10 deg. It was near the same place that a similar observation was made by Dr. Franklin, in November 1776, and another by Mr. Williams, in November, 1789, who has observed, that, "By the coincidence of these three journals at so great a distance of time, and without any connexion with each other, this important fact seems to be established. *A Navigator may discover his approach towards objects of danger, when he is at such a distance as to be able easily to avoid them, by attentively examining the temperature of the sea;* the water over banks and shoals being colder than that of the deep ocean."

At the edge of the grand bank of Newfoundland, the water has been found 5 degrees colder than the deep ocean to the eastward. The highest part of the bank is 10° colder still, or 15° colder than the ocean eastward.

On the coast of New-England, near Cape Cod,* the water, out of soundings, is 8 deg. or 10 deg. warmer than in soundings; and in the stream it is about 8 deg. warmer still; so that, in coming from the eastward, a fall of 8 deg. will indicate your leaving the stream, and a farther fall of 8 deg. will indicate your being on soundings.

On the coast, from Cape Henlopen to Cape Henry, the water out of soundings, is 5 deg. warmer than in soundings; and in the stream about 5 deg. warmer still; so that, in coming from the eastward, a fall of 5 deg. will indicate your leaving the stream, and a farther fall of 5 deg. will give notice of soundings.

Mr. Williams recommends to seamen to take three thermometers. "Let them," he says, "be kept in one place some days previous to your sailing, in order to try their uniformity. The plate should be of ivory or metal, for wood will swell at sea, and, as the glass tube will not yield, it

* The bank from Cape Cod extends almost as far as Cape Sable, where it joins the banks of Nova Scotia, deepening gradually from 20 to 50 or 55 fathoms, which depth there is in latitude 43°. In crossing the bank between lat. 40° 41′ and lat. 43° the bottom is very remarkable; on the outside it is fine sand, shoaling gradually for several leagues; on the middle of the bank, it is coarse sand or shingle, with pebble stones; on the inside, it is muddy, with pieces of shells, and deepens suddenly from 45 or 48 to 150 or 160 fathoms.

is from this reason very liable to break; bell-metal is the best. Let the instrument be fixed in a square metal box, the bottom of which, as high as the mark 30° should be water-tight, so that, in examining the degree of heat, the ball may be kept in the water; the remainder of the length should be open in front, with only two or three cross-bars to ward off any accidental blow, like the thermometer used by brewers. Fix one instrument in some part of the ship, in the shade, and in open air, but as much out of the wind and in as dry a place as possible. The after part of one of the after stanchions, under the quarter rail, may answer, if no better place can be found.

Let the second instrument be neatly slung, with a sufficiency of line to allow it tow in the dead water of the wake.

Put the other away safely, to be ready to supply the place of either of the others, in case of accident.

REFLOWING CURRENTS, &c.—On each side of the Gulf Stream, as before noticed, there is a counter current setting in a contrary direction. In the Gulf of Florida, between the stream and the coast, a smooth eddy commonly takes its current south-westerly, in an opposite direction to that of the main stream; and there is, even in its higher latitudes, a reflow on either side.

It has been found that, when Cape Henry (the south point of the Chesapeak) bore N. W. 160 leagues distant, a current was setting to the southward at the rate of 10 or 12 miles per day, which so continued until Cape Henry bore W. N. W. 89 or 90 leagues; the current was then found setting to the N. E. at the rate of 33 or 34 miles per day, which continued until within 32 or 30 leagues of the land; then a current set to the southward and westward at the rate of 10 or 15 miles per day, to within 12 or 15 miles of the land. This current, which is considered as the eddy of the Gulf Stream, sets more or less to the S. W. according to the figure of the coast.

It has also been observed by others, that a southern and western current constantly sets in high latitudes between the Gulf Stream and coast; more particularly in soundings, at the rate of half a mile an hour, or more, according to the wind.

An experienced officer of the navy, before quoted, has said that, "In all the observations I made during 5 years cruising on the American coast, I never found this eastern current to the southward of latitude 36°, and only once (the above-mentioned time,) so far; it generally prevailing between the latitudes of 37° and 40°, from the longitude of 60° to that of 69°. And I have often, about the latitude of 36° or 37°, and about the above longitude, found a strong current to the south and S. W. Therefore, ships from Europe, bound to America, should endeavour to make the passage either to the southward of latitude 37°, or to the northward of latitude 40°; that is to say, when as far, or to the westward of the Banks of Newfoundland, they should as much as possible avoid beating against the wind to the westward, between the latitudes of 37° and 40°.

Upon soundings, along the coasts of Georgia, Carolina, Virginia, New-Jersey, and New-York, the current runs in general parallel to the shore; and is in general, influenced by the wind, which mostly prevails from between the south and west, producing a slow current of about one or a half knot to the N. E. but when the N. and east winds prevail, the current along shore to the S. W. will frequently run two knots; on which the pilots of this coast remark, that the south and S. W. currents, though they but seldom happen, yet they are always stronger than those to the north-

ward, which are more frequent. It is probable the tides may have some influence on these currents, particularly near the entry of the great bays and inlets. The flood on this coast comes from the N. E. In the months of April and May I have observed, on crossing the Gulf Stream, in the latitude of Cape Henry, that, when near the inside of the stream, the water begins to colour of a deeper green; and thence to the edge of soundings, there is a strong current to the eastward. The colour of the water, from green, turns to muddy, when on soundings, the current still continuing until within the influence of the tide; this eastern current is, no doubt, occasioned by the discharge of water out of the Chesapeak, by the floods from the snow melting in the country; and it prevails, in some degree, throughout the year, but its effect is greatest at this time. It is probable that a similar current prevails off the mouth of the Delaware.

Round the east end of Long Island, and thence to the eastward round Nantucket Shoals, across George's Bank, to Cape Sable, a strong tide runs; the flood setting to the north and west, in order to fill up the bays, rivers, and inlets, and the ebb the contrary. The tides that set across George's Bank into the bay of Fundy are very much influenced by the winds, particularly if, after a strong S. or S. E. wind, it should suddenly change to W. or N. W. (circumstances that often happen;) ships will then find themselves drifted by the outset 50 or 60 miles in the 24 hours, or more, to the S. E. The indraught is also great with S. or S. E. winds, which ought to be paid particular attention to.

Upon the Nova Scotia coast the currents run parallel to the shore, but are more frequent from the eastward than from the westward, particularly in the spring; the southerly winds force them upon the shore by the water running in to fill up the bays and inlets; and the N. and N. W. winds have the same effect in forcing them off the shore. A regular tide here runs along shore; the flood from E. N. E.

We shall conclude this section with the observations on the Gulf Stream, &c. by Sir Charles Blagden, M. D. and F. R. S. extracted from the philosophical transactions.

"During a voyage to America, in the spring of the year 1776, I used frequently to examine the heat of sea-water newly drawn, in order to compare it with that of the air. We made our passage far to the southward. In this situation, the greatest heat of the water, which I observed, was such as raised the quicksilver in Fahrenheit's thermometer, to 77½ degrees. This happened twice; the first time on the 10th of April, in latitude 21° 10′ N. and longitude, by our reckoning, 52° W. and the second time, three days afterwards, in latitude 22° 7′, and longitude 55°: but in general the heat of the sea, near the tropic of Cancer, about the middle of April, was from 76 to 77°.

"The rendezvous appointed for the fleet being off Cape Fear, our course, on approaching the American coast, became north-wastward. On the 23d* of April, the heat of the sea was 74°; our latitude, at noon, 28° 7′ N. Next day the heat was only 71°; we were then in latitude 29° 12′; the heat of the water, therefore, was now lessening very fast, in proportion to the change of latitude. The 25th, our latitude was 31° 3′; but though we had thus gone almost 2° farther to the northward, the heat of the sea was this day increased, it being 72° in the morning, and 72½° in

* From the difference between civil and astronomical time, it becomes necessary to observe that the former is always meant in this work.

the evening. Next day, the 26th of April, at half after eight in the morning, I again plunged the thermometer into sea-water, and was greatly surprised to see the quicksilver rise to 78°, higher than I had ever observed it, even within the tropic. As the difference was too great to be imputed to any accidental variation, I immediately conceived that we must have come into the Gulf Stream, the water of which still retained great part of the heat that it had acquired in the torrid zone. This idea was confirmed by the subsequent, regular and quick diminution of the heat: the ship's run for a quarter of an hour had lessened it 2°; the thermometer, at three quarters after eight, being raised by sea-water fresh drawn, only to 76°; by nine the heat was reduced to 73°; and, in a quarter of an hour more, to 71° nearly; all this time the wind blew fresh, and we were going seven knots an hour on a north-western course. The water now began to loose the fine transparent blue colour of the ocean, and to assume something of a greenish olive tinge, a well known indication of soundings. Accordingly, between four and five in the afternoon, ground was struck with the lead, at the depth of 80 fathoms, the heat of the sea being then reduced to 69°. In the course of the following night and next day, as we came into shallower water and nearer the land, the temperature of the sea gradually sank to 65°, which was nearly that of the air at the time.

Unfortunately, bad weather on the 26th prevented us from taking an observation of the sun; but on the 27th, though it was then cloudy at noon, we calculated the latitude from two altitudes, and found it to be 33° 26′ N. The difference of this latitude from that which we had observed on the 25th, being 2° 23′ was so much greater than could be deduced from the ship's run, marked in the log-book, as to convince the seamen that we had been set many miles to the northward by the current.

On the 25th, at noon, the longitude by our reckoning, was 74° W. and I believe the computation to have been pretty just; but the soundings, together with the latitude, will determine the spot where these observations were made, better than any reckoning from the eastward. The ship's run, on the 26th, from nine in the forenoon to four in the afternoon, was about 10 leagues on a N. W. by N. course; soon afterwards we hove to in order to sound, and finding bottom, we went very slowly all night, till noon the next day.

From these observations, I think it may be concluded that the Gulf Stream, about the 33d degree of north latitude, and the 76th degree of longitude west of Greenwich, is, in the month of April, at least six degrees hotter than the water of the sea through which it runs. As the heat of the sea-water evidently began to increase in the evening of the 25th, and as the observations show that we were getting out of the current when I first tried the heat in the morning of the 26th, it is most probable that the ship's run during the night is nearly the breadth of the stream, measured obliquely across; that, as it blew a fresh breeze, could not be less than 25 leagues in 15 hours, the distance of time between the two observations of the heat, and hence the breadth of the stream may be estimated at 20 leagues. The breadth of the Gulf of Florida, which evidently bounds the stream at its origin, appears by the charts to be two or three miles less than this, excluding the rocks and sand banks, which surround the Bahama islands, and the shallow water that extends to a considerable distance from the coast of Florida; and the correspondence of these measures is very remarkable, since the stream from well known

principles of hydraulics, must gradually become wider as it gets to a greater distance from the channel by which it issues.

If the heat of the Gulf of Mexico were known, many curious calculations might be formed by comparing it with that of the current. The mean heat of Spanish town and Kingston in Jamaica, seems not to exceed 81°;* that of St. Domingo, on the sea coast, may be estimated at the same, from Mons. Godin's observations;† but as the coast of the continent, which bounds the Gulf to the westward and southward, is probably warmer, perhaps a degree or two may be allowed for the mean temperature of the climate over the whole bay: let it be stated at 82 or 83 degrees. Now there seems to be great probability in the supposition, that the sea, at a certain comparatively small distance below its surface, agrees in heat pretty nearly with the average temperature of the air, during the whole year in that part; and hence it may be conjectured that the greatest heat of the water as it issues out of the bay, to form the stream, is about 82°,‡ the small variation of temperature on the surface not being sufficient to affect materially that of the general mass. At the tropic of cancer, I found the heat to be 77°, the stream, therefore, in its whole course from the Gulf of Florida, may be supposed to have been constantly running through water from 4 to 6 degrees colder than itself, and yet it had lost only 4° of heat, though the surrounding water, where I observed it, was 10° below the supposed original temperature of the water which forms the current. From this small diminution of the heat, in a distance probably of 300 miles, some idea may be acquired of the vast body of fluid, which sets out from the Gulf of Mexico, and of the great velocity of its motion. Numerous observations on the temperature of this stream, in every part of it, and at different seasons of the year, compared with the heat of the water in the surrounding seas, both within and without the tropic, would, I apprehend, be the best means of ascertaining its nature, and determining every material circumstance of its movement, especially if the effect of the current in pushing ships to the northward is carefully attended to, at the same time with the observations upon its heat."

On the 25th of September, 1777, as the ships which had transported Sir William Howe's army up Chesapeake bay were returning towards the Delaware with the sick and stores, they were overtaken, between Cape

* History of Jamaica, London, 1774, vol. iii. p. 652, 653. The different observations of the heat recorded in that work do not agree together; but those adopted here are taken from that series which appear to me most correct.

† Monsieur Godin's experiments upon the pendulum were made at the Petit Grove. They continued from the 24th of August to the 4th of September, and the average heat during that time was such as is indicated by 25° of M. de Reaumer's thermometer, (see Mem. Acad. Scienc. 1735, p. 5. 7.) according to M. de Luc's calculation, (see Modifications de l'Atmosphere, vol. 1, p. 378,) the 25th degree of Reaumer's *true* thermometer answers to about the 85th of Fahrenheit's; but the average heat in Jamaica, during the months of August and September, is also 85°; hence we may conclude that the mean heat for the whole year is nearly the same on the sea coasts of both islands.

‡ The lowest calculation of the mean temperature of the Gulf is preferred on this occasion, because of the constant influx of new water from the Atlantic Ocean, produced by the trade winds, which water, not having been near any land, must, I think, be sensibly colder than that which has remained some time enclosed in the bay. On this subject, the observations made by Alexander Dalrymple, esq. relative to the heat of the sea near the coast of Guinea, ought to be consulted. (See Phil. Trans. vol. 68, p. 394, &c.)

Charles and Cape Henlopen, by a violent gale of wind, which, after some variation, fixed ultimately at N. N. E. and continued five days without intermission. It blew so hard that we were constantly losing ground, and driving to the southward : we also purposely made some *easting* to keep clear of the dangerous shoals which lie off Cape Hatteras.

On the 28th, at noon, our latitude was 36° 40′ N. and the heat of the sea, all day, about 65°. On the 29th, our latitude was 36° 2′ ; we had, therefore, in the course of these 24 hours, been driven by the wind 38 nautical miles to the southward ; the temperature of the sea continued nearly at 65°. Next day, the 30th, our latitude at noon was 35° 44′ only 18 miles farther to the southward, though, in the opinion of the seamen aboard, as well as my own, it had blown at least as hard on this as on any preceding days, and we had not been able to carry more sail ; consequently it may be concluded that, some current had set the ship 20 miles to the northward. To know whether this was the Gulf Stream, let us consult the thermometer. At half-after nine in the forenoon of this day, the heat of the water was 76°, no less than 11° above the temperature of the sea before we came into the current.

Towards evening the wind fell, and we stood N. W. by N. close hauled. As the sea still ran very high, and the ship scarcely went above 2 knots an hour, we did not make less than 3 points of lee-way on this tack ; the course we made good, therefore, was W. N. W. which, on the distance run by noon next day, gave us about 16 miles of *northing* ; but that day, the 1st of October, our latitude was 36° 22′, 38 miles farther to the north than we had been the day before ; the difference, 22 miles, must be attributed to the Gulf Stream. This, however, is only part of the effect which the current would have produced upon the ship, if we had contiued in it the whole four-and-twenty hours ; for though we were still in the stream at five in the afternoon of the 30th, as appeared by the heat of the water, being then above 75°, and at eight in the evening the heat being still 74°, yet by seven the next morning we had certainly got clear of it, the heat of the sea being then reduced to its former standard of 65°. On this occasion, therefore, we did not cross the stream, but, having fallen in with it obliquely on the western side, we pushed out again on the same side, as soon as the gale abated.

These observations having been made 3° to the northward of my former ones, it is curious to observe, that the heat of the Gulf Stream was 2° less. The seasons of the year, indeed, were very different ; but, perhaps, under such circumstances, that their effects were nearly balanced. In the latter observations the meridian altitude of the sun was less ; but then a hot summer preceded them : whereas, in the former, though the sun's power was become very great, yet the winter had been past but a short time. Calculating upon this proportion, we may be led to suspect, that, about the 27th degree of latitude, which is as soon as the stream has got clear of the Gulf of Florida, it begins sensibly to lose its heat from 82°, the supposed temperature of the Gulf of Mexico, and continues to lose it at the rate of about 2° of Fahrenheit's scale to every 3° of latitude, with some variation, probably, as the surrounding sea and the air are warmer or colder at different seasons of the year.

The preceding facts had made me very desirous of observing the heat of the Gulf Stream on my passage homeward : but a violent gale of wind, which came on two days after we had sailed from Sandy-hook, disabled every person on board, who knew how to handle a thermometer, from keeping the deck. The master of the ship, however, an intelligent man,

to whom I had communicated my views, assured me, that on the second day of the gale, the water felt to him remarkably warm; we were then near the 70° of west longitude. This agrees very well with the common remark of seamen, who allege, that they are frequently sensible of the Gulf Stream off Nantucket shoals, a distance of more than 1000 miles from the Gulf of Florida! According to the calculation I have before adopted, of a loss of 2° of heat for every 3° of latitude, the temperature of the Gulf Stream here would be nearly 73°; the difference of which from 59° the heat that I observed in the sea-water, both before and after the gale, might easily be perceived by the master of the vessel. This was in the winter season, at the end of December.

An opinion prevails among seamen, that there is something peculiar in the weather about the Gulf Stream. As far as I could judge, the heat of the air was considerably increased by it, as might be expected; but whether to a degree or extent sufficient for producing any material changes in the atmosphere must be determined by future observations.

Perhaps other currents may be found, which, issuing from places warmer or colder than the surrounding sea, differ from it in their temperature so much as to be discovered by the thermometer. Should there be many such, this instrument will come to be ranked amongst the most valuable at sea; as the difficulty of ascertaining currents is well known to be one of the greatest defects in the present art of navigation.

In the mean time, I hope, the observations which have been here related, are sufficient to prove that, in crossing the Gulf Stream, very essential advantages may be derived from the use of the thermometer; for, if the master of a ship, bound to any of the southern provinces of North America, will be careful to try the heat of the sea frequently, he must discover very accurately his entrance into the Gulf Stream by the sudden increase of the heat; and a continuance of the same experiments will show him, with equal exactness, how long he remains in it. Hence he will always be able to make a proper allowance for the number of miles that the ship is set to the northward, by multiplying the time into the velocity of the current. Though this velocity is hitherto very imperfectly known from want of some method of determining how long the current acted upon the ship, yet all uncertainty arising from thence must soon cease, as a few experiments upon the heat of the stream, compared with the ship's run, checked by observations of the latitude, will ascertain its motion with sufficient precision. From differences in the wind, and perhaps other circumstances, it is probable that there may be some variations in the velocity of the current; and it will be curious to observe whether these variations may not frequently be pointed out by a difference in its temperature; as the quicker the current moves, the less heat is likely to be lost, and, consequently, the hotter will the water be. In this observation, however, the season of the year must always be considered; partly, because it may, perhaps, in some degree, affect the original temperature of the water in the Gulf of Mexico; but, principally, because the actual heat of the stream must be greater or less in proportion as the tract of the sea, through which it has flown, was warmer or colder. In winter, I should suppose that the heat of the stream itself would be rather less than in summer; but that the difference between it and the surrounding sea would be much greater; and I conceive that, in the middle of summer, though the stream had lost very little of its original heat, yet the sea might, in some parts, acquire so nearly the same

temperature, as to render it scarcely possible to distinguish by the thermometer when a ship entered into the current.

Besides the convenience of correcting a ship's course, by knowing how to make a proper allowance for the distance she is set to the northward by the current, a method of determining with certainty when she enters into the Gulf Stream is attended with the farther inestimable advantage of showing her place upon the ocean in the most critical situation; for, as the current sets along the coast of America, at places on soundings, the mariner, when he finds this sudden increase of heat in the sea, will be warned of his approach to the coast, and will thus have timely notice to take the necessary precautions for the safety of his vessel. As the course of the Gulf Stream comes to be more accurately known, from repeated observations of the heat and latitudes, this method of determining the ship's place will be proportionably more applicable to use. And it derives additional importance from the peculiar circumstances of the American coast, which, from the mouth of the Delaware to the southernmost point of Florida, is every where low, and beset with frequent shoals, running out so far into the sea, that a vessel may be aground in many places where the shore is not to be distinguished even from the masthead. The Gulf Stream, therefore, which has hitherto served only to increase the perplexities of seamen, will now, if these observations are found to be just in practice, become one of the chief means of their preservation upon this dangerous coast. [The course and velocity of the Gulf Stream are more fully laid down on a chart of the Western Ocean, published by the author of this work, accompanied by a pamphlet on "Thermometrical Navigation."]

Extract of a letter from Francis D. Mason, Esq. to Col. Jon. Williams, commandant of the Corps of Engineers, and Author of "Thermometrical Navigation," at New-York, dated

"CLIFTON, (Eng.) 20 June, 1810.

"My voyage from New-York to Halifax, in the British Packet Eliza, was so very tempestuous and unfortunate (having carried away our foremast) that I did not make any thermometrical observations; but when we sailed from Halifax, on the 27th of April, I began them, and continued till I unfortunately broke both my thermometers. However short the time was, you will perceive that my observations have been very important, and I herewith send the result of them. You will perceive with what fidelity the thermometer indicated the banks and the approximation towards islands of ice. The captain was so convinced of the usefulness of the thermometer, that he made regular remarks, and inserted them in his journal. I gave him one of your books, thinking it would be pleasing to you that I should extend the knowledge of a discovery so useful as yours, and I wish it were more generally known. After having miraculously escaped the islands of ice and several severe gales, we arrived at Falmouth on the 22d of May, 1810.

Dates.	Hours. A.M.	Hours. P.M.	Heat of Air.	Heat of Water.	Lat. N.	Long. W.	REMARKS.
Ap. 28	10		44°	40°			
		1	47	41	43°30′	62°52′	
		4	43	42			Sable Bank.
		8	46	40			
29	8		45	43			
	Noon.		49	48	42 27	60 54	
		5	50	62			
		7	48	64			
		10	48	54			Tacking towards edge of stream.
30	9		58	62			Steering in the stream.
	Noon.		60	61	42 1	59 21	
		5	58	61			
		9	60	60			
May 1	8		60	58			
	11		60	46			Sound in 70 fa. no bott.: the water at
		2	64	25	41 53	56 52	that depth 2° warm. than on the surf'e.
		3	62	46			An island of ice, bearing S.S.E. 7 m.
		4	58	47			Abreast of ice ¼ mile to leeward.
		5	60	47			Island of ice bears S. S. W. 7 miles.
		6	57	45			
		8	56	48			
2	1		58	50			
	3		60	60			
	8		60	62			
	10		63	63			
	Noon.		64	63	41 25	53 8	
		3	61	64			
		6	62	58			Sound with 70 fathoms, no bottom.
		9	56	56			
		12	50	56			Sound with 80 fathoms, no bottom.
	4		43	43			Sound with 80 fathoms, no bottom.
	6		40	39			An enormous island of ice abreast 100 yards. This was about 150 ft. high and 1 mile in diameter. When first discovered it was not 100 yds. from the vessel, and we were sailing directly towards it. The obscurity was then so great, that at that distance it appeared only like a white cloud extending from the sea over our masts.
	8		41	44			Passed several islands of ice, the
	10		43	45			largest bearing S. W. 7 miles.
	Noon:		44	43	42 1	50 4	No bottom by 80 fathoms.
		4	44	50			
		6	46	60			
	Midn.	12	46	60			
4	4		46	52			
	8		43	60			
	Noon.		54	59	42 54	46 2	
		8	49	60			
		12	48	60			
5	6		47	59			
	Noon.		53	59	43 12	41 43	Broke the thermometers.

REMARKS ON THE FOREGOING JOURNAL.

The important point of comparison, is the difference in the *heat of the water in different places*, in or near the stream, in the ocean, out of the stream, on the coast, and near islands of ice, not the difference between *the heat of the water and the air*, as some have imagined. This latter is merely a concurrent observation; it serves to account for ordinary changes, and thereby to guide the judgment.

From April 28, at 10 A. M. to April 29, at 8 A. M. we see the temperature of the sea in the shoals of Sable, from 40 to 43. At 5 P. M. we see the warm influence of the Gulf Stream from 62° to 64°. At 10 P. M. we see the temperature between the influence of

the stream in deep water and the coast at 54°, which is about a mean between the two; then standing off shore, at 9 the next morning, 30th, we see the warm influence of the stream again.

If these stripes of water had been distinguished by the colours of white, red, and blue, could they be more distinctly discoverable than they are by the constant use of the thermometer?

About 23 hours afterwards, May 1, at 8 A. M. we find the water cooling, and in three hours more the mercury falls 14 degrees (46°.) Here no bottom could be found by the lead, and there was probably an island of ice obscured by fog. (Let it be remembered, that the coldness of ice condenses the atmosphere, and of course the consequence must be fog.)—Passing this at 2 P. M. the thermometer rose to 54°, but in one hour more it fell to 46° again, and an island of ice appeared at the distance of *seven miles*. Let navigators reflect on this, and say that a sudden fall of 6° in this part of the ocean, ought to induce them to haul to the southward, and keep a good look out. From May 1, at 11 A. M. to the next morning, at 1 A. M. we see the gradual changes as the ship passes the ice and comes again into ocean water; (50°) but in two hours more, the ship is in the warm influence of the stream again, and the mercury rises 10 degrees (60). She proceeds in a nearly regular degree of heat during 17 hours, till at 6 P. M. the water begins again to cool, falling to 56° at midnight. Here was no bottom in 80 fathoms. May 3d, at 4 A. M. the water was at 43° still no bottom in 30 fathoms. Now, from past experience, we must say, here is an island of ice in a less distance than seven miles, because at that distance the water was 46°. When day appears, behold an enormous island of ice abreast 100 yards, and the heat of the water reduced to 39°! A question now occurs. Had not the thermometer been thus used, had it not been continued during the night, what would have been the fate of this ship? Let the recollection of the miserable fate of the ship *Jupiter, be an impressive answer; and let it be laid down as a maritime axiom, that want of caution, or ignorance, can alone cause such accidents in future.

JONA. WILLIAMS.

Temperature of the air and water on a passage from New-York to Ireland, March, 1816.

		Air.	*Water.*	*Lat. N.*	*Long. W.*	*Wind.*
March	7					
	8	*Noon.*				
	9					
	10					
	11	44 15	68 30	39 8 N.	61 36	N. In the Gulf
	12	46 00	66 00	39 36	59 03	N. do.
	13	47 00	65 00			S. & W. do.
	14	56 30	64 00	40 36	54 17	N. do.
	15	64 00	*59 30	40 42	52 47	W.
	16	56 00	†43 00	42 00	49 51	S. W.
	17	44 00	‡59 00	42 25	47 04	N. E.
	18	58 00	61 30	42 25	45 42	S. and W.
	19					
	20	47 00	57 00	43 44	39 27	S. and W.
	21	52 00	57 00	44 22	37 15	S. and W.
	22	56 30	56 00	45 43	33 44	S. and W.
	23	51 00	54 00	46 46	31 33	S. and E.
	24					
	25					
	26	52 30	50 00	49 11	21 57	W.
	27					
	28	47 00	48 00	51 24	18 13	S. and E.
	29					
	30	48 00	50 00	51 15	17 25	E.
	31	48 00	50 00	51 15	15 55	N. and E.
April	1	48 00	50 00	50 50	12 44	N. W.
	2	45 00	50 00	50 44	10 24	S. W.
	3	48 00	50 00	51 17	10 24	E.
	4	48 00	50 00	50 30	9 13	E.
	5	49 00	50 00	49 54	10 46	N. E.
	6	49 08	50 00	50 13	10 23	N. E.

* West of the Bank. † On the Bank. ‡ East of the Bank.

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* Captain Law's protest, containing the particulars of the distressing circumstance of this ship, states,

"April 6, in latitude 44° 20′, longitude 49°, at 8 A. M. saw several pieces of broken

From the foregoing remarks the importance of the Marine Thermometer may be fully illustrated. On the 16th, the ship crossed the bank, at which time the temperature of the water was 15° 45′ colder than the previous and following days. A particular use of this instrument, as you approach the coast, will unquestionably point out the soundings, and render useful services to the navigator. (From the scientific gentleman who communicated the above, some important nautical information has been received, relative to the southern ocean, for which he will accept the thanks of the Editor, with his best wishes, that all but adverse fortune may follow him.)

Description of Little Bahama Bank.

North of Providence are placed the islands of Abaco, Great Bahama, and a large portion of keys, raised upon the Little Bahama bank.

The Hole-in-the-Wall, which is the southernmost extreme of the island of Abaco, bears N. N. W. 7½ leagues from Egg island, and the two form the mouth of what is called the N. E. channel of Providence, and the Hole-in-the-Wall, with Stirrup's key, form the eastern mouth of what is called the N. W. channel of Providence, and this N. W. channel's western mouth is formed by the Great Isaac, and the western extremity of the island of Great Bahama bank.

The island of Abaco is divided into two parts by a small shoal channel, and when it is seen from the eastward it forms two pretty high lumps. There are commodious anchorages on the western and southern edges well sheltered in the sea, one of which is that offered on the western part of Abaco, which, from the Hole-in-the-Wall, runs N. W. and terminates in a bay 9 miles from the point. This bay, with winds at N. W.—N. N. E.—E. and even S. E. affords good shelter with a depth of 7½, 8, and 9 fathoms water, and although the wind at S. E. is along shore it makes no sea, and it is excellent holding ground.

In the bottom of this bay is the channel which divides the island of Abaco into two parts, and a number of houses are erected there by people from Providence, who come to cut wood. This anchorage is safer in winter than in summer, as during the latter you have constant squalls from the southward, from which the lightning often does harm, and earthquakes are frequent, which drive off the people, who retire to Providence and Eleuthera.

From the west part of this bay, a chain of keys extend 20 miles W. by N. after which you will see the east end of the island of Great Bahama,

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ice, from which at 11 the same day, we supposed ourselves entirely clear, and steering W. by N.—W.—E. N. E. and foggy weather. At 2 P. M. began to discover islands of ice again, and at 3 o'clock saw a large field ahead, which appeared to have no opening.—We then wore ship and kept off to the southward and eastward; continually passing small islands of ice, until 5 P. M. when we found the ice extending so far to north and south that we could not clear it. We then hove about and stretched to the northward among the broken ice, till night came on, and no prospect of getting clear. We hove too under the three topsails double reefed, in hopes to have sufficient drift to keep clear of the fields of ice to leeward until daylight, but found, at about 11, we were drifting fast upon a large field, and were obliged to wear ship and haul to the southward under easy sail, luffing and bearing away for the broken ice, as occasion required, until half past 12, when we struck a small piece which we found had gone through the starboard bow.

"Captain Law would recommend, to any vessels bound to Europe, not to go to the north of latitude 39°, as the information of Captain Guiner, in the schooner that relieved him, had been as far to the southward as 41° 30′, and could see no southern termination."

which continues on nearly the same course for 19 leagues, and the whole of these two spaces of the bank are foul with reefs and rocks, as far as the middle of Great Bahama, from whence it is clean and has a smooth bottom.

In the extreme western part of the Great Bahama there is excellent anchorage, from which the soundings of the bank run off 5 miles.——N. N. W. from the W. end of Grand Bahama lies a small clean key, called Tombado.

The west edge of this bank runs N. N. W. to latitude 27° 50′ N. and is clear and regular without either keys or danger, if you exercise the leadsmen ; all the other keys, to the northward of Tombado, lie on this side of the bank N. E. from it, so that there is no fear in sailing in or off this part of the bank, called Marinilla. When there is a sea from the N. E. on the N. W. point of this bank, in that part of it in 25, 30, and 40 fathoms, it makes at flood tide a race, and whirlpools produced by its choaking with the Gulf current so as to cause it to break heavy, and makes it appear like shoals, but there are none ; on the contrary, getting to the southward of this race, you will have smooth sea, and may keep in 15, 16, 14, 13, 8, and 7 fathoms water ; the bottom is sand, gravel and some stones, upon which you may occasionally anchor. On this bank the water is green, and you cannot see the bottom until in 2½ and 3 fathoms, upon which or in the green water there has never been any tide motion experienced, therefore the Gulf Stream does no more than touch along the edge of soundings.

Marinilla is dangerous on the flood, and should be avoided. It has been supposed to consist of a reef, but the fact is, the race and breakers caused by the choaking of the tide with the Gulf Stream and the sea which comes in from the N. W. has been the cause of this deception.

Directions for the Bahama Bank, Gulf Passage, *and the* Florida Coast.

The N. E. point of the island of Abaco lies in latitude 26° 17′ N. longitude 76° 59′ W. When in its latitude, distant 9 miles, steer S. by W. ¾ W. 12 leagues, which will carry you on the bank off the Hole-in-the-Wall, in about 14 fathoms water. The Hole-in-the-Wall lies in latitude 25° 51′ N. longitude 77° 10′ W. and is the S. E. point of Abaco. By making Rocky point in the day-time, you may have a safe run on your S. by W. ¾ W. course, 12 leagues, and then, if you do not choose to run, lay by, should it be night.

Off the Hole-in-the-Wall lies a bank, in a S. E. direction, 7 or 8 miles in length and about 4 miles broad in the middle, ending with a point at its S. E. extremity.

Soundings taken on the Bank.

Hole-in-the-Wall	W. 2 miles,	12 fathoms.	
———	W. ½ N. 5 mile,	15 do.	
———	W. 7 miles,	60 do.	no bottom.
———	W. by S. 6 miles,	30 do.	no bottom.
———	W. ½ S. 3 miles,	13 fathoms.	
———	W. ½ N. 3 miles,	12 do.	
———	W. by N. 2½ miles,	11 do.	

Hole-in-the-Wall, N. W. ½ N. 2½ miles, 15 fathoms.
——————— N. W. by N. 3 miles, off the bank. Beyond 15 fathoms there were no soundings with 80 fathoms. You may know when on this bank, as the water changes at once from a dark sea blue to a beautiful vivid green, is more agitated by a ground swell, and discovered the moment you are off, particularly with a S. E. wind, at which time the above soundings were taken.

The first island to the northward of the N. E. point of Abaco, is Little Harbour key; then Linnyard's key and Little Guana key. Linnyard and Pelican keys run S. by W. ½ W. and N. by E. ½ E. The distance between Linnyard's key and Abaco is about two miles, fine sandy bottom, clear of rocks, and good anchorage, north from the N. E. point of Abaco.

At the N. E. point of Abaco, about one mile west of the point, is a fine bay, called Hurricane bay, with water enough for small vessels.

There is a good watering place, called Weatherford's well, on the N. E. side of the island of Abaco, lying N. W. from the south end of Linnyard's key; S. W. by S. from the north end, and N. N. W. from the N. E. point of Abaco. To enter the channel leading to the watering place, which lies between Linnyard's key and Little Guana key, you must keep a small island, which forms the north side of the channel (about 300 yards from Linnyard's key) well on board your starboard hand, and you will pass the bar in 3 fathoms and find good anchorage, in 4 or 5 fathoms water, within about two miles west from the north point of Linnyard's key. This channel is far preferable to the one at the N. E. point of Abaco, independent of its safety and facility in getting water, as you may approach within a mile and a half of the watering place with 3 fathoms, or come immediately abreast in 2 fathoms, within 300 yards of the shore. Wood may be had in abundance among the keys, together with shell and scale fish.

The water breaks where there is danger with the wind to the eastward, and it is adviseable to have a look-out aloft while going in.

The eastern part of the coast is completely iron bound, and fragments of wrecks are found on all its shores and keys.

The tide ebbs and flows regularly at 9 o'clock full and change, and rises 6 feet.

The first point south of the N. E. point of Abaco, is called Rocky point; S. S. W. ½ W. from this point, 6 miles distant, is a reef of rocks, 9 miles in length and 1½ in breadth, running in the same direction as the shore, inside which is Charrock sound, which makes a channel between the two. Twenty families reside on Abaco.

The land between Rocky point and the Hole-in-the-Wall forms a deep bay, in which you must be careful not to be caught with a south-easterly wind.

After passing the reef which lies off Rocky point, the water is bold to within half a mile of the shore, till up with the Hole-in-the-Wall. [These rocks, which are very dangerous, have been wholly omitted in the Spanish charts, together with many on the Florida shore.]

In preference to running down for Rocky point, where, if you get embayed, you must lie up S. S. E. and S. E. by E. to run parallel with the land, it is more prudent to run into the latitude of the Hole-in-the-Wall, and with the wind any way to the southward of east, it is presumed every man would do it.

The Hole-in-the-Wall (or Hole in the rock) is an arch through the land, about 10 feet wide, and 4 or 5 feet high, the bottom nearly one foot

above the water, which breaks through the hole, and may be seen when bearing S. S. W. to W. S. W. and N. N. E. to E. N. E. and at first sight appears like a sand bluff, but at 3 or 4 miles distance may be plainly distinguished to be an arch-way through the land.

South from the Hole-in-the-Wall, 100 yards distant, is a rock, 60 or 70 yards long, hollowed out all round at its base, by the water, which may be doubled within half a mile.

On the south point of the main land is another corresponding projection, both which appear to have been caused by some convulsions of nature, of which the whole coast bears evident marks. It is covered with fragments of vessels, spars, &c. and the western side has a complete barrier of stones, formed on the beach above the tide mark, both by nature and the S. W. gales, which at times blow very hard.

Five miles to the westward of the Hole-in-the-Wall, and about 300 yards from the shore, the soundings are regular, 2½ and 3 fathoms, and deepening rapidly as you leave it.

One quarter of a mile off the S. W. part of the island, you will have 2 fathoms, fine level sandy bottom. The land here is low, and covered with brush wood. Here the ebb sets N. E. and tide rises 3 feet.

Vessels of any draft ought not to approach the land nearer than about 400 yards, where they will lay in about 4 fathoms water. Inside this the water shoals suddenly to 2 fathoms.

Vessels in the night or in foggy weather, may run to the westward, when in latitude 25° 46′ N. and sound till they get in 14 or 15 fathoms, and be then sure to clear the Hole-in-the-Wall by a west course 6 miles, when it will bear north, and then run W. ½ N. 16 leagues, when Stirrup key will bear S. 6 miles distant. Vessels running down in the latitude of the Hole-in-the-Wall, will not get soundings till up with it.

After passing the Hole-in-the-Wall, the land is indented both on its surface and beach, and tends nearly E. and W. forming a slope, the highest land to the eastward. Two miles W. by S. from it, lies the southernmost point of the island of Abaco, and Little Bahama bank.

If you take your departure for the Great Bahama bank from the Hole-in-the-Wall, you must steer W. 12 leagues; and if the land be not in sight, then haul to W. S. W. or S. W. by W. and make the Berry islands; keep down past these islands, and have a good look-out for the westernmost key, called Stirrup key, which lies in latitude 25° 48′, and longitude 78° 2′. It lies 3 miles west of Money key.

The Berry islands consist of about 30 islands or large keys, with an infinite number of small ones. The S. E. is called Frozen key, and the N. W. Stirrup key; the North Berry lies in lat. 25° 48′ N. and the whole extend W. N. W. and E. S. E. 7 or 8 leagues, lying on the N. E. part of the north end of the Great Bahama bank. On these keys there are no settlements; to get shelter from a heavy eastern wind, to repair damages, or to get water, you may anchor to the westward of the W. Berry, in 7½ or 8 fathoms, good holding ground.

Extract from the Log-book of sloop Orbit.

"In approaching the Berry islands, the water is bold close in; 2½ miles from the shore, 11 fathoms; 2 miles, 9 fathoms; 1 mile, 8 fathoms; the northernmost part of Stirrup key bearing W. by N. 3½ miles, 7 fathoms; W. N. W. 2½ miles, 8 fathoms, rocky bottom; W. 1 mile, 7 fathoms; W. S. W. ¾ mile, 9 fathoms; and all along to the westernmost key, 8, 9, and 10 fathoms, generally fine sandy bottom. The moment

you get on soundings, in approaching the Berry islands, the water changes colour.

"Sailed around the Berry islands till they bore N. N. E. 2 miles, and had 5, 4, 3, and 3½ fathoms; and far as 5 miles, 4, 3, 4, 4, 3½, 4, 3¾, and 3½ fathoms; N. by E. 6 miles, 2½ fathoms. West Berry bearing N. N. E. and Blackwood's bush S. S. E. (course W. N. W.) the soundings were 2, 4, and 5 fathoms: At 2¾ h. steered W. 4 fathoms: At 3 h. S. S. W. 7 fathoms: At 3½ h. S. S. W, 7 fathoms: At 3¾ h. 6½ fathoms: At 4 h. 6 fathoms: At 4¼ h. 5½ fathoms: At 4½ h. 4¼ fathoms: At 4¾ h. 3½ fathoms: At 5 h. 3 fathoms: At 5¼ h. 3 fathoms: At 5½ h. 2½ fathoms: At 5¾ h. 2½ fathoms: At 6 h. 2¾ fathoms: At 6¼ h. 2½ fathoms: At 6¾ h. 2¼ fathoms: At 7 h. only 11 feet; and came to anchor among black patches, which we sounded and found to be flat rocks, about one foot high, covered with weeds. The water was shoal far to the westward of this. Vessels should not go among these black patches: the regular channel is quite free from them, and the water is muddy, having a milky appearance, which prevents the bottom being easily seen."

Sheep keys bear S. S. W. ½ W. 7 or 8 leagues from Stirrup key, and lie off the N. W. part of Andros islands: from these keys it is, as before observed, very foul to the westward, and the shoal extends quite round to Stirrup key, the bottom covered with spots of sponge and rocks, the size of a barrel, or the head of a hogshead; and any object on the bottom may as plainly be seen as if no water intervened. Here the tide rises 4 feet.

The best courses for crossing the Bahama bank are the following, viz. when Stirrup key bears south 8 miles distant (at which time it can be just seen from deck) steer W. S. W. 6 leagues; then haul to S. W. by S. 10 leagues; thence S. S. W. or between that and S. W. by S. to latitude 24° 55′, when you may keep away W. and make Orange keys,* or continue

* Orange keys is a cluster of rocks and keys, lying near the west edge of Great Bahama bank, extending from latitude 24° 53′ to latitude 24° 58′ N. and longitude 79° 6′ W. The main rock is about three-quarters of a mile in length, and the broadest part about 120 yards, highest part 20 feet, and narrowest 8 yards. It is a barren rock, the eastern side quite straight, and runs S. S. W. and N. N. E. S. by W. of the main island, distant three-quarters of a mile, are two rocks 6 feet out of water, about 15 feet in length; and one half a mile S. by W. of these lie two smaller rocks; it is dangerous to pass between either of these rocks and the principal island, as reefs run out and connect them, 30 or 40 yards broad, and soon as over 4 fathoms. One mile south of these rocks, you may sail with safety. They are a mass of solid rock, and may be approached at the westward to their very edge in 11 feet water. N. W. of them is good anchorage in 8½ fathoms, foul; there is also good anchorage S. E. of Orange keys in 6 fathoms, without other danger than the eye announces. To the northward it is not safe to approach within three miles, as the water breaks and has a ridge projecting to a very considerable extent. There is no sign of verdure on these keys, but round them plenty of fish.

Many persons mistake Orange keys for the Riding rocks, north of which you cannot go, but north from Orange keys, 3 miles distant, you will find a passage, although it is not safe for strangers to go this way, neither should it be attempted by any one, as you are obliged to pick your way through black patches which are sometimes shoal.

Riding Rocks lie 6 leagues north of Orange keys, consisting of one rock or key, about half a mile long, and 12 yards wide in the broadest part, which is nearly divided one-third from its south point by a bay. This key is very irregular in its height and more uneven than Orange keys; about 2½ miles to the northward of this rock is a small island about 2½ miles long and 250 or 300 yards broad in the broadest part. To the northward of the southernmost key, lie three small rocks about 10 or 12 yards long, each running N. W. by N. The southern key runs N. by W.—the one next to this key is 50 yards from it; this, 100 yards from the third, and the third, 100 yards from the second. These

on your course to latitude 24° 45′, when you may keep down west and leave the bank without danger. In case you should prefer to haul too sooner than directed in crossing the bank, and find your water shoaling, you may, by keeping off W. 3 leagues or more, find the deep water of the channel, which is 5 leagues in breadth; bear up as soon as you get but 2¼ fathoms, as it shoals suddenly and irregularly from that depth.

By crossing the bank as above directed, you will see few or no spots of sponge, and the bottom is with difficulty discerned, and may be sure of 3 fathoms all the way.

You may even run 7 leagues on your W. S. W. course after leaving Stirrup key, without danger; be careful to allow for the tide. On the north side the flood sets S. S. E. and ebb N. W. and as you draw on the bank, the force of the tides decreases, for when you have got 4 or 5 leagues on the bank the tide is but a slight set.

Be careful of Orange keys in the night-time, as they are very low and cannot be seen until on board of them, and the soundings are deep and regular until very near them on their east side.

S. W. from Orange keys, 5 or 6 miles distant, is good anchorage in 20 fathoms water. When up with these keys a passage is secured through the Gulf, for then you make sail either in the morning or at midnight, steering S. W. 10 or 11 leagues, that will enable you to fall in with Key Sal Bank, which for 10 leagues, on the north side, stretches E. and W. and consequently the current sets stronger as you come to the westward. In coming over, you have good soundings all along by it. There is anchorage by spots all the way in, but the soundings are narrow at the Double-headed Shot, the N. W. point of which lies in latitude 23° 52′ N.

The edge of soundings, between the Riding rocks and Orange keys, is clean; you may enter on it without other care than that of the lead. From Orange keys, which are the southernmost keys on this side the bank, the edge of soundings run about S. by E. very clean to 24° 10′, and more or less deep; it forms, with the keys on Salt key bank, a channel, which is bottomless, and called Santaren. The above observation, in entering on to the bank between Orange keys and Riding rocks, means only the edge; as you get further on you find the soundings obstructed in their regularity by many coral shoals, but by day and with a free wind you can pick your way.

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rocks are about 3 or 4 feet high. South of this key are two haycock rocks just out of water, 6 or 8 yards from the land. There are also two rocks which lie half a mile east of the southernmost key, the largest 80 feet long and the smallest 50 feet long, about 100 feet asunder, and 12 feet high. These two rocks lie N. and S. There is a rock as big as a small boat about half a mile to the northward of these two rocks. A reef extends all along between these rocks. Southernmost of the Riding rocks bearing N. N. W. distant 1½ mile, 5 fathoms. Eastern rock and the northern key, in a line bearing N. by W. 2½ miles, 4½ fathoms, fine level sandy bottom; 2¾ fathoms immediately, and 3 miles distant, 3 fathoms—Northern Riding rocks, bearing W. 5 miles, 3¼ fathoms—Southern key, bearing S. W. by W. 2 miles, 3½ fathoms. Main or Northern key, bearing W. N. W. 2½ miles, 3 fathoms. There is a shoal runs out from this key, in a N. N. E. direction, on which are 6 feet water. You will not have a passage to northward of the Riding rocks for vessels drawing 6 feet water. Ebb sets N. E. 1½ mile per hour.

In steering from the Orange keys to the Riding rocks, the deepest soundings are 8½, and the shoalest 4½ fathoms. The western edge of the bank is an iron bound shore, being connected by one grand chain of rocks, extending under water from key to key.

Cat Keys are low land covered with bushes, having to the westward a long sandy beach. The principal key is 2 miles long, and, with Orange keys and the Riding rocks, lie within about 3 miles of the western edge of the bank. Var. 3° 22′ E.

There is said to be a rock at the water's edge somewhere to the westward of Cat key, with 8 or 10 feet water on it; but I have never been able to ascertain its position. There are few, even of able navigators, who can distinguish these numerous keys by name, therefore it is not possible to state the situation of this rock, without personal examination. It exists, and, I expect, about 200 fathoms from the middle of Cat key, in a W. direction, but never saw it.

In star-light nights the bank reflects a bright light into the air, which may be seen 4 or 5 leagues. You may observe this reflection all over both the Bahama banks, but not on Salt key bank; neither can you see it while on the bank; but when in the Gulf you can plainly distinguish the Providence channel, having none of this reflection between the two reflections of the Great and Little Bahama banks.

An experienced navigator, while crossing the Bahama bank, made the following remarks, which we know entitled to full credit: "Having been three days detained by light S. W. winds and calm weather on my last passage across the bank, I made the following observations on the tide, viz. the flood tide sets south, veering to S. W. and the ebb north, veering to N. E. For three days in succession the tide set nearly two knots in each direction, and very regular; on the third day the weather being still and calm, I weighed anchor, and drifted with the tide *south*, *S. S. W.* and *S. W.* When the vessel stopped drifting, I anchored in 3 fathoms water, and rode the ebb; when the tide slacked, I again measured the depth of the water in the same place and found 15 feet.

It is not presumed the same depth of water can always be carried over the bank, even in the same track, as it must occur to the mind of every person that a strong easterly wind will drive the water off the bank, as well as a strong northerly increase its quantity; in all parts of the channel the bottom is of a sticky quality, whereas to windward the bottom is hard and the spots thicken as you shoal your water. Almost every regular trader has a different course to run across the bank, but the principal object is to clear Sheep key shoals; with the wind scant, and not drawing a heavy draft of water, you should haul too a little sooner, but not without a leads-man constantly in the chains, and should bear up as soon as you shoalen water to 2¼ fathoms. With the wind steady and free, so that you could lay to windward of south, you should always make sure of westing to clear the shoals to windward, taking care not to run so far as to get among the shoals which stretch off from the east side of the keys which border the bank on its western edge.

There are scarcely two men who cross the Bahama bank that agree as to the latitude of the Orange keys, and many doubt their existence; this difference of opinion had some effect in sending the Orbit; the subject is now at rest, as marine and land surveys have been made by her officers of the Orange keys, Riding rocks, Cat keys, Great and Little Isaac, with the rocks, &c. adjoining.

On the Bahama bank, in latitude 24° 10′ to latitude 24° 20′, it is shoal near the edge. The tide rises 6 feet, and there are many spots in this space with less than 10 feet at low water. The shoal lies within 1 mile of the edge of the bank; they are of quick sand, and of course the depth of water on them must alter with every gale.

Santaren channel is that range of ocean water which divides the Great bank of Bahama and Salt key (or as it is called Double-headed Shot) bank; it rarely has any current, except after heavy gales, when it runs

with great velocity both up and down. The northernmost key on this bank lies in latitude 24° 1′, and longitude 79° 44′, and the N. W. key in latitude 23° 52′, and longitude 30° 12′ W. From the N. W. key to Salt key is about S. S. E. four leagues; between them lie two sunken rocks, the one three miles from West key, and the other three miles from Salt key; between them, you may leave the bank with safety by daylight.

Extract from the Orbit's log-book.

"Lay at anchor among these shoals; at low water had 12 feet, and at high water had 13 feet; had a light wind at W. S. W. and could see the edge of soundings off deck, not more than three-quarters of a mile distant: got under way at first ebb, and in making a tack crossed over some shoals with only 13 feet water on them, on which there could not be more than 7 or 8 feet at low water, and I have no doubt but at times, after heavy gales, these shoals may be above the water's edge."

Variation near Orange keys, 4° 26′ E.—do. Cat keys, 3° 22′ E.—do. Great and Little Isaacs, 5° 14′ E.—In the Gulf between the Great Isaac and north point of Little Isaac, it is nothing. From the Great Isaac towards the Double-headed Shot, and thence to the Tortugas, it increases easterly; at Double-headed Shot it is 5° 30′ E. and at Tortugas 7° 10′ E. From the Tortugas to the Balize it lessens a little, being at the Balize 6° 15′ E.

High water at full and change on the edges of the bank at 8 h. 50 m.—on the north side it rises 2 feet; on the west to the northward of Orange keys, 3 feet; to the southward of Orange keys, 4 feet; and in latitude 24° 10′, it rises 5 and 6 feet. The flood and ebb set from three-quarters to two knots on and off the bank.

On leaving the bank, you must be careful not to fall in with the Florida shore or Double-headed Shot keys in the night-time; but with day-light and a breeze there is no danger in making either.

Should you prefer running down the Cuba shore, you may steer S. W. after leaving the bank in latitude 24° 40′, and when sure of having past the Double-headed Shot, haul a little more southerly, say S. W. by S. and make the island of Cuba. Keep down in shore as far as the table land of Marial, which cannot be mistaken, when you may run over N.W. and if not more than 24 hours in the Gulf you will clear the Tortugas; but if you are a longer time in crossing, it would be prudent to keep a look out for coloured water and the Tortugas. The Pan of Matanzas, bearing S. S. W. to S. appears like one round hill, but at any other bearing you will see another each side of it, not so high and adjoining to it. If you are near in shore on passing the Havanna you will see the shipping in the harbour, and the Moro light-house may be seen 6 leagues off. The table of Marial is 9 leagues from the Havanna.

The west end of Double-headed Shot bank lies 12 miles to the westward of the easternmost part of East Florida.

On the north and N. E. sides of this bank the keys lie in clusters—these clusters are from one mile to three leagues distant from each other. They contain more than 50 rocks and keys, but at a distance appear like one island, and with few exceptions you may sail with safety between the groups on to the bank, on which there is no where less than 4 fathoms, except near Salt key, on the east side of which 4 miles, and on the north

side 3 miles, lie some sunken rocks with shoals stretching from them towards the key.

The range of keys on the N. W. corner of this bank are known by the name of Double-headed Shot keys, and are more close and connected than those on the N. E. side, called Dog keys. The Gulf washes them close to, but round on the north side, in Santaren channel, the soundings are regular; 13 fathoms on the edge of soundings, and lessens gradually as you draw in towards the keys. The soundings on this side stretch 4 to 6 miles from the range of the keys, but at the N. W. point not more than 50 fathoms.

Vessels drawing over 13 feet water, should not attempt crossing the bank; the best passage is, when up with the Hole-in-the-Wall, to steer W. by N. 36 leagues, which will carry you to the west edge of the bank, and about 2⅔ leagues from the Great Isaac; then shape your course through the Gulf, but be careful not to go on the west part of the bank, as there is a dangerous rock, on which the English brig Moselle struck, bearing N. ½ E. from Bemini island 10 miles distant, and lies in latitude 25° 52′ N. It is adviseable, when bound through the Gulf, to get a sight of land either one side or the other towards night; it will give safety to the ship, and relieve the master's anxiety. In this passage you will pass Little Isaac, Great Isaac, and Bemini isles; Little Isaac consists of three islands or rocks running in an E. S. E. direction; the western rock is about 40 feet in length; the eastern rock rather larger, about 5 miles from the western one; between these two in a direct line, is a smaller rock, about one mile distant from the eastern Isaac; they lie about 5 or 6 miles in on the bank, outside of them the soundings are clean, you will have 14 fathoms on the edge, diminishing gradually, so that one mile from them you have 6 fathoms. In all the distance between Stirrup key and Little Isaac's, the edge is clean, and you may navigate down it by the hand lead. S. E. from the Little Isaac you may anchor, good holding ground, but a heavy sea.

About 2½ leagues W. from the Little Isaac lie the easternmost of another group of keys, of which the second from the eastward is called the Brigantine, because seeing it from E. N. E. it forms such a figure. The soundings also run off these keys 8 miles; it is white and clean soundings, and on it are from 14 to 7 fathoms.

Great Isaac bears about W. by N. from Little Isaac, distant 5⅔ leagues. There is a round rock, about 20 yards broad, and bearing N. E. by E. from the Great Isaac, distant 2 miles, from which to the Little Isaac, a reef runs. In a S. by W. direction from Great Isaac, 4 miles distant, lie several rocks. About 5 or 6 miles E. by N. from Great Isaac is a small haycock rock, just out of water, and 1½ mile east of that another similar: these two rocks lie W. S. W. and E. N. E. Soundings from the Great Isaac to Bimini isles 9, 9, 8, 7, 7½, 8, 8, 8.

On the bank you can anchor, the Great Isaac bearing S. E. in 8 or 10 fathoms. There are wells of fresh water on the Great Isaac.

The soundings from the Great Isaac close round to the southward, and about S. by W. 6 leagues, lie the Bemini islands, which are low, with few bushes, but the point, which runs out S. E. from the S. part, is covered with large trees. Under the S. point there is a bay with some low keys lying S. S. E. and S. E. of it; in this bay you can anchor and have shelter from winds at north round to S. E. with 4½, 5, and 6 fathoms, or you can pass the night here when bound southward. On these keys and

islands there is some wood and water, but the wood is carried to New-Providence, to build small craft, and must consequently shortly fail.

From the meridian of the Great Isaac the edge of soundings runs S. S. W. and afterwards to the southward, in such a manner that west from the centre of the Bimini islands you have no bottom at a musket shot's distance from them, and at a pistol shot you have 9½, 8, 7, and 6 fathoms, sand.

There is a chain of rocks and low keys which run S. by E. 3 miles from the southernmost part of the Biminis, some of which do not rise to the edge of the water, and in this place you have no bottom at a pistol shot's distance, and at half the length of a line of battle ship you will have 14 and 15 fathoms, sand. This chain terminates with three tolerable keys; the north key is called Dog key; the middle one Wolf key, and the southernmost one Cat key. On the north part of Dog key there is a little grove of mangroves, and west of its south point there is good anchorage in 8½ fathoms.

Wolf key has on its southern part two palm trees of regular height, which serve as a mark to know it; between this and Cat key, and the channel which they form, there are two round rocks, close to which, on their west side, you may anchor in 5½ or 6 fathoms. From Dog key the soundings bend to the westward, leaving clean soundings of about 2 miles wide, but abreast of Cat key it narrows to half a mile, and directly the edge of soundings runs S. S. E.

S. W. from the south point of Cat key there are several islots at the distance of two-thirds of a mile, and to the southward of these there are other low keys and rocks which extend beyond the horizon. These keys and rocks are called Riding rocks, and in the channels which they form there is but little water, and passes for sloops can only be found between the southernmost, which are off the bank of soundings, run with them, and about 1½ mile from them.

S. by E. 1½ mile from the last lump of the Riding rocks there is a sizeable isle with various small keys in its vicinity, called Rock key; there is good anchorage on its west part in 7½ and 8 fathoms, sand, and the edge of soundings lies 1½ mile off.

Too much caution cannot be used in sailing between Great Isaac and the Bimini isles, as the water shoals suddenly and there are many rocks under water.

REMARKS.—To communicate some idea of the force of the current in the Gulf Stream, and disastrous consequences, we copy the following from various authorities:—"We took our departure from the westward of Cat key, and steered S. S. W. 24 leagues; then S. S. W. ½ S. 5½ leagues, when we altered our course to S. S. W. ½ W. 6 leagues, with the wind squally at N. W. going at the rate of 8 knots; while in the act of reefing topsails, judging ourselves near the Double-headed Shot keys, we struck on Carysfort reef." The course steered by compass was S. S.W. whereas the drift made her course W. S. W.

"I left," says an experienced navigator, "the Bahama bank in latitude 24° 33′ N. and steered S. W. by S. by compass, and in the morning discovered myself within 6 miles of the Double-headed Shot keys, which bear from the latitude I took my departure from S. W. by W."

"Aug. 29, 1816. At midnight left the bank with the wind south and south-westerly, run 28 miles W. S. W.—22 miles W. by S. close hauled

upon our larboard tack, and found, by meridian altitude of the sun, our latitude to be 24° 50′ N.

"Aug. 30—Winds westerly and light, still on the wind on our larboard tack; run 25 miles west to midnight, sounded, no ground; continued W. and W. by N. 4 miles to 3 A. M.; the ship Three Sisters, captain Armington, being then on our weather bow, distant one mile, made a signal she was ashore; hove the lead and had but 5 fathoms, tacked ship and stood off ten minutes, sounded quarter less 3, tacked again and stood in, sounded with 4½ fathoms, when we let go our anchor and brought up at 4 A. M. Manned the boat and run out east three-quarters of a mile, when the boat struck on a reef, the ship Three Sisters then bearing W. S. W. one mile. Went off in the boat again in a N. E. by E. direction, and found a narrow channel of 12 feet; tried again in a S. S. E. direction, where we found a passage of 15 feet, one mile wide, current setting N. N. E. This must have been the channel which we fortunately got in at, there being but two channels to be found; the wide was the only one which would admit us both in the same direction we then were. Got under way, the captain of the ship being on board, the wind veering from S. S. W. to N. W. and stood out, but on approaching the passage, found the current to set strong on the S. end of the N. reef, which set us into 11 feet water for about the length of the vessel, when it deepened to 3, 4, 6, 7, 16, 25 fathoms, and off soundings, the lead being hove as quick as possible.

"The place we got in at appears to be, by the chart, Buller's inlet, and outlet, lying between Biscayno's and Ledburg's reef, in latitude 25° 24′ N."

Notes.—Many vessels have got over the Florida reef in the night, before they knew it, and afterwards brought up in safety on the inside; but when daylight came they have been at a loss as to the way in which they come in, seeing nothing but breakers in the opposite point, by which he steered in, and have given some thousands of dollars to the Bahama wreckers, to take them out again. In preference, I should advise the master who unfortunately gets caught in this trap, to place himself on the fore or foretop-sail yard, after getting under way, and run to the westward, by the range of the Florida keys, until he discovers a probable passage out, when he may bring too, and try the channel with his boat. Every danger can be seen from aloft in this channel, keeping clear of the black patches of coral, and white patches of shoals of sand, he will not run long before he finds a safe channel to go out, and save his thousands of dollars. I would not write thus, but for the impositions of many of the wreckers on persons in such circumstances. Their trouble is no more than a few hours' work, and equally as easy for them as it is for a branch pilot to take a vessel over a difficult bar. They ought, under such circumstances, to charge well; but hundreds, instead of thousands, and tens instead of hundreds, would be quite sufficient.

Navigators should be cautious, while crossing the Bahama bank, never to follow vessels, if they alter their course often, as the New-Providence wreckers have frequently decoyed them for the purpose of plunder; a crime which the most barbarous nation would punish with the greatest severity. This is not published to give offence to any one, but it applies to some of the Providence navigators, and it is our duty to point out danger to mariners, from which the Editor will never deviate, or hide from investigation.

I would also inform every person who may be so unfortunate as to lose his ship any where within reach of the Bahama wreckers, that he has no occasion to make any agreement with them to save any thing, but to refer them to the chamber of commerce at Nassau, who will settle all this business for him in a very just manner. There is as little partiality among these gentlemen as among any equal number of men on earth; and for their decisions on such cases they are justly entitled to the thanks of every commercial man. They are always the judges where no agreement is made, but in case of agreement for a price, you throw it out of their power, and it must be complied with.

Directions for Havanna.

Run close on board the Moro, which lies on the larboard hand, and has a *light-house on it, and stand up for the shipping, there being nothing to hurt you. Be sure not to let go your anchor till well in the harbour, as a reef lies on the starboard hand a little within it, which is very dangerous. The set of the current between Havanna and Double-headed Shot keys, is N. E. by E. and close to the Double-headed Shot keys, it sets N. E. This light-house is of the utmost importance to vessels sailing through the Gulf.

It is stated that the entrance to the harbour of Havanna is rapidly filling up. The channel by which three-deckers formerly entered, will now barely permit 44 gun ships to pass.

Directions for sailing by Crooked island *to* Exuma *and* Providence.

You must steer from the north end of Crooked island towards †Rum key, which is foul and rocky all round, your course thither being N. N. W. about 13 leagues; from thence you go towards Long island, which lies west a little southerly, 9 leagues; a W. N. W. course carries you clear of it. Long island is about 17½ leagues in length, lying N. W. by N. and S. E. by S. its N. W. end in lat. 23° 30′. About 6 leagues from the N. W. end of Long island to the keys before the salt pond at Exuma, the course is W. ½ S. distance 8 leagues. Exuma is a great salt island, from which lie an innumerable number of islands and keys extending for 35 leagues to the N. W. and N. W. by N. If you are bound from Exuma to Providence, you must make your way for the Ship's channel passage, which is between Little island and Eleuthera. Your course from Exuma thither is N. N. W. distance about 22 leagues; and so you may proceed

* The light-house stands on the south end of the Moro Castle, containing reflecting lamps, which make a brilliant appearance.

† Rum Key is about 10 miles long and 3¾ wide; it lies in lat. 23° 34′ N. and long. 74° 57′ W. of Greenwich.

On making it from the eastward, it appears very hilly—on the summit of the highest are several houses; and on nearer approach to the S. E. part of it, two remarkable white cliffs will be seen; a little to the westward of which is the bay called Fort Nelson, or St. George's bay, where the ships load with salt. This side of the island may be approached with safety. The variation in 1816 was observed to be 5° easterly.

to the north-westward along the island Elenthra; but the nearest cut is over the Great Bahama bank from Exuma. To go this way, your course is W. N. W. or rather N. W. by W. about 35 leagues, which will bring you to the edge of the bank. From hence you may pass over the bank in 2 or 2½, and in some holes 3 fathoms water, the distance over the bank being about 10 leagues. You must keep a good look out for fear of sunken rocks, which, in some places, lie very thick; they are easily seen before you come at them, the water being very clear; and in anchoring there in the night, choose a good sandy birth.

Directions for vessels bound to New-Providence.

When you are bound to New-Providence, from America, the West Indies, or Europe, in the summer months, your best way is to make the Cow and Bull, the N. E. part of Elenthra. Its lat. 25° 25′ N. long. 76° 26′ W. It appears like a Dutchman's thrumb cap, with a cut or gap as if there was a passage through. The shore hereabouts is pretty bold. From hence your course is N. W. by W. along the land, about 4 leagues, which brings you off Harbour island. You will see the church and houses on the shore, when you are abreast of it. From thence your course is W. by S. 8 leagues, which will bring you off Egg island, where there is a reef lying off a long league from the shore which you should be very careful to avoid. By looking overboard in a clear night, you will see the bottom before you can run ashore, but I would not advise a stranger by any means to pass it in the night, but lie by till daylight. From hence your course is S. W. for New-Providence bar, 12 leagues distance; but the best way is to steer S. W. by S. on account of the current generally setting to leeward, which will bring you off the east end of Rose island, where you will see the government house, Fort Charlotte, Fort Fincastle, and the shipping in the harbour of Nassau.

In the winter months, your best way is to run down in the latitude of 26° N. which brings you in with Abaco, about 7 or 8 miles to the northward of the Hole-in-the-Wall, which lies in latitude 25° 51′ N. and long. 77° 10′ W. The shore here runs about N. and S. When you come abreast of the Hole-in-the-Wall, you will observe a hole running through the land, from which it takes its name, and is the southernmost part of all Abaco; the shore is steep close too, and you may run until you can cast a biscuit on shore, before you can run aground. From thence your course is S. ½ W. for the bar of New-Providence, 18 leagues; but it is best to keep up south on account of a current setting generally to leeward, which course will carry you in with the east part of Rose island, whence you will see the government house, Fort Charlotte, Fort Fincastle, and the shipping in the harbour of Nassau.

Directions for vessels bound from New-Providence *to* East Florida, Georgia, *and* South Carolina.

If you are bound to St. Augustine, Savannah, or Charleston, your best and shortest way is through the Gulf; your course from Nassau bar, to

clear the Berry islands, is N. N. W. ½ N. distance 15 leagues. From thence your course is W. N. W. 27 leagues, which will bring you off the west end of Grand Bahama, where, on shore, there is excellent water, and lies in lat. 26° 39′ N. and long. 79° 00′ W. From hence you should haul up N. W. by W. and continue that course until you pass Wood, Water, and Sandy keys, lying on the bank, about 4 leagues from the Bahama. If you wish to see the Memory rock, you must haul up N. N. W. but the safest way, especially in the night, is to continue a N. W. by W. course about the distance of 6 leagues farther, which carries you well in the Gulf, and clear of all danger.

You may then direct your course as you please; but if for Charleston, the best course is N. by W.—for Tybee light-house, N. N. W.—and if for St. Augustine, N. W. But should you have the wind very light, as it is generally in the summer months, you had better steer half a point farther to westward on any of these courses, according to the port you are bound for, in order to prevent your being carried too far to the northward by the N. E. current, which runs very strong.

Directions for New-Providence *and the* Bahama Banks.

New-Providence, whose town, called Nassau town, is in lat. 25° 5′ and long. 77° 22′, is the chief of all the Bahama islands, and lies E. and W. about 10 leagues and 4 broad. The harbour is on the north side (where there are several keys) between the island and Hog island. On Hog island a light-house is erected on the west end.

From Providence to Frozen key, the south-easternmost of the Berry islands, the course is about N. W. distance 6 or 7 leagues.

From this key to N. W. passage, or the entrance upon the bank, between the Blackwood bush and Jowlter keys, at the north end of Andros-island is about 8 or 9 leagues; as the bank is bound with a reef here, you must pick your way through that; and you may do it easily, as there are several swashes, which, though they are narrow, have no less than 11 or 12 feet through. The water being very clear in this part of the world, this picking one's way through a shoal is attended with little or no difficulty.

When you first come upon the bank, you will see some scattered heads of rocks and sponges; but there being no danger except what is very visible, it is sufficient to tell you that by running W. S. W. about 19 or 20 leagues, you will come out a league and a half to the southward of the Orange keys, on the W. part of the bank, from whence, by the inspection of the chart, you may easily find your way either to Cuba or the Florida shore.

N. B. In coming from the Florida shore this way, by the Orange keys, you ought to endeavour to the making of the south-easternmost Berry island early in the morning, which precaution will give you a great benefit with regard to safety in your run to Providence. You need not be told how great the danger is in coming among shoals and broken land during night.

There are several small harbours on the east part of the Berry islands, where water and other refreshments may be had; but as they are seldom frequented but by the people of Providence, it may be superfluous to say any thing about them.

Something might be said with regard to the passage by Bimini, but it being the shoalest, and the bars to the eastward of Bimini making it very dangerous, no stranger ought to go there without a pilot.

From Providence to the Hole-in-the-Wall (sometimes called the Hole in the rock) at the south end of Abaco, the course is N. ½ E. about 15 leagues.

In the passage from the Hole-in-the-Wall, towards the Gulf of Florida, it is necessary to give the west end of the Grand Bahama a good birth, not only on account of its shoals, but for fear, if the wind should hang southwestward, you should be embayed.

The North or Little Bahama bank is little frequented but by whalers and turtlers; and, on account of its iron bound reefs, is not to be approached until you get to the northward of Memory rock, when you may enter on the bank with safety.

Directions for vessels bound from the southward to Exuma Salt Pond, *situated in the eastward of the port and harbour of* Exuma, *from which it is distant between 3 and 4 leagues.*

From the Bird rock (the northern extremity of Crooked island) to the north end of Long island the course is N. W. distance 26 leagues. Give this a good birth, say one or two miles, on account of two reefs (easily distinguished) which extend from the two points of the north end. From hence haul up S. W. by S. This course will bring you on soundings, when you will see Hog key and Little Exuma, on both of which are settlements. There are several rocks or small keys ranging with the coast; these may be kept close aboard. When you see the houses distinctly, hoist your colours, and a boat will be sent out to bring the vessel to the anchorage at the pond. The pond is to the east of the Pigeon key, and Pigeon key bears from the north end of Long island due S. W. by W. distant 9 leagues. Stocking island, which forms the harbour of Exuma, is distinguishable by a beacon on the highest eminence, and this is about 5 or 6 miles to the westward of the eastern entrance of the harbour. The east side of Long island is a bold shore, and wholly free from reefs and sunken rocks. If you go round the north end of Long island towards evening, it may frequently be adviseable to come to an anchor, to avoid the effect of currents during the night, which may easily be done on very good ground, after doubling round the north end, any where under the lee of the land for several miles along shore. In this case the eye must direct you, the water being perfectly clear, and the bottom visible.

Description of Great Harbour (Long island, Bahamas) *and directions for entering the same.*

It is situated in lat. 23° 3′ N. 6 leagues from the S. end of Long island, on that side of the island which forms the lee side of the Crooked island passage. From Bird rock (Crooked island) to Great harbour, the course is W. N. W. distant 15 leagues; and from the S. E. end of Watling's isl-

and to Great harbour, S. S. W. 22 leagues ; from Rum key to Great harbour, S. 12 leagues.

A vessel in the offing, on hoisting the usual signal for a pilot, will have it answered on shore by a union jack at Archibald Taylor's house, a large low building, and a boat, with a pilot, will be immediately dispatched ; but should stress of weather, or any other accident, prevent the pilot from getting out, the observance of the following directions will bring the vessel safe into the harbour, and to good anchorage.

Bring Archibald Taylor's new house (where the flag is hoisted) to bear S. by W. and continue this course in for the house until the unroofed stone walls of Mr. Taylor's *old* house near the highest hill to the southward, bears S. S. E.—continue this last course direct for the old house, until you pass the first point of hard rock on the larboard hand ; here you will have breakers on both sides of you, but the channel is sufficiently bold and deep ; then on getting abreast of the point of the first low woody key on the larboard bow, haul to the eastward, and doubling round this last mentioned point of the low woody key, drop your anchor in 3 fathoms water, on clean sandy bottom.

☞ At this place a quantity of the best large-grained salt is always for sale, on reasonable terms. Vessels of any size coming here will meet with every despatch in loading, and the harbour is safe and commodious ; those of a moderate size can lay and load within 100 yards of the beach, sheltered from all winds.

*** Wood and water are to be procured with very little trouble and without expense.

Observations on the Old Straits.

On running down, after passing Port Padre, keep a good look out for the Macaras reef, and when you are abreast of Key Savinal, allow those reefs to lay 10 miles to the southward of what they are laid down by Roman.* The principal reef extends nearly E. and W. but there is a ledge of sunken rocks that runs full 10 miles to the southward ; on these rocks the ship Sarah, of Boston, was lost in 1802, and it was proved, by two quadrants, that Roman's chart, which was then on board, was erroneous, and the cause of the loss of this vessel, and supposed to be of several others ; very lately, the African ship Mary Ellen, captain Jump, ran on these rocks, and from the description, it must have been near the spot on which the Sarah was lost ; but in keeping to the southward, to avoid the danger, be careful and not run into the bay formed by the island of Guajava, Chesterfield key, and Key Confites ; into these channels the flood tide sets with amazing rapidity, and, if a vessel is caught with a north easter in this bay, it will be difficult to beat out of it. Vessels of 12 feet water may anchor under the lee of Key Confites. To effect an anchoring, a knowledge of the place is necessary.

General Remarks.

Bound from the Atlantic, over the bank, for New-Orleans, you may

* The south point lies in lat. 22° 9′ N.

shorten your distance very much by running down the Florida reef, keeping in coloured water in day-time, and off into the Stream by night, as a strong eddy, or counter current, sets westwardly along outside of the reef, between it and the regular set of the Gulf. To do this with advantage you must calculate to fall in with the Florida coast as early in the forenoon as possible, that you may take advantage of the eddy through the remainder of the day. Your best way, therefore, will be, on leaving the bank in latitude 24° 40′ with a good breeze, to steer W. S. W. 25 leagues, and if at daylight Florida reef is not in sight, steer west, W. by N. or W. N. W. and make them at once; you will fall in with them between Long key and Old Matacumbe, which has high trees on its north end, the tops of which are quite level, and at first sight appears like table land; keep down in coloured water by daylight, and at night haul out at a respectful distance, until fairly daylight again, when you may haul into the northward and again make the land. Or, should you be so far to the westward as between the Marquis keys and the Tortugas, where you cannot see the land unless within 4 leagues of the one or the other, you must keep a look out for coloured water, and when fairly into it, keep down to the westward and make the Tortugas, which you may pass at a respectful distance either to windward or leeward, as best suits your fancy and as the winds will admit of.

Should the wind be far southerly, or light, it would be most adviseable on leaving the bank, to keep to the southward and get under Double-headed Shot bank, out of the force of the Stream; and with light and westerly winds (which sometimes continue for several days during the summer) it is usual to get on the Double-headed Shot bank, and lay on its western edge for a breeze, or cross over into St. Nicholas channel, and take advantage of the land breeze from the island of Cuba, to get to the westward.

Description of the coast from the Bay of Santa Rosa *to* Cape St. Blass.

Santa Rosa island being described in page 278, we proceed to observe, that from the bay the coast runs S. S. E. and S. E. by E. 48 miles to the entrance of the Bay of St. Andrews. On this coast the trees are very thick, and near the beach there are also many red and white sand hillocks.

The entrance to the Bay of St. Andrews is formed to the westward by a long narrow neck of land, which runs off from the main land, and to the eastward by a small island called St. Andres, off which is a sand shoal of 4 feet water, extending S. S. E. 14 miles, lying 6 miles from the coast. From the neck or tongue of land a shoal stretches more than two-thirds the distance between it and the island, leaving a channel in which there is a bar of 10 feet only; you must also take care of another shoal which runs off the island, which having passed, and between the two points you must haul round N. W. to get sheltered by the tongue in 4 or 5 fathoms. This bay is very large, but as yet there can be no motive for ships to call here, but should you do it for shelter in bad weather, you have only to run as far in as the place mentioned above.

From Bay St. Andrews the coast runs S. S. E. 29 miles to Cape St. Blass, which is the southernmost point of a very long neck of land that stretches from the coast 5 or 6 miles and forms the Bay of St. Joseph. The shoal which lies off this bay (before described) may be easily discovered by the whiteness of the water. The S. E. extreme of this shoal, and the above tongue, form the entrance of the Bay of St. Joseph, which has a bar of 9 feet water; the tongue of land which is 14 miles in length, is so narrow, that in places it is only two cables wide: there are various breaches in it, by which (in time of rains) the water of the bay unites with the ocean. This piece of coast presents good anchorage, sheltered from easterly winds, in 6 or 7 fathoms, which depth you will have at 1½ mile from the beach.

To enter this bay you must coast along the tongue of land in 4 or 5 fathoms until you pass a tongue of sand a little before you come to the mouth, from whence you steer N. E. and E. N. E. till within, always coasting the tongue which is the deepest water. The bay of St. Joseph is entirely without shelter, especially in winter, by the prevailing winds from S. to W. and from W. to N. that make a heavy swell, which always exists on the bar.

Description of Cape St. Blass.

Cape St. Blass is a low point which runs to the southward two miles; from that part where trees end on this point a shoal of sand runs S. S. E. 4 miles bearing from S. S. E. to S. S. W. from the point. Various shoals and small spots of sand, having less than 3 fathoms water on them also lie off the same point, the southernmost of which is 14 miles distant; between these shoals there are 7, 8, and 9 fathoms water.

The whole coast, from the Mississippi to Cape St. Blass, sends off a bank of soundings, whose edge runs out to lat. 28° 50′, but the depth is very unequal; this inequality is very clean. If you except the spots of sand that are in the vicinity of Cape St. Blass, you will find no danger in the whole of it that cannot be prevented by the care and use of the lead, and as the whole of the coast is very low, having few visible marks to distinguish it in its whole extension, and besides is often cloudy and foggy, exposed by the continuation of winds from S. to W. and from W. to N. which blow with great force in winter, and by hurricanes in August and September, all which create the necessity of saying something on the method of making the land and navigating its coast.

If your destination is Mobile or Pensacola, you should run in for the land to the eastward of them respectively, not only to avoid passing the port, but because land-marks are so wanting, and the coast so low, that a stranger has nothing to guide himself by; nevertheless, the soundings indicate sufficiently well the meridian in which the ship is found; a little more or less if you attend to the quality of coarse sand and coral found outside of land, which is a sure indication that you are off the east end of Santa Rosa island, where you find the same quality of soundings as off Tampa bay and other parts of East Florida, but can cause no equivocation, because the points are so distant from the one now treated of.

The island of Santa Rosa extends along the coast 40 miles, and in its greatest breadth is not more than half a mile. There are many lumps of

white sand upon it, and some scattering trees. The eastern extreme of this island is the western point of Santa Rosa bay, very sandy and low. The east point of this bay is known by some bright reddish coloured bluffs which are upon it. The channel or mouth of the bay is very narrow and a bar of only 5 or 6 feet impedes its entrance. To enter, steer N. till you pass the east extreme of the island, whence steer N. W. and anchor as soon as you have shelter. This bay is of extraordinary length, extending 24 miles to the eastward with a breadth of 4 to 6 miles; the best water in it is 3 fathoms, which is only found when you are E. and W. with the red cliffs at the entrance, about two miles from the bar. The other part of the bay is full of shoals and palisadoes, navigable only for boats.

From Cape St. Blass the coast runs east to St. George's key, and from St. Blass to Point Josef, which is the south point of the island is 17 miles, from which point the coast and islands double round to N. E. in which direction you find 3 other isles; about E. N. E. from the last lies Point Minesses on the main, and is distant from St. Blass about 18 leagues: from Point Minesses the coast bends to the northward, and after to the eastward, and forms a large bay, in which is emptied the river Apalache. This river is shoal and obstructed at its entrance, and for a long distance off by many oyster banks, which are dry at low water: the tide rises 4½ feet.

About one league up the river is the fort of St. Marcos, situated on a point which forms the confluence of the river, of which the east branch is called Jabonico, and the other St. Jago. The shoal water which is found in this river is also found all over this large bay, and 2 fathoms is the best water in the channels.

From Apalache bay the coast bends off to the southward and eastward to the river St. Johns, which is 23 leagues distant from the river of Apalache. From the river St. Johns to the southward you loose sight of the land, as only canoes can get nigh enough to discover the keys called Sabinas. Fifty miles south of the Sabinas lies the Key Anclote, or Anchor island, and before you come to it, you may discover the coast. The whole of the coast, from Point Minesses to this key, is so shoal that at 10 leagues from land you have but 5 and 6 fathoms.

Key Anclote is distant across from the main land 5 miles, and is in length about 8 miles N. and S.—it is divided into three parts, and its S. part has good anchorage in 3 fathoms water.

From Key Anclote the coast runs S. E. by E. 30 miles to the entrance of Tampa bay, or Baye del Espiritu Santo. The coast between is clear and deeper than the anterior. At 3 leagues from the land you will have 6 fathoms water, and no impediment to your keeping in with it by the lead. Off this coast there are various keys, which lie, at most, only 5 miles from the main.

The entrance of Tampa bay is obstructed by various sand shoals, upon which are raised some islands. Between these shoals there are three channels to enter, called the West, South West, and South East: the two first have plenty of water on their bars; on the first (at low water) there are 23 feet, and in the second 18 feet. The channels are frank, and to take them there is no necessity of advice, as, at high water, the shoals shew themselves, and at low water, are dry.

From Tampa the coast continues S. E. by S. 22 leagues, to Bay of St. Carlos; all this piece of coast is bordered with keys, which lie about 4 miles off from the main land: the whole is clear, with the exception of a

sand bar, which runs off from what is called Boca Qarazote, which is an opening formed by two of the above-mentioned keys, and is distant from Tampa 21 miles. On this bar there are 2 fathoms water, and all along the coast you will have 6 fathoms at 5 or 6 miles from it, so that there is no danger in keeping in with it by the lead.

Carlos bay is a large entrance made in the coast, in which are emptied various rivers, whose mouths are covered by many keys and shoals, which leave between them channels more or less wide: the northernmost is called Friar Gaspar, and has 6 feet water; the next, called Boca Grande, is the deepest, having 14 feet water. This bay is only good for vessels of 8 feet draught, by the little shelter which it affords in gales in winter; and although the holding ground is good, you are obliged to look for the bends of the bay to shelter you from the wind which blows. The tide rises two feet, and when the wind is off shore it runs with great velocity.

The key, whose north extreme forms Boca Cautivo, is the same whose south extreme forms what is called Boca Ciega, which is the opening which said key forms to the northward, and Sanibal to the southward—This opening extends to Shoal Lagoon, which communicates by various shoal channels with Bay St. Carlos.

Key Sanibal has good anchorage on its south part in 2 fathoms, sheltered from all winds. This anchorage of Sanibal is known by a palm tree, 2 leagues to the southward of it, and is the only one you see on the whole coast. To anchor in Sanibal, it is necessary to run with care, and the lead in hand, that you may avoid the shoal bottoms which run off 4 miles from Sanibal and the keys S. E. of it.

From Sanibal the coast runs S. E. by E. 11 leagues to Point Largo, or Key Roman. This piece of coast is clean, having 3 fathoms at two miles from the land. Point Largo sends out S. and S. E. of it a shoal, which runs from it 7 miles, and the coast bending to the eastward, forms a bay of 12 feet water, in which vessels of light draft may enter and find shelter from winds any way on the northern board.

The coast from hence runs S. S. E. 25 leagues to Point Tancha, which is the southernmost promontory of the Peninsula of East Florida.

The whole of the coast has regular and clean soundings, whence the lead is the best guide.

Banks and Coast of Florida.

Seventeen or eighteen miles to the eastward of the easternmost Tortuga, is placed the W. edge of a bank called the Marquis Bank, and 13 miles farther E. are placed, on this bank, the key called Marquis Key, which is the westernmost of a group, of which the northernmost is called Boca Grande; this key is the largest of the group, and is near 6 miles E. and W.—about one mile to the eastward of this key the first bank ends, whose eastern edge runs about N. and S. The first bank is separated from the following by a channel of two miles wide, with 10 or 12 feet water, sandy bottom. This channel is called Boca Grande, but no man, who is not well acquainted, should ever attempt to take the channel, as there are some shoals in it.

The second bank, called the Mangrove islands, is like the first, upon which is raised a portion of islands, of which the three southernmost have

white sandy beaches. This second bank may be viewed as distinct from the following, although they are united on their northern part by an isthmus of half a mile wide, otherwise they are separated by a channel of one mile in breadth, which contains from 2½ to 3 fathoms water.

The third bank is called Key Huesso and Pine islands: the western part is called by the first name, and the eastern by the second.

The first island, on its western edge, is Key Huesso, which lies E. and W. 9 miles in length; and its southern coast is very sandy. This island is covered with trees, especially on its western part, in which there is a secure anchorage, with a channel of 4 fathoms to enter it, and 2½ fathoms within, well sheltered. To enter this channel you must steer N. E. by N. as soon as you can bring the N. W. point of this island to bear near that point of compass (the point of the isle is remarkable by its having a large bunch of trees on it) and pass about one cable's length from said point, when you may anchor, which will be in 3½ fathoms, between said point and a small island (called Canelette) which lies one mile north of it; anchor rather to the eastward: the bottom is clean. This anchorage is frequented by the fishermen from Havanna. The object of steering N. E. by N. from the time that the N. W. point bears on this point is to keep clear of the S. W. point of Key Huesso, which has a reef extending one mile from it.

From Key Huesso to eastward for 24 miles there are nothing but low mangrove islands, in whose channels nothing but canoes can pass. This third bank terminates at Bahia Honda, and the islands to the eastward are somewhat larger and covered with pine trees, but are low and drowned, like the others, and their channels are only navigable for boats. Of the whole of these islands there is but one which is 13 miles from Key Huesso, which, although small, is of tolerable height, is rough and covered with trees, and in whatever direction you see it, appears in the form of a saddle.

The next bank is called Bahia Honda, separated from the last by a channel of half a mile wide, which channel is called Bahia Honda, and in which there is anchorage in 3 and 3½ fathoms. This channel is easily known, because on its western part, and on the very eastern part of the last bank of Key Huesso and Pine islands, there are three small islands, and on its eastern part, upon this fourth bank of Bahia Honda, there is one called Palm island, which is large and has a sandy beach, and is remarkable by the many high palm trees with which it is covered, and are the first you see coming from the westward. This bank of Bahia Honda has but few keys and extends E. about 4 leagues.

From the fourth the fifth follows called Key Vacas, or Cow keys, extending to the eastward about 5 leagues, upon which bank a group, called by the same name, are raised, the easternmost of which is called Duck key, or Cayo Holandes; between this key and Key Bivoras is one league. This key is remarkable by its white sandy beach, and by a tolerable high hill covered with trees which is on its western part.

Concerning the whole of the channel to the westward of the Cow keys, it may be necessary to state the following remarks, namely, that you will have 3 fathoms water all the way within a mile of the keys, and will always find the deepest water nearest to the reef. That the usual method of navigating between the reef and the keys is, to proceed in the day, and lie at anchor in the night; and that should you be obliged to anchor where there is any coral, it will sometimes be necessary to buoy up your cable to prevent its being rubbed.

From the eastern extreme of Key Bivoras to the westernmost part of Old Matacumbe is 3½ miles. Old Matacumbe is 4 miles long in the direction of N. E. and S. W. and its N. E. point is covered by some very high trees, appearing like table land. On the north end of Old Matacumbe is a natural well in a rock containing excellent water.

One mile east of Old Matacumbe lies Indian key, to the eastward of which there is a channel running to the northward with 10 and 12 feet water, where, by doubling the N. E. point of Old Matacumbe, you may anchor sheltered from all winds. This channel is easily discovered by the white shoals of only 2 or 3 feet bordering both sides of it which serve as an excellent beacon.

Two miles N. E. of Old Matacumbe you find Little Matacumbe, which in this same direction has 4 miles in length; this key is covered with high trees. Off its N. E. part there is a small mangrove island separated by a channel of half a mile wide; and N. E. of the last, there is another of tolerable size, separated by another channel of the same breadth. This is also separated by another channel, like the others, from Long island.

N. E. from Long island lies Key Largo, separated like the others by a small narrow channel. Nearly east from this channel, 1½ mile, lies Key Tabano, to the northward of which there is excellent anchorage for vessels drawing not over 8 feet water, and is one of the anchorages much frequented by the fishermen.

About N. E. by N. from Key Tabano lies the Key Melchor Rodrigues, which is an island of tolerable extension, and the land so spongy that the roots of the trees are discovered.

The coast runs from Melchor Rodrigues to Key Largo (which appears like main land) N. N. E.—N. by E. and north, on which last course there are various keys for some distance, of which the last is called Key Biscayno; a little to the northward of this key there is an island of moderate size off the main land, the eastern point of which is called Cape Florida, from this cape to the northward it is clear of keys and reefs, and is all low and drowned. The shores of this coast is lined with a bank of regular soundings which run off a good distance; this regularity of soundings extends from Cape Florida to Cape Canaverel and is of great benefit to navigators, except in about the lat. of 26° 30′ where the soundings narrow and hardly extend two miles from the coast. From 26° 30 the soundings widen from the coast, and the whole is very clean with the exception of Cape Canaverel, from which at a long distance you will find upon the same soundings various shoals; but as the soundings run farther out to sea than these shoals, he who navigates here must run with care, and have his lead at hand.

From Cape Canaveral the coast runs N. W. by N. 26 leagues, to the entrance of New Smyrna, which is barred and only fit for boats and launches; the coast is very clean and you may, without danger, keep within two miles of it.

Seven leagues N. 25° W. from New Smyrna is the entrance of Matanzas, but only vessels of very light draft can enter it; this bar has 8 feet at high water. From this entrance there is an inland navigation to St. Augustine, formed by the island of St. Anastatia and the main; the tide rises 4 feet at spring tides, and it is high water at full and change at 7 h. 15 m. The whole of this piece of coast is equally clean with the anterior. You have 8 fathoms one league from the land.

From Matanzas to St. Augustine is 12 miles, and the island of St. Anastatia extends the whole length; you may keep along it at two miles dis-

tance, in 5 and 6 fathoms. You can see this island from 15 fathoms as it is pretty high ; the coast to the northward is very low, and you can see it but at a short distance, so that it makes a good mark to know if you are N. or S. of St. Augustine.

From the foregoing observations it clearly appears that there can be no great difficulty in getting fresh water on most of the islands ; and, except the Tortugas, there is plenty of fire-wood upon the whole of them.—With respect to water, it may be observed that just within the sandy beach the islands are generally bordered with mangrove swamps, of about 100 yards broad ; beyond these swamps the ground rises higher, and is generally of a rocky bottom, where you will often find fresh water ponds, or natural tanks, which receive and retain the rain water.—[*For anchorage at St. Augustine, see page 244.*]

Soundings off Florida.

The whole of the coast from Cape St. Blass sends off a bank of soundings which stretches a long distance from the land, and these soundings is generally known by the name of Tortugas soundings, and is so clean that other danger is not known in the whole of it than a spot or knowl of sand in lat. 28° 35′, and lies about 12 miles east of the meridian of St. Blass. This knowl has but 3 feet upon it, and so steep that from 100 fathoms you will be upon it.

The whole of these soundings are very equal, diminishing gradually towards the shore.

When you enter on these soundings, without a sure knowledge of the latitude and in parallels near the Tortugas, it is necessary to run carefully to get soundings on its edge, and not get into less than 40 or 35 fathoms, which is a depth to keep clear of the Tortugas, which lie in 30 fathoms (that is, if they did not exist the regular soundings of the bank would be 30 fathoms where they are placed) on the western part of these keys, the soundings are steep.

You should take the same precaution when entering on soundings in parallels north of the Tortugas. You should take this same precaution when navigating to the southward, that you may leave soundings with safety off its southern edge ; so that what is said is sufficient to liberate you from all danger offered by the Tortugas.

On the edges of this bank the waters run lively to the southward, so that when navigating from the westward with intention of sounding on its edge, the ship will be retarded by the wind, which fixes itself at E. N. E. or east ; but when for two days you experience a difference of latitude to the southward of 20 miles more than account, you may be sure that you are in the vicinity of soundings, in which case you may suppose yourself in the meridian of the edge and calculate an error of not exceeding 30 miles, and thence take your route with security.—[*For Tortugas, see page 286.*]

Florida Reef.

The reef begins in the meridian of the first bank, that is, at the same

distance from the Tortugas ; its breadth is about 3 miles, and it preserves the same or near the same breadth as far as the eastern meridian of Boca Grande, and thus far has, at least, 3 fathoms water over it, and you may cross this portion of the reef with any ship of 18 feet draught: but you should ever remember, that over white shoals you always endanger the ship if she is large, especially if the weather is thick when the bottom does not show itself clearly. You may, in such weather, soon encounter a coral shoal of only one fathom, or even less : so that when we say, that the least water is 3 fathoms on this portion of the reef, it is because it is so generally, and that the inequalities found on the other parts of the same reef to the eastward, is not found here on this portion of it.

From the eastern meridian of Boca Grande, to the western meridian of Key Huesso, you have the same depth, and the quality of soundings is the same as the anterior ; but upon it there is a sandy key bearing S. S. W. from Key Huesso, and on which a large stump or post has been erected to make it visible at a greater distance. Four miles west of this key there is a reef of a group of dry sharp coral stones ; and east from the key there is another group of dry coral rocks, with only 2 fathoms over them at 2 miles distance from the key ; and at 5 miles distance to the eastward, another like the last.

In the whole of the distance off from the ledge, 4 miles W. of the sand key to 5 miles E. of it, it is dangerous to cross the reef, as you will find spots of only 9 or 10 feet water. To cross the reef W. of Key Arenas (sand key) there is nothing to advise, except that you pass W. of the dry rocks, and pass about 2 miles W. of the westernmost dry rocks ; but if you bring the S. W. part of Key Huesso to bear N. N. W. you may steer for it, and you will cross the reef in 4½ or 5 fathoms water.

Twelve miles E. of sand key, on the reef, there are 3 small sandy keys which have breakers a good distance from them, but between each other have channels of 3 and 4 fathoms water, from hence to 10 miles to the eastward the reef is dangerous and wide, having on it many rocks, and others have only 6 and 7 feet water over them, with channels between of 4, 6, and 7 fathoms water.

From this place the reef narrows to one mile in width, and Key Looe lies 3 miles to the eastward ; this key is so called from an English ship's being lost upon it in 1787. It is a small sand island, on which there has also been placed a large stump or post, that it might be seen at a greater distance. About one mile west of this key, there is a good passage over the reef of 4 and 5 fathoms water ; but to the eastward of the key, there are but 12 and 15 feet, which goes on deepening, so that, at 3 miles from it, you find 3 fathoms.

From Looe key the reef continues on with a breadth of about 1½ mile, with regular soundings of from 3 to 5 fathoms, as far as Key Sombrero ; this key is nearly N. and S. with the westernmost part of Key Vacas (Cow keys) and is the easternmost key of all upon the reef.

From Key Sombrero the reef continues about same breadth ; but there are many shoals and inequalities in the soundings, which makes it dangerous to navigate over it, so that daylight should be used and the greatest vigilance. The reef terminates with Key Biscayno or Viscayno, and outside of it, in its whole extension, there is a bank of soundings, on which, at two miles from it, you find 20, 30, and 40 fathoms.

Having observed, in the course of long experience, that several masters of vessels, who had the misfortune to be cast away on the Martyrs and the coast of Florida, ignorant of the existence of any settlement at

Cape Florida, have attempted to proceed to the northward in their boats, deprived of every assistance, I feel it incumbent upon me to inform such as may hereafter experience a like misfortune, that if they pass to the north side of Key Biscayno, they will find the entrance of Boca Ratones, through which they can safely go with their boats, and they will see the houses in front on the main land.

In case of shipwreck to the northward of Boca Ratones, at the distance of two miles therefrom, they will perceive mangroves thinly scattered, from whence the houses may be seen, and in that situation, on making a signal with fire, or otherwise, they will obtain assistance.

If it should happen to the southwardly of New river, they may proceed southwardly along the beach where they will meet, every 4 miles, with posts fixed in the ground, on which is an inscription in English, French and Spanish, informing where wells of fresh water have been purposely dug.

Channel of Florida *between the Reef and Keys.*

The western part of this channel begins with a breadth of 3½ or 4 miles, and you find in it from 6½ to 10 fathoms water, sand and mud or ooze, as far as Boca Grande, from which to Key Huesso, it is generally about 3 miles wide, and its depth 6 and 7 fathoms, fine sand and mud; in this last piece of the channel there are two shoals; the one nearly N. and S. with the easternmost part of Key Boca Grande, and the other S.S.W. from the westernmost part of Key de Huesso, and both in the middle of the channel.

From these shoals the channel continues with a breadth of 4 miles as far as Samboes keys, from which, to the eastward, its breadth diminishes, and the reef increases in the same proportion, so that the channel is only 1½ mile wide at the distance of 5 miles west of Looe key, and this is the narrowest part of the channel; but drawing up with Looe key, the channel begins to widen, so that N. and S. of Bahia Honda, it is 3 miles wide. The depth in these narrows is 3 fathoms, and continuing to the eastward you augment your depth to 6 fathoms.

From Looe key the channel continues to its end with a breadth of 2 to 3 miles, but its depth varies remarkably, so that, as far as Cow keys, you have 4 to 6 fathoms, and from thence to the eastward it goes on diminishing, and when abreast of Old Matacumbe you have but 3 fathoms, and abreast of Key Tabano only 2 and 2½; besides which, from Looe key, the channel has many coral shoals, which although by day they offer no risk (as the dark colour shews their place) yet by night they are very dangerous; and it is absolutely necessary to anchor and lie by for the night throughout all parts of this channel.

In Bahia Honda you get excellent water by digging wells, and on the south side of Cow keys, about 8 miles from its western end, you again have a fine spring.

These are the only places, among the keys, where you can find water from natural springs, but there are many natural tanks, where rain-water is preserved till evaporated.

On the north side of Cow keys, and about 6 miles E. of the W. end, you will find a natural pond that never wants water, which is in a valley distant from the beach about 100 yards, and the landing is something to

the westward of three small mangrove islands, called Stirrup's keys. You may also, at times, find water on the western extreme of Key Vacas (Cow keys)—also, in some of the keys in its vicinity, and on Dutch key, and generally in all those places where the earth is rocky, you will find water, especially after rains.

Description of the Tortugas islands.

Upon the southern edge of the soundings, which runs off from the western coast of the promontory or peninsula of East Florida, there lie 10 keys or islands, called Tortugas, and are the westernmost land, and which announces the proximity of the Great Florida reef, which borders the whole southern part of these soundings, and which in uneven, but nearly parallel lines, continues to the eastward, doubling with the before mentioned promontory as far as Cape Florida.

The Tortugas occupy a space E. and W. of 9 miles, and N. and S. 6 miles; the land is low, but being covered with mangroves, makes them visible at the distance of 12 miles. You should never get within 2 miles of them, as they have some rocky spits, which, in places, extend that distance from them. There is a bank of white sand and gravel which is spotted with coral rocks, lying to the westward of the west Tortuga, the soundings on which is very irregular, but as the bottom shews itself plainly there can be no danger. The least water on this bank is said to be 6 fathoms, but "I found less than 9 on the coral rocks, and usually heave too in passing over it, for 15 or 30 minutes, to fish, in which time I get as many as I can dispose of, principally groupers."

Between this bank and the Tortugas there is a clean channel of 3 miles wide, with water from 13 to 17 fathoms.

Eighteen miles to the eastward of the eastern Tortuga, the General Florida reef begins, between which there is a good channel of 9 fathoms water, but you must take care of a coral shoal of 12 feet which lies 11 miles from the Tortugas, on which the ship Rebecca, of New-York, lost part of her cargo in 1820. To go through this channel you must keep the eastern Tortuga in sight off deck, so as to pass at 2 or 3 leagues from them.

The proximity of the Florida reef is shewn clearly in day-time by the whiteness of the water, so that there can be no danger in drawing in with it; but if safe by day, it is not so by night, nor in bad weather, when you should carefully avoid it, and be sure to keep the lead going, by which means you can avoid danger at the distance of two miles from the edges of the keys or reefs.

In passing the promontory of Florida, it is not the reef alone which you see, but an innumerable quantity of keys and islands raised upon a bank north of it.

Winds from Tampico Bay *to* Cape St. Blass.

From Tampico to Bay of St. Bernard, the winds are continually from E. to S. and light from the month of April to August; the contrary is ex-

perienced in the other months. This coast is exposed on account of the hardness of gales from E. and E. S. E. which blow without intermission for 2 or 3 days before hauling to the northward.

In lat. 26° 30′ N. there are land breezes at night, which blow from midnight to 9 A. M.

From Bay St. Bernard to the Mississippi there are land breezes at daylight, and on the day's entering the winds haul to S. E. and E. S. E. and in the afternoon it generally hauls S. W. In winter the southerly winds are very tempestuous, and blow for the space of 2 or 3 days. The months most to be feared to navigate this sea, are August, September, October and November, in which there are hurricanes and winds on shore so heavy that no canvass can stand them: upon the Mississippi, and all its mouths, there are very thick fogs very frequently, especially in February, March and April, and in June and July.

From the Mississippi to lat. 28° N. in the month of April to July, the reigning winds are generally from N. to E. and from E. to S. in the morning, and in the afternoon they haul S. W.—these S. W. winds are tempestuous in August, September and October, an epoch in which are also experienced heavy southers and hurricanes. From November to March the winds blow from the northward, beginning first from S. E. and S. with heavy rain, when it hauls to S. W. and W. and blows very heavy, till it hauls to N. W. and N. when it clears the weather, and then to N.E. and is mild.

From lat. 28° N. to the southernmost of the Florida keys, the trade wind reigns in the morning, and at midday it hauls in from the sea; this happens in summer, but in winter, especially from November to March, the winds blow from S. to W. and raise a very heavy sea.

In the new channel of Bahama, the reigning wind is the trade, interrupted in winter by northers, and in summer by calms. Although the northern limits of this channel is in 28° 30′ N. and consequently within the limits of the trades, yet it is necessary to keep in mind that in winter, that is from November to April, you will meet with the variables at or before you arrive to lat. 27°, which variables are from E. to S. and from S. to W. and in summer you have calms and light airs from S. to W. and from W. to N.

Vessels bound to New-Orleans, Mobile, *and* Pensacola:

The only three points of destination on this part of the Gulf of Mexico; to go to either of which it is best to make well to the eastward of them respectively, when coming from any place S. E. of them, that is, when you have the winds easterly, which is the wind that predominates here; but if you come from the westward of them, you have no other resource but to beat to windward from that point of the coast which you have made, and the greater or less distance of it, according as you are best accommodated with respect to the season, the quality and size of your ship, &c.

The making to the eastward of your destination is necessary to be more or less distant, according to the confidence and security you have in the situation of the ship, so that bound into the Balize, you will look for soundings in the meridian of 29° 30′, or thereabouts; and if bound to Pensacola or Mobile, in the meridian of Cape St. Blass.

Should you strike soundings in the lat. 29°, steer N. W. by W. a while, so as to make it E. northerly of it, that is, to make its bearing W. southerly, to prevent falling in to the southward of its parallels, especially in winter, when it is best to run, heading for the middle of the chandeliers; in this route you find no regularity in soundings, as whatever the parallel may be, you will as often get more water as less; nevertheless, from 20 fathoms down, the soundings are very regular; and from the meridian of Pensacola westward, to the southern limits of the Chandeliers, you will get 10 fathoms 10 miles from the coast; from Pensacola eastward, you have 10 fathoms at 4 miles from the coast, and 25 fathoms at 10 or 12 miles.

But as navigating for the Balize you may want an observed latitude, and have it so cloudy or foggy as to impede making the land, in such circumstances, or to run for it in the night, the soundings will serve as a secure guide, for which you must recollect that navigating to the westward, if you find 40 to 50 fathoms, loose mud, sticking to the touch, mixed at times with small black and white sand, it is a certain signal that you are in the parallel of the Balize, and from that depth to less water you will always find the same quality of soundings; but if from 40 or 50 fathoms to less water you get bottom of fine sand with very little mud, or without it, you will be in the parallel of between the Balize and Breton key or island; if you get small white sand, you are in the parallel of said key, and if coarse sand and snail shells, you will be in a parallel between said key and chandeliers; and if you get coarse sand, with gravel, small stones, and large shells, you will be in front of the Chandeliers. From the Balize to the westward, the bottom is of sand alone, so that those from the southward who look for the Balize, sand alone will be a signal that they are west of it.

When navigating N. W. and north, from the getting 40 or 50 fathoms sand, and in diminishing the bottom or depth, the quality of soundings does not vary till in 10 or 12 fathoms, you are to the southward of the Balize; but if in this N. or N. W. route you have crossed mud or ooze, and entered in 10 or 12 fathoms, you find sand, then it is a signal that you have crossed the mouth of the Balize, and drawing in with Breton island and the Chandeliers. The better to explain these soundings, we shall place them in form of a table.

In the Parallel of the Balize,	Loose mud, sticky to the touch, mixed at times with small fine black and white sand.
Crossing these soundings, you cross this parallel.	
In parallel of between the Balize and Breton island or key,	Fine sand, with very little mud or sand alone.
In the parallel of Breton island,	Fine white sand.
In the parallel of between Breton island and the Chandeliers,	Coarse sand and snail shells.
In the parallels of the Chandeliers,	Coarse sand with gravel, small stones and large shells.
West of the Balize the bottom is sand alone.	

When you come in looking for the Balize, either in its parallel or that of the Chandeliers, you must take care not to get foul of the land at night, but maintain your position in 15 or 20 fathoms, at anchor or underweigh; but if you do not wish to delay for more safety, you may stretch in towards the Balize to anchor in 10 or 12 fathoms outside the bar.

A vessel with a floating light is moored by a chain and anchor, 1¼ mile due south of the bar of the N. E. pass of the Mississippi, between Wallace's and Bird islands, in lat. 29° 8′ 40″ N. and 5 miles E. by N. ½ N. of the block-house at the Balize, and 1¾ mile E. by S. ¾ S. from the unfinished light-house on Frank's island, which station she will not leave unless driven by stress of weather. By day she will be known by having a white flag with a red cross hoisted upon her mainmast. By night her lantern will be hoisted 45 feet above the level of the water upon her mainmast. A large bell is suspended near the windlass of this light vessel, which will be kept tolling during foggy weather both night and day; this bell may be heard 6 miles with the wind, and 4 miles against it, in moderate weather. Mr. Ruddock, the engineer, gives the following magnetic bearings from the light vessel:

	Courses.	Distances.
The unfinished light-house, - -	W. by N. ¾ N.	1¾ mile.
Block-house at the Balize, - -	W. by S. ½ S.	5 do.
Main bar of S. E. Pass, or main ship channel,	S. by W. ¼ W.	3¼ do.
Point of Pass-a-la-Loutre, - -	N. by W. ¾ W.	3¾ do.
Bar of the N. E. Pass, - -	due North	1¼ do.

If the running in for the land has been in the parallel of the Chandeliers, as soon as you get 10 or 12 fathoms, you will steer S. S. W. trying to maintain this depth without danger of running aground or among shoals as is shewn by the following breakage in the soundings:—

In this S. S. W. route there is in the middle of soundings a good mark to know the place of the ship, which is as soon as you arrive in a parallel with the S. end of the Chandeliers, which is as far up as Alcatraces, the depth begins to augment to 12, 14, and 18 fathoms, which is athwart with the Poza. This augmentation ceases as soon as you arrive abreast of Pass a la Loutre, where you find anew the 10 fathoms; this knowledge is of importance in looking for the Balize with security, so as not to pass to the southward of it.

In running as above, be careful not to get into less than 10 fathoms, when stretching from E. or S. or from S. to W. because from this depth to less you cannot weather the Balize with the wind at east, and you have no opportunity for running for the road of Naso, as follows:

Placed in 10 fathoms water, in a S. E. gale (and no appearance of the wind's ceasing) and getting into less water, you have the resource of navigating to the northward, sounding continually to maintain 8 or 10 fathoms, so as to coast the Chandeliers, and you will know you have passed the northernmost point if you lose the oozy soundings sometimes mixed with white shells, which is found off the Chandeliers, and finding fine white and black sand, you may steer west, and run in 10, 8, and 6 fathoms to anchor, under shelter in the road of Naso, as the atmosphere is cloudy; in such weather you can discover nothing, and to get to this anchorage there is no other guide than the lead; but if you can see the land, you will easier get to the anchorage, as you have only to double the spit of sand which runs off the N. E. end of the Chandeliers, and on which the sea breaks with easterly or S. easterly winds.

This convenient resource will be better if embraced as soon as you consider the passing or weathering the Balize doubtful; as here you have your choice of water from 3 to 7 fathoms, sheltered from winds in 3 fathoms from N. E. and in 7 fathoms from winds from E. round on the southern board to S. W. It is also necessary to advise, that as soon as the winds haul round to between W. and N. you should lose no time in getting out of this roadstead, as the water will fall from 4 to 6 feet.

It is a good rule in running for the Balize to get soundings in any parallel between 29° 10′ and 29° 30′ or 35′, to get into 25 fathoms, from whence the Balize will bear S. W.—from 25 fathoms, in any parallel between 29° 10′ and 29° 35′ the Balize bears S. W. and by steering that course you will hit the Balize about the N. E. Pass.

There is a shoal of 3 feet in lat. 28° 35′ 12 miles E. of the meridian of Cape St. Blass, so steep that from 100 fathoms you will strike upon it. I suppose this is what, in ancient charts, was called Providence island.

I am also suspicious of a shoal or shoals near the edge of soundings, in about lat. 26° N. I once passed quickly through two coloured patches in about that latitude, and was clear of the appearance before I had time to sound. They looked like shoal coral shoals, and I passed between them with a ship drawing 17½ feet. I had sounded in 45 fathoms shortly before, and had no bottom shortly after.

Chandelier Islands.

From Pass a la Loutre, or Wolf Pass (one of the entrances of the Mississippi) the coast doubles to the westward and soon to the northward to the parallel of 29° 27′ in which latitude lies Key Breton, which is a group of small keys, whose western limits are 5 miles distant from the coast, so that it forms a bay, called Poza or Wells, in which there are 4 or 5 fathoms, with some shoals of less water. East of Key Breton is the isle of Grand Gossier, from which a ledge runs N. N. E. and breaks to the isle of Palos, which is the southernmost of the Chandeliers. There is a good passage inside the Chandeliers with 8 to 11 feet water, but a good pilot is requisite. From Key Breton a shoal stretches two miles S. W. bold at the very point. Shelter can be had from a N. E. wind inside this island, but the navigation is difficult for strangers, and requires much survey to describe it properly.

The whole of the Chandelier islands are very low, with some myrtle bushes upon them, and form a chain of coast very injurious and to be dreaded by navigators, not only that you cannot see them at a regular distance, but because the winds at S. E. (which blow hard in winter) are right on the coast; nevertheless there is good shelter for all ships to the westward of the north extreme of the Chandeliers, called the Road of Naso, where the heavy English men of war lay during the siege of New Orleans. This is the only good shelter for large men of war in the whole coast of Florida (Tampa bay and Pensacola for small sized frigates excepted) not only because it is defended from winds on shore, but because there is no bar, breakers, nor impediment whatever to your entering it in all weathers. To enter the *Road of Naso*, you have only to run so as to double the north point in 5 or 6 fathoms water, which will be one mile from the land, and then navigate west round to south, keeping in 4, 5, or

6 fathoms, according to the draft of the ship, and you may anchor in 4 fathoms, when the north point bears N. N. E. distant two miles; but if you wish deeper water you must not run so far south, but anchor when the north point bears E. N. E. in 5 to 6 fathoms water. In the Chandeliers, and almost the whole coast of the Mexican gulf, you can get water by digging wells in the beach, but there is no other wood on the Chandeliers than the drift logs left in abundance on the beach. Its lands produce nothing but the myrtle from which the green wax is produced.

Nearly N. and S. of the north extremity of the Chandeliers, 14 miles distant, is Ship island, west of which, 8 miles, is Cat island, and to the southward of this, various keys, called St. Miguell, run and extend out from the coast of the islands; between these and Cat island is the pass into Blind Lake (or Lake Borgne) and Lake Ponchetrain, in both of which there is very little water, especially in Lake Borgne. Between Cat and Ship islands there is a large shoal running out from the east point of the first, which leaves a channel of less than half a mile wide, to enter to the northward of them; this channel has good 12 feet water; the anchorage is N. and S. with the west end of Ship island three-quarters of a mile distant, in 4 and 5 fathoms. Ship island is long E. and W. and very narrow, and widest in the middle, which is partly covered with pines, but barren at both ends. The hurricane of 1819 cut a small channel through Ship island 1½ miles from its west end; in it is a well of good water, which is on its north coast, and about midway the island. East from Ship island, 5 miles distant, lies the west end of Horn island, and between the two lies Dog island; from the first a shoal runs out to the east, which not only embraces the Dogs, but leaves a channel of only 150 fathoms wide; the bar has 2½ fathoms when you immediately drop into 5 fathoms. East of Horn island lies Massacre island, then Dauphin island, which is on the W side of the entrance into Mobile.

General remarks from Santa Rosa Bay *to the* Balize.

From the meridian of Santa Rosa bay to the westward you get nothing with the lead but fine sand, with black grains like powder, and red points that is outside of 18 fathoms; but diminishing from 18 fathoms, you enter into very fine reddish sand, mixed with a few white shells and small black gravel, which quality is very notable, because you find it no where except S. E. and S. of Pensacola. The Barancas, or bluffs at its entrance, may be seen 5 leagues off in 14 fathoms water. You may also know the port by the quantity of sounding, as from Pensacola to the eastward, you have 10 fathoms at 4 miles from the beach, but to the westward the same water lies 10 miles off.

Directions for Pensacola.

On the appearance of a gale on shore, when off Pensacola, you must try for an offing, as you are greatly exposed outside the bar. A S. W. course made good will weather the Balize.

The bay of Pensacola is a good port, and has, at low water, on the bar 21 feet water. The eastern point of its entrance is called Point Siguenza and is the western point of the island of Santa Rosa, which extends E. by N. and W. by S. 14 leagues, and completely fronts the whole bay of Pensacola: it is so low that the seas, in gales, wash its top, and is no where more than one-fourth or one-third of a mile wide. There are some red bluffs on the main coast, which is higher than the rest of it, one of which, and the largest of all, is on the eastern side of Pensacola bay; and in or near the front of the entrance, are three red bluffs, adjoining each other, and called the Barancas. On the beach under these bluffs lies, or did lie, a half-moon battery, called also Barancas; and the pilots reside in a few small houses right over and a little east of the fort. After passing the bar, the entrance to the bay is between these Barancas and Point Siguenza, and runs nearly E. and W. This port would be difficult to recognise were it not for the bluffs, which consisting of three adjoining each other, cannot be easily mistaken.

A shoal, called the Angel, runs off to the W. of Point Siguenza, and has two small sand keys on it, level with the water's edge: this shoal stretches to the southward about 1¼ mile, and a bank of only 12 feet, hard sand, runs out one mile farther south, and runs to the eastward, traversing the whole coast as far as the isle of St. Rosa; and the western part of this shoal forms the bar of Pensacola, which is one mile wide; and after crossing it you soon fall into 5, 6, and 7 fathoms water. The bar is not the only difficulty in entering Pensacola, as there is on the inner part, and as high up as Point Siguenza, a shoal only 10 feet, very steep and distant from the point near one mile, and consequently runs out to mid-channel of the entrance.

To enter this port, you must do it to the westward of the shoal, and observe what follows, which with a plan of the port will give you a correct idea of its configuration.

The bar runs out to the southward of Point Siguenza about two miles; whence in coming from the eastward, it is necessary to keep as much as 8 fathoms, till you bring in a line the point and Fort Barancas; which will be when the bluffs bear N. 18° W. From this situation of 8 fathoms, and the fort and point in a line, you must steer N. 31° W. with which course you will cross the bar in the best water; and before you are on it you will have run near 2½ miles. If by this course the current has altered the bearing, you must take care to loof or bear away to get hold of it again; so that as soon as you are on the bar, the eastern extreme of the bluffs will bear north; after crossing the bar with the course of N. 31° W. you will continue on the same course till the western extreme of the Barancas or bluffs bear N. 5° W. which will be when you have opened Point Tartaro (the eastern point of main land which runs E. from the bluffs, and forms the western point of Pensacola bay) with Point Siguenza, when you will steer for it—that is, steer N. 5° W. and head for the western extreme of the bluffs, by which you will pass about 1½ cable's length W. of the above shoal. You continue this N. ½ W. course, till you are E. and W. with the Point Siguenza, when you haul to the eastward for the eastern extreme of the bluffs, and continue so till Point Siguenza bears E. S. E—then steer for Point Tartaro, until Point Siguenza bears S. when you may steer E—and as soon as you are to the eastward of Point Tartaro, you will steer for the edifices of the city (about N. E.) distant from the point about two leagues, and anchor to the southward of them in the depth suited to the draft of the ship. At 1½ mile from the town

and mole, you will have 4½ fathoms. The entrance to this bay is easy, with a knowledge of its configuration, especially as almost every day there are winds from the S. E. round to W. which set in about noon and continue to near sunset.

The western side of the entrance of Pensacola sends out a large reef to the southward, and is called the Calafatas or Caulkers' reef, and breaks in 4 fathoms with fresh winds on shore. Remember, that the west end of Santa Rosa island is called Point Siguenza, and that Point Tartaro is on the main land east of the west point of the island, and you haul round this point for the town; it is bold to within 30 fathoms, and before you come to it you might lie along side the beach—water enough. Best anchorage for large ships is Point Tartaro, N. E. half a mile, sheltered from all winds.

Pensacola is an excellent port, and has room for all the shipping of the United States; and Tampa bay is better, more spacious, has three channels to enter, all straight, and one has three feet more water than Pensacola; the second has 15 feet over its bar, and the third about 8 or 10; one channel runs in about N. E.—one N. and the other N. N. W.

Beside the before-mentioned directions for going into Pensacola, when the fort and Point Siguenza are in a line, and the ship in 8 fathoms water, you will also have in a line two large dry pine trees quite white; these trees bear exactly N. 31° W. when in a line, and by keeping them thus, you cross the bar as before—you keep on with the trees in a line until the western extreme of the bluffs bear N. ½ W. when steer as before.

These trees are an excellent mark to cross the bar; but as they have been dead for many years, they may shortly be blown down. They are a considerable distance from any other large trees, and cannot be mistaken. When about 4 miles E. of Point Siguenza, you can see the town of Pensacola over the island of Santa Rosa.

Fresh water may be obtained on all its sand beaches by digging wells. The tide is established at about 9 o'clock A. M. and rises from 2 to 4 feet; only one tide in 24 hours.

Directions for Mobile.

Those off Mobile should recollect the necessity of getting an offing as soon as there are appearances of a gale on shore, either to weather the Balize, or, which is better, to take in time the road of Naso, as destruction is inevitable if you come to anchor outside Mobile bar, during the gale.

In running in for the land, should you make it to the westward of the bar, it will appear broken, as it consists of small islands, which occasion several openings. More to the westward the land is very level. *Dauphine Island*, on the western point of the bay, appears high and bluff; *Mobile Point*, low and sandy, with a single tree on the extremity. Before you shoal into 8 fathoms, bring the east end of Dauphine Island to bear N. W. by N. and steer in N. N. W. This course will run you over a bar, on which you will have from 15 to 19 feet water, and sand; on crossing, you will drop in 6 and 7 fathoms water, when you will be between the east and west breaker heads. Keep nearest the eastern breakers, as they are very bold, and visible in any weather. On the western side are shoals.

After passing the point of the eastern breaker, you may haul up N. by W. for about a mile, and then haul up for Mobile Point. In passing, give it a birth of about 100 yards. After leaving Mobile Point, to run up the bay, steer N. by W. night and day, as there is no danger in the way.—When you have run about 25 miles, you will then be in 10 feet water. Here, as there are stakes in the channel, you had better come too for a river pilot, which you will have to send your boat on shore for, to the distance of about 4 miles, the town being in sight.

In running for the land during night, your soundings will be mud till you approach, when you will find sand and mud mixed, then sand, in 8 fathoms.

[Pelican and Sandy Islands are only one, but in very high tides they are separated, appearing like two islands, as laid down on the chart.]

To prevent missing the river Mississippi, *and falling to the westward.*

The principal entrance of the river Mississippi is in lat. 29° 5′ N.; but vessels bound there, should always run down 2 or 3 leagues to the northward; by so doing you will have good soundings to guide you. When you have struck soundings, you may run in the parallel above directed into 18 or even 16 fathoms, and you will then have the blockhouse (or Balize) bearing southwesterly; the anchorage is good every where, and should it fall calm, a light kedge will prevent being drifted by the current, which is sometimes pretty strong on the coast, but it is much stronger in the latitude of the river's mouth than elsewhere, and no soundings until you are close in with the land. Until the erection of the permanent lighthouse at the Balize or on Frank's island, the old Block-house will be kept regularly lighted. It will have a fixed light, and be visible from half an hour after sunset until sunrise. The light will be about 50 feet above the level of the sea. The bearing and distance of the Block-house will be as follows: From the outer point of Pass-a-la-Loutre, S. S. W. ½ W. distant 3½ leagues. In running from Pass-a-la-Loutre for the main bar at the S. E. pass, in the night, it is not safe to keep in less than 15 fathoms water; in the day time vessels may approach to within 8 or 10 fathoms, observing to keep the lead going. Being off Pass-a-la-Loutre in 15 fathoms, in order to go around the N. E. pass in 10 fathoms, the course is S. S. E. distant 2 leagues; from thence to the anchorage off the bar S. S. W. 1½ leagues. The Block-house bears from the best anchorage to wait for a fair wind to come over the bar W. by N. ½ N. distant 2 leagues, where will be found 8 to 11 fathoms. At the entrance of the S. E. channel on the bar, the Block-house bears N. W. by W. ½ W. distant 5 miles. A vessel with a floating light is also moored 1¼ mile due south of the N. E. pass. [For description, see page 289.]

Should you take your departure from the Tortugas, on leaving them make a N. W. course good, and you will fall into the latitude of the Balize 20 leagues to the eastward; keep on to lat. 29° 20′, when you may steer W. or W. ½ S. to 25 fathoms, then haul to S. W. for the Balize, taking care not to pass its latitude in the night time, and you may make sure of seeing it. Should the weather be thick, keep in 16 fathoms, and you will fall in off Pass-a-la-Loutre, where pilots are always stationed;

but should you see the land, or vessels at anchor, if the wind will permit haul to S. S. W. or more southwardly, and lead along in 12 fathoms, until you see the two masts of a sunken brig, lying half a mile to the northward of the channel ; bring her to bear W. N. W. and anchor ; by this time you will have a pilot.

Should it be very foggy, as it sometimes is in summer and fall, either anchor in 12 or 15 fathoms water, or stretch to the northward, as the currents to the southward of the bar set strong along the land to the southward, and by keeping to the southward you will be liable to be driven to the southward of the south point, in the latitude of which you will have thirty-five fathoms within three miles of the land. [*See Chandelier Islands, p.* 290.]

Common error of Strangers.

Captains not acquainted on the coast, are frequently alarmed when they come near the river, by the appearance of the water, particularly during the first summer months, when the river is high, for at that time the fresh water of the river rushes out with great force, and being lighter than the ocean water, floats on the top, making an appearance altogether singular and alarming, for where the fresh water has not entirely covered the salt water, but leaving spots, it has the appearance of rocks, the river water being of a milky colour, while the other is quite dark, and changes suddenly. When the river is low, the white muddy water extends about 3 leagues off, and when high about 5. On coming into it, it ripples like shoal breakers, but your soundings are regular.

On the setting of the Current.

The current sets with very little variation to the east ; and when any variation is experienced, it is either to the N. or S. of the river's mouth. It is very evident to every man of reflection, that so large a column of water, rushing into the ocean, must spread when it is no longer confined, and produce different currents, until it has found its level, and will be found to vary from the original course in proportion as you approach the edges : allowing the current to set due east, I have known two ships to come into the river at the same time, and the one complain of a southerly and the other of a northerly current, and that because the one had been to the south and the other to the north of the river's mouth; however, as every stranger should get into the proper latitude before he comes within the influence of its current, I do not think it necessary to say any thing more on that subject.

Directions for the entrance of the River.

The land at the entrance of the Mississippi river, is nothing more than mud banks ; continually increasing with reeds and rushes growing upon it, to the height of 10 or 12 feet above the water. The block-house, or vessels at anchor, are generally the first you discover. The general winds are from the N. E. and you should avoid getting to the southward. The winds make a difference over the bar, at the entrance of the Mississippi, and the general depth of water, is from 11 feet 6 inches, to 14 feet. [*See description of floating light, page* 289.]

In lat. 29° 18′ N. you will strike soundings in 45 or 50 fathoms, small grey sand, with black specks. The Balize bearing W. by S. ½ S. 40 miles distance, when in 15 or 18 fathoms, soft sticky mud, you will see the Balize bearing S. W. (if clear weather.) With the Balize bearing S. W. run not into less than 12 fathoms, on account of some small mud banks, scarcely discernible above the surface, until the Balize bears W. N. W. and N. N. W. in 10 fathoms. The Balize bearing N. W. and an old sunken brig's mast bearing N. is good ground to anchor, and advantageous for getting under way to go over the bar. In foggy weather run no farther in for the land than 15 fathoms, and it is preferable anchoring in light breezes to being drifted about by the currents, which are uncertain. From the bar (or entrance of the Mississippi river) to New-Orleans, is 120 miles.

To sail up the River.

In sailing up the river, if you have a fair wind, run from point to point, carefully avoiding the bends, and by doing so, you will shorten the distance, have less current, and what is of more consequence, you will avoid the danger of having your vessel sunk by the trees which frequently lie under water. As you are coming up to and passing a point, it will be well to heave a cast of the lead; with light winds, or when the wind is scant, always keep on the leeward side of the river.

On coming too or bringing up.

Every vessel, while in the river, should have their boat along side, with a good hawser in it, according to the size of the ship, ready to run out to a tree, which method of bringing up is always preferable to letting go an anchor, for you are sooner under way, and avoid the danger of losing your anchors.

Every vessel while in the river, should have a haulabout-block lashed under the bowsprit to reeve a rope through, which rope should be bent to the crown of the anchor, in the same way as a buoy-rope, and be strong enough to weigh it; the crown line should be of length sufficient that when the anchor is let go, you may veer it away with the cable and always have the end on board, as by this means, if you should get foul of any thing with your anchor (which frequently happens) you will get it again; otherwise you will be obliged to cut your cable and lose your anchor. If you are obliged to let go anchor, it should be, if possible, at a point, for you will be more likely to find clear bottom. In the bends the bottom is always foul, being full of sunken trees, and there are few instances where an anchor need be let go in the bends, because you may always run a fast to a tree.

Shoals in the River.

About three miles above the Look-out house, and opposite what is called the Pas Aux Cautres (one of the outlets of the river) there is a flat makes out full half way over the river; this should be avoided by keeping near the pass, into which you must take care not to get drifted; this is what may be called the first shoal; the next is about 7 miles above the fort at Plaquemine, on the larboard side of the river as you are coming

up; to avoid it you must keep nearer to the marsh on the starboard side; the marsh is the first land you come to without trees after leaving Plaquemine; here the land is very narrow, and by going a few steps up the shrouds, you may see the sea at not more than a musket shot distance; by these marks you may know when you are coming up with the shoal. The fort lies opposite the marsh, and runs full one-third of the way over; these are the only shoals that may be called dangerous, but as I have before observed, the lead should be cast whenever you are approaching a point.

Directions for Vessels bound down the River.

Vessels going down the river, should always have sufficient sail on them to be able to keep clear of the shore; without great care you will be driven into the bends and lose your rudder, and this has frequently happened with experienced seamen. I would observe also, that every vessel, unless the wind is fair, and settled weather, should bring too at sunset.

Directions for Vessels bound from the Mississippi *through the* Gulf.

On leaving the Balize, your best way is, in winter, between the months of October and March, to keep well to the eastward; say E. by S. (as in this time the trades blow mostly from E. N. E. and N. E.) until on soundings on the coast of East Florida, by which you may make a free wind all the way to the Tortugas; but in the other parts of the year you will do quite as well to make a direct course, as you may make sure of some beating to get to them; and by keeping along near the edge of soundings, you will have a set in your favour of 15 or 18 miles per day. You may double the Tortugas within 3 miles, by which you will, as soon as you leave soundings, strike into an E. by S. current of 1½ knots, from September to March, and 2 knots from March to September. I have doubled the Tortugas in very dark nights, by sounding every hour, and taking care not to get less than 40 fathoms.

Every vessel bound through the Gulf, on leaving the river, should avoid getting too fast to the southward, for you will meet with the trade wind, and by that means lengthen your passages. If the wind will permit, you should steer E. S. E. which course will carry you soon enough into the trade wind. If you can get soundings to the northward of the Tortugas, so much the better, but you should come no nearer in than 50 fathoms, and should then steer south, and if you should find the water shoaler, in this course, you should keep a little to the westward until you find it deeper. On leaving the Tortugas, the current sets rapidly over towards the Colorados; to this the greatest attention must be paid to avoid danger.

On leaving soundings off the Tortugas, with the wind to the northward of N. E. by E. keep on your larboard tack and make the island of Cuba: stand no nigher in than to raise it so distinctly as to know it, by which you

will keep in the whole force of the current, which allow in the low stage one and a half, and in the high two knots per hour, due east, as far as 12 leagues west of Double-headed Shot keys. After making the land, which will probably be in sight of the Pan of Matanzas, should the N. E. wind continue, beat along the Cuba shore, and make the Double-headed Shot keys, taking care not to fall in with them in the night-time, as they are very low, and the soundings do not run more than a hundred fathoms off them on this side or point.

On approaching the Florida side, the eddy currents and tides setting through the different channels in the reefs and inlets, are very variable, and frequently extend a greater distance into the Gulf than mariners are aware of, insomuch that the most expert of the Bahama pilots are often deceived in the night. Generally a strong S. W. eddy prevails, and the transition from the stream to the eddy is sometimes very visible, by causing what those pilots call rip raps; at other times, it is not to be discovered —a strict look out is, about this part, particularly recommended; and if beating up on that shore in the night, stand 4 hours off and 2 on, and when you can come up with the S. E. corner of the Florida shore, and an E. N. E. wind, stand off until you have day-light.

From these observations it certainly appears most adviseable to incline to the Cuba shore, and from the Pan of Matanzas, if the wind be favourable to make the Double-headed Shot keys, or if scant, to beat up towards Point Jacko; there is no danger hereabouts, before you stretch across to Double-headed Shot, and from thence shape your course.

A corroboration of these facts will appear manifest when there are an average of eight vessels lost annually on the Florida shore, and the captains have reckoned themselves on the Bahama side, and only three, for several years, lost on the latter. I would also recommend, when passing through the Gulf, to have the anchor clear for letting go at a moment's warning, should they find themselves in soundings, and not perfectly satisfied with their reckoning, to anchor immediately, which can only be attended with loss of the anchor and cable, and is no consideration when the vessel may thereby be saved.

After getting as far as 12 leagues to the westward of Double-headed Shot keys, the current hauls to the northward, and abreast of the Shots it runs N. E. in the low $1\frac{3}{4}$, and in the high stage $2\frac{1}{2}$ knots.

After leaving Double-headed Shot keys, make a N. E. course to latitude 24° 36′ when you may try to make the islands and keys on the Great Bahama bank, for a fresh departure; from the sight of which steer N. by W. to latitude 27° 50′, then N. by E. to 29°, when you will be clear of every thing. But in doubling the Tortugas with the wind easterly, beat along the Florida shore, standing no nigher in than to raise the land as far as Old Matacumbe. From hence make a good stretch off so as to fetch clear of every thing on the next tack. The east part of the reef off the Florida coast lies in longitude 80° 6′ W. When in the narrows from between Orange keys and Carysford reef to between Maranilla and Hillsborough inlet, the currents run nearly north, in the low $2\frac{3}{4}$ knots, and in the high stage of the water 4 knots. From about 10 or 12 leagues to the westward of Double-headed Shot keys to latitude 25°, the current bends from east to north, and when in this space you must allow its natural bend, which is in a parallel line with the Florida coast. Marinilla reef lies in latitude 27° 48′, longitude 79° 10′, and Canaveral shoals, on the coast of Florida, lie in latitude 28° 20′, longitude 80° 19′—the latter of which is dangerous, but the former is only a tide race.

The Gulf Stream acts in the same manner as a river, only on a larger scale; and the old channel of Bahama and Santaren channel, when running to leeward, has a proportionable effect upon the stream in the same manner as a small river emptying into a large one has upon the current of the larger river, by driving it to the other side. The wind also has a great effect to drive the current to the lee-shore. This may be seen every day in the Mississippi; on the lee-side the current runs stronger than in a calm, and on the weather-side weaker, yet you will find the lee-side to have the strongest eddy, though very narrow and near in shore, and the Gulf Stream acts in the same manner, for which proper allowances should be made.

From the current frequently varying in course as well as rapidity, and the eddy currents likewise, various and uncertain, the ablest navigators and pilots are often deceived after passing the Havanna, and getting up as high as the Pan of Matanzas, from which a departure is generally taken.

In the winter you are liable to have very heavy gales from about N. when it will be best to keep the Florida shore on board, when you will have smooth water as far as Carysford reef; but should you be caught on the Cuba shore with one of these gales blowing dead on shore, you will hardly be able to clear the land on your larboard tack, when if you tack ship and take the current two points on your lee bow, and can carry as much sail as to go through the water 3 knots, you may make sure of gaining off the land, although you make 2½ or 3 points lee-way, and lie but 2 points off the land.

The Salt key bank and coast of Cuba, from Point Ycacos to Double-headed Shots makes a deep bay, and the Cuba shore is very foul for 3 or 4 leagues off the land; in case you are caught here in a heavy norther your only chance is to run up the old channel of Bahama, or on to Salt key bank.

After being sure of getting to the northward of the N. W. point of Little Bahama bank reef, if you fear you are far to the westward, you will do well to haul more easterly to clear the shoals of Canaveral; but if you are not in sight of the Florida shore, in latitude 26° 30′, you can have no danger from Canaveral shoals in steering N. by E.—after passing the N. W. part of the bank, you must (if you wish to keep in the force of the stream) steer N. to latitude 30°.—[See page 245.]

Point Ycacos is low, and the whole coast of Cuba to the eastward is bordered by reefs and keys, consequently dangerous.

There is sometimes a strong current, or set, from the Tortugas, or rather the S. W. point of soundings, which sets right over to the Colorados. "I once, in 1812, found a set S. S. W. of near 2½ knots, but when once as far to the eastward as the Tortugas, you will be sure of the regular set of the Gulf."

Sailing directions for the Coast of St. Domingo *and Passages near that Island.*

The best direction to make the island of St. Domingo is to run down between the latitudes of 19° 20′ and 19° 50′ taking care never to go farther to the northward. In this track you will make the land, either by

Cape Cabron or near Old Cape Francois, and will keep clear of the Silver key, as well as out of the currents of Samana bay.

Cape Samana is of a middling height, and steep at its extremity; you see it at the same time you make Cape Cabron, from which it is distant nearly 3 leagues, S. E. and 6° from the true N.

Cape Cabron is higher and steeper than Samana; the coast is green, and covered with large trees. From Cape Cabron to Old Cape Francois, the coast forms a deep bight, called Scot's bay, covered by a reef, close to which there is a great depth of water. The shore is low, and not seen at any great distance.—You must avoid getting into this bay, and steer direct for the Old cape, which bears W. N. W. ½ W. and is distant 15½ leagues.

The point of the Old cape is low, and stretches out in the form of the snout of a porpoise; at 5 or 6 leagues distance to the N. N. W. of Cape Cabron, in a clear day, the Old cape is seen making like an island, whose ends gradually slope into the sea. When you have made Cape Cabron, being 4 or 5 leagues to the eastward of it, you must sail 20 leagues N. W. ¼ W. and will pass 5 leagues to the northward of the Old cape; then you steer W. by N. when having run 15 leagues, you see Point Casrouge about 3 leagues distance from you; continue on for 5 leagues, when point Isabella will bear S. W. ¼ W. distant 4 leagues; having got thus far, you have nothing to fear, and if it was necessary you might keep within half a league of the shore, the coast being very clear.

Being about 4 leagues off to the northward of Old Cape Francois, the Old cape point appears like a porpoise snout projecting to the eastward, and three leagues farther west is a point named Cape la Roche, forming the eastern part of Balsam bay, very much resembling it, and running to the westward. The coast between them lies W. 5° N. and E. 5° S. It is low, rather steep to the sea side, and covered with trees remarkably green.

Towards the point of the Old cape, a mountain is perceived inland, which in clear weather can be seen 15 leagues off, and is a good mark to point out the Old cape.

From Cape la Roche the land bends in for about 2 leagues, and forms a bay pretty deep and covered by reefs. The coast then runs along to the W. and rising in the height to the northward, comes to Point Mascoury, which bears W. ½ N. from Cape la Roche. This point is high, and its shore bold; it serves as a mark for the small harbour of St. Jago, which is 3 leagues distant from Port Plate.

Port Plate lies 17 leagues from the point of the Old cape, and bears from it W. by N. It is known by a mountain at some distance inland, which appears insulated like the Grange, though not in so precise a manner. The anchorage is good, and the entrance nearly covered with mangrove islots, which you range along, leaving them on the larboard hand; when you are within these islots, you anchor in from 17 to 20 fathoms good bottom.

In approaching the coast, you perceive to the westward a huge cape, very high and steep; this is Point Casrouge, which is easily known by its size.

The coast in the bight from Port Plate to Point Casrouge is bordered with reefs very close to the shore, and does not admit of any anchorage.

The Old cape and the large point of Casrouge bear from each other W. 18° N. and E. 18° S. 20 leagues. Being about 3 leagues north of Casrouge you see a low point projecting out of the westward, which is

remarkable by its having the appearance of being detached from the coast like an island; it is point Isabella, the northernmost of the island of St. Domingo, and bears with the huge Casrouge W. 7° N. and E. 7° S. and is distant from it 5 leagues.

Between these two points is a deep bight called Port Cavaille; then comes point Isabella, which forms a bight to the eastward, where is anchorage for vessels drawing 12 or 13 feet water, and sheltered by the reefs; the entrance is easly known when you have run to it along the reefs.

On the west side of point Isabella is a pretty extensive anchorage, and more easy to gain than that of the east, but the ground in many places is foul; there is from 5 to 7 fathoms water.

From point Isabella to the Grange shoal is 10 leagues; they bear from each other W. 10° S. and E. 10° N. Oct. 10, 1803, a ship grounded on this shoal, and while there took the following bearings, viz. Grange point E. ½ S. The easternmost Brother S. by W. ½ W. Haut-de-Cap S. W. by W. ½ W. The least water on it 16 feet. It extends from east and west 250 fathoms, and from north to south 110 fathoms. All around it very close you will have 12 to 17 fathoms. The bank itself has very clear soundings in from 6 to 2¾ fathoms, sandy bottom; round the bank the soundings are foul and irregular.

Being within 4 leagues N. E. ¼ E. of point Isabella, if you would pass without the shoal which lies off the Grange (called Haut fond de la Grange) you must steer a few degrees to the northward of west 12 leagues, and then this shoal will bear about south, distant 2 leagues. But should you choose to go in the mid channel, between it and the Grange, you must steer W. by S. ½ S. and after you have run 12 leagues it will remain to the northward of you about a league.

The coast between is bordered with reefs, among which the entrances are narrow and dangerous.

West of point Isabella is Point la Roche, or rocky point, to the westward of which is an anchorage for large vessels, which being very bad ought only to be used in case of necessity.

To gain this anchorage you must haul very close to Point la Roche, and anchor as soon as you are in 12 fathoms, white bottom.

This anchorage which is sheltered by the reefs that are N. N. W. of Point la Roche, lies 3 leagues from point Isabella.

The Grange point is known by the mountain of that name, and is seen at a great distance, before you perceive the seacoast. This mountain which is insulated, and stands upon a low peninsula, has very much the appearance of the roof of a barn, from which it takes its name, Grange. The N. W. part of it is bold, and you may approach it within a quarter of a league, or even less.

The white ground has generally scattered rocks, so that it cannot be ascertained whether there may not be some spots on it even with less than 25 feet. When you are on this shoal, the Grange bears true S. 20° W. you will then have the islots of Monte Christe open of each other, the westernmost of them bearing true S. 30′ W.

There is an anchorage under the Grange; to take it you must range along the islot of Monte Christe, and let go your anchor as soon as you have 6 fathoms, but under the south side of the westernmost islot you may anchor farther in 4 fathoms. From the Grange you see the mountains above Cape Henry.

To avoid the shoals off the Sandy islot, which is one of the Seven brothers, when you are two leagues to the northward of the Grange, steer W. or W. by S. 3 or 4 leagues; then you may haul up half a point more to the southward, till you see Morne (hummock) Picolet, towards which you must sail as soon as you can perceive it. The Grange and the Hummock lie from each other E. 15° N. and W. 15° S.

To the westward of the Grange are the Seven brothers, which are low islots, and most of them covered with mangroves. There is a channel between them and the coast of St. Domingo, which vessels sometimes use going to Manchineel bay, but it is very shoal and narrow; there are also channels between these islots, but in white grounds, which are always uneven and dangerous.

If you go into Manchineel bay, you must, at one league to the northward of the Grange, steer W. 7° S. and as soon as you have doubled the westernmost islot, which has a white shoal running off half a league from its W. N. W. part, you will see Point Icagua, a low point covered with trees, and which forms the entrance of Manchineel bay. You run close to the shoal off the Sandy islot, already mentioned, which has not less than 6 fathoms water near its edge; then you must haul up, and run about half a league from the islot for Icagua point, so as to pass pretty close to it, when you come to anchor, as far within as you choose, from 8 to 10 fathoms: the ground in the bay being good and clean.

From Manchineel bay to Fort Dauphin bay, is 2 leagues S. W. $\frac{1}{4}$ W. The coast is clear, and you see the white ground very plain.

From Fort Dauphin to the Cape the coast is surrounded by reefs, on the edge of which is a great depth of water.

These reefs have some passages to admit ships, through the white grounds, to come in and anchor before the main land; but there are so many rocks and shoals that it is almost impossible to enter without a pilot well acquainted.

Caracol passage is the least difficult; the channel is wide, and the losing the white ground shows it plain enough; but no vessels drawing more than 14 feet water ought to attempt it. If you go in you must anchor as soon as you are within the reef, as the water shoals very quick in shore. There is a lime-kiln that serves as a mark.

The town of Hayti, (Cape Henry,) is under Picolet Mount; there is no danger running in for Picolet point, if you keep it bearing from S. S. W. to S. S. E. The appearance of the land in approaching Cape Henry is mountainous in the extreme, as you may suppose, from its being seen (on a clear day,) at least seventy miles off. Should you not have time to wait for a pilot, you must range along Picolet point, having it about S. or S. S. W. at the distance of a short musket shot; you will then perceive a white flag placed on the north part of a reef, and must steer S. E. or S. E. $\frac{1}{4}$ E. so as to leave the white flag on your larboard hand; taking care to have sufficient quantity of sail out, as you will be forced to haul up to weather a red flag which is left on the starboard hand, about half a cable distant; when you may push on for the middle of the town, and anchor where you please.

Vessels bound into the Cape and wishing to get a pilot must stand close into the fort. Christophe never suffers a pilot to go on board a vessel until she is under the guns of the fort on Picolet point.

From Picolet point to Honorat point, which forms the entrance of Hayti, $1\frac{1}{2}$ leagues to the westward, there is no place of shelter. A small reef runs from this latter point to the west 100 fathoms out, close to which

are 3 fathoms ; you range along this point, then steer S. S. E. till you have run two cables' length, and then anchor in 8 or 10 fathoms, oozy sand ; the fort is bearing E. S. E. true north, and you will be distant from the shore a cable and a half.

This harbour is very small, having not more than 400 fathoms from the north to the south point ; the bottom is good, and you are free from the breezes ; besides it is a convenient place, should a gale of wind prevent your getting into Hayti ; and a good shelter for frigates, should a superior force make it necessary.

There are reefs off the south point that extend as far as the Bay of Acul, without leaving any practicable passage. This bay is very extensive, and covered on the N. and N. N. E. parts by Rat island, a sandy islot, which terminates the reefs extending from Hayti. The N. N. W. part of the bay is sheltered by breakers, and several shoals, through which there are channels, but difficult and very narrow.

Rat island lies 5 miles W. from Hayti, so that the entrance of Acul bay is 10 miles from Morne Picolet.

In leaving Hayti to go to the Bay of Acul, you must get to the northward, to double a white shoal, on which there are in some places but 4 fathoms. Coming from the northward, or the eastward, you must stand in for Rat island, or Sandy islot, steering about S. S. W. When you get within a league of the Sandy islot, you will plainly see the point of the Three Marys, and soon after, in the inside of the bay, a low point with a large tuft of trees on it, called Point Abely. You must keep the islot of the Three Marys, which are near the large point of that name, in one with the tuft of trees. Standing in 10 fathoms ooze, and steering a little to the starboard or larboard as the water shoals on either side, you are then in the middle of the channel, which is not more than a cable's length in width : you have on each side of it a white shoal, where you will not find less than four fathoms, except you run too far on which you must avoid.

Having run two cables' length in this channel, it widens ; and when you have brought the Sandy islot, which is left on the larboard hand, E. by S. true north, you may range along the western reef, close to which is 16 fathoms.

You continue to run on for the point of the Three Marys till you bring Rat island, which you have left on the starboard hand, to bear N. W. when you may anchor in 14 or 18 fathoms water ; all the shoals which are within show themselves very plain.

The middle channel appears to be narrower than that of the sandy islot, but in reality it is not ; since you have 10 or 12 fathoms water close to the reefs, which all show themselves very plain.

To enter by this channel you must bring Rat island to bear S. or S. by E. true north ; as you approach it you will see the point of the Three Marys, which you must open to the westward of Rat island ; making use of the lead all the while, and never coming on a lesser depth than nine fathoms. When you are a quarter of a league from Rat island, steer S. E. to pass, at a cable's length, two reefs on your larboard side, which ought to be ranged as close as possible, to avoid that which lies off the east end of Rat island, and which you must leave on the starboard hand. Having run S. E. two cables' length, you are within, when you may steer for Three Marys point.

If you want to get out by this passage, you must as soon as you have doubled the reef of Rat island, and are in the channel, steer between

Point Limbe and the island of Tortugas, till you have brought Rat island open its own length to the E. of the Three Mary's ; then steer N. W. and you will not have less than 9 fathoms, and often 15 or 16. This passage is shorter and better than the first ; besides, if you should be taken aback, you may anchor immediately, the ground being hard mud and good hold, and the water very smooth.

The third passage, or Limbe passage, is the best of all, being so broad that ships may turn up it ; it lies between the main land of St. Domingo and the breakers to the W. of Rat island, which extends to within half a league of Point Icagua. To enter by this passage, you run for the island of Limbe till you bring Icagua point to bear S. ; it is known by the steep rocks which form it, and is the only high point seen from the Limbe. Steering south, true north, in coming from the eastward, you see a shoal, which is called Coqueciveill, at the foot of which is 5 fathoms ; steer S. E. in the mid-channel, between it and Point Icagua, and you will have from 10 to 15 fathoms water ; should you want to stop to the westward of the Three Mary's, you steer for the Morne Rouge, or Red hummock, and may anchor in from 12 to 13 fathoms.

If you are turning through this passage, be not afraid of coming near the rocks on the shoal side ; you may go within a cable's length of any thing you see, the water being very deep. Off the low point of the Great Boucan are some breakers, which always show, and have 8 or 10 fathoms close to them, when you get that point to bear S. S. W. by compass, you are within, and may anchor any where. If you should wish to go farther up the bay, after you are past the Three Mary's you steer for the Morne Rouge, and range it within half a cable's length, as a shoal is lying between it and Point Abely, which is opposite to it. As soon as you have passed Morne Rouge you will see Lombard bay, in which you may anchor as near the shore as you please in 7 fathoms, ooze. In following this track you will find all over the bay from 10 to 15 fathoms oozy ground. There is a shoal half a mile S. S. W. of the Three Mary's rocks, so small as to render it difficult to be found ; but is easily avoided if you are on that side of the bay, by standing over towards Abely into the middle of the roadstead, and then steer for Morne Rouge.

This bay is an excellent shelter in time of war for frigates, and even for line of battle ships. The water is good, and very clear near the Lime kiln, on the N. side of the Morne Rouge ; the watering is now very difficult, but it might, without much trouble, be made very convenient. You must not go higher up the bay than Lombard point, which is to the southward of Morne Rouge, as there are several dangerous shoals very steep too.

From the bay of Acul the coast runs W. N. W. to the island of Limbe ; then a little farther to the island Margot, which is of a round form, and points out Anse Chouchoux bay, 2 miles to the westward of it 4 leagues from Morne au Diable, or the Devil's hummock, at the entrance of Fort Francois, and 6 leagues W 8' N. true north, of Picolet. The bottom is good all over, and from 6 to 7 fathoms. To enter it you must press very close to the E. point, where you have 6 fathoms close to the shore. As soon as you are within, you drop your anchor, for you are almost taken aback by the return of the wind, and by the calm which prevails in this bay, however strong the sea breeze may be without. A frigate might anchor in 5 fathoms water to the westward of two small houses, which you will see in doubling the E. point ; you may, independent of Margot

round islot, know Chouchoux bay at a distance, by a large white streak which runs down a hill half a mile W. of the entrance.

West of Chouchoux bay is a very small bay called Salt river, but it can only be used by small craft.

From Chouchoux bay the coast runs W. 28° N. one league, when you come to another bay called the bottom of the Grange, which is to the eastward of Point Palmist and known by a chain of rocks that extend near a league, almost to the huge point of Icagua. This bay is small, and the ground very good, with 6 fathoms near the shore, but it is not so well sheltered as Chouchoux. To enter, you keep the E. point on board, and anchor in 7 fathoms, in the middle of the bay, oozy sand.

At a short league from the bay is Icagua point, which is round and formed by several other points. You must not come near the land to the eastward of this point, on account of the rocks already mentioned; some of which are entirely under water, and run out into the sea half a league.

From Point Palmist the coast runs W. ¼ N. to the Carenage point of Port Paix, which is the northernmost headland of this part of the coast. It is distant from Palmist 4 leagues, and is often, at a distance, taken for it; the coast between the two points is very clear and safe.

The channel of Tortudas island begins at Point Palmist, and terminates N. and S. nearly abreast of Moustique bay, being narrowest at the Carenage point. It is very safe, and ships may turn up within. And in general, it is a great advantage when the current runs up, to pass through this channel when you intend to go to the windward of the island. The island is of a moderate height, six leagues long, and one broad; all the north side is iron bound and steep too. South of the west point is a sandy bay, where there is good anchorage; the south side is almost every where bordered with shoals surrounded by reefs.

There is an anchorage opposite to some huts in the middle of the island, called La Valee. The only good anchorage, which must be for ships drawing from 14 to 16 feet water, is that of Basse Terre, within the reef 1½ leagues from the east point; the passage is narrow, but easy to fetch. You must keep the weather reefs on board, leaving them on the starboard hand; and steer N. N. W. and N. to double the reefs you leave on the larboard hand; do not be afraid of coming near the land, and anchor in good ground as soon as you have brought the lee reef to bear S. W. Large ships may come to an anchor outside the reef upon white ground, a mile to leeward of Basse Terre.

To the eastward of Basse Terre, towards Portugal point, there are several bays or coves, in which boats or schooners may anchor, but nothing of a larger size.

The channel between this island and St. Domingo is at the E. end, 2¼ leagues broad. Opposite Carenage point it is but 2 leagues, and a little farther it widens to 2½ or 3 leagues. Ships turning up should stand as close as possible to both shores, as the wind and current always favour them most in shore. You may stand safely within a mile, all the dangers being visible. As there are several bays on each side, the setting of the current is neither uniform nor in the same direction; you will sometimes see it run different ways, and sometimes in the middle of the channel it will run contrary to the current in shore. Should there be a westerly current, which is seldom the case, and never but in the summer time, it is then so strong that it would be folly to attempt the passage. Ships

should then stand 6 or 7 leagues to the northward of Tortudas, and they will work up very easily.

Two miles from Point Carenage is the fort of Port Paix, off which is a shoal of a cable's length with 13 fathoms close to it. The anchorage of Port Paix is of great depth; though the bay is very small, you may anchor off the north part of the town, in 12 or 13 fathoms oozy sand, about a cable and a half's length from the shore.

From Port Paix the coast runs nearly in a right line to Moustique bay, which is 4 leagues to the westward; it is an iron-bound shore and very safe.

Moustique bay, though very small, may shelter a ship in distress; there is a battery on the east point, which you leave on the larboard hand, and as soon as you have doubled it, let go your anchor in 12 or 15 fathoms, a cable and a half from the shore. In some parts of the bay the ground is uneven and rocky; in other parts it is very good. Be careful not to let go your anchor till you have sounded, as at the entrance of the bay there is no ground at 40 fathoms; you must at least bring the battery to bear N. N. E. Off the west point is a shoal, which runs in the bay a cable's length.

Port-a-L'Ecu is 1½ leagues to the westward of Moustique, and the shore between them is rocky, with deep water close to it. The anchorage is better here, but not so easy for large ships to come at as at Moustique bay, on account of a reef and a shoal, with only 3 fathoms water, which runs off the east point for two cables' length, and which rounds the point to the inside of the bay. To come to this anchorage you give the shoal on the east point a small birth on the larboard hand; then you must haul your wind, ranging along the eastern reef, and anchor towards the middle of the bay in from 8 to 10 fathoms, oozy bottom, the house bearing S. S. W. true north. You may go in towards the house in the cod of the bay, as near as 4 fathoms. The S. W. coast is steep too and safe, and you may stand close into the white ground, which is very near the shore.

From the Port-a-L'Ecu the coast runs W. 5° N. 2½ leagues to the point of Petit Jean Rabel; and 2 miles more to the eastward is Jean Rabel point, which forms the anchorage of that name. It is good, safe, and very easy to fetch, but you must not be afraid of going near the eastern reef, at the foot of which you have 10 fathoms. The anchorage for large ships is two cables' length from the eastern breakers, care being taken not to shut in the two points on that side. You will anchor in 15 fathoms. You may go further in (as far as 8 fathoms) but it is not safe, as the water shoals suddenly, and the ground is not so clean inside. The debarcadaire (or landing place,) is a very good one, even if there should be a swell; it is under the fort, which is exceedingly well placed, and makes it a very good retreat from an enemy. The ground holds well, and the only winds to fear here are the N. or N. W.

If you are to the N. W. of Jean Rabel, at a short league distance from the land, and have half the island of Tortudas open with the point, you will find 60 fathoms water oozy ground, and a little farther out 80 fathoms.

From Jean Rabel, the coast forms a great bight to the southward as far as the peninsula, which lies 13 miles W. S. W. of it. All the shore between is rocky, and does not offer any shelter. At all times the currents here are very perceivable near the shore, and generally set on it; at two leagues in the offing they are less so, and run to the N. E.; in approach-

ing the peninsula they become much stronger, and commonly set towards the north.

The west point of this peninsula forms the north part of the entrance of St. Nicholas Mole. The bay is large and spacious at its entrance, but grows narrow towards the town, which you descry as soon as you have doubled the cape. You may stand very close to both shores; but it is adviseable to allow on the south side more room for wearing than on the north side, as there is no anchoring ground, which you have on the north side, though very near the shore. You anchor before the town, and under the barracks, in 15 or 18 fathoms, sandy bottom. In going in you must be prepared against the puffs or squalls which come down from the land, with such violence as to endanger the masts.

In going out of St. Nicholas Mole you see to the southward the point of the mole, which forms its entrance, and 2 miles to the south of it is Le Cap-a-foux, or Fool's cape; it lies at the western extremity of a large point, which rounds into the S. S. E. 7 miles, and as far as Pearl Point.

Fool's cape is easily known by a small rock which lies at its pitch; the shore is steep without any shelter, but it is generally a calm here. The currents in shore set to the northward, and 2 leagues in the offing to the W. and W. S. W.

From Pearl point the coast runs S. E. one league, and then E. S. E. to the point of the Platform, which is 3½ leagues farther. This point is easily distinguished as well by its flat form, as by its being the southernmost of this part of the island. The anchorage is before a small sandy cove, at the bottom of which some houses are seen. You anchor near the s hore in 8 or 10 fathoms weedy bottom.

From the point of the Platform to Point la Pierre, which is at the west entrance of the Gonahives, the coast trenches in 2 leagues to the north, and goes rounding to Port a Pimeno, Pimento harbour, from whence it runs to the south, to join Point a Pierre.

This point is high and steep, and bears with the Platform point E. 18° S. and W. 18° N. true north, distant 10½ leagues.

All this coast is safe, and may be ranged very near; there is anchorage, even for large ships, at Hene bay, and at Port Piment, but it ought to be used only in case of necessity. In the winter months there are gales of wind almost every night coming from the S. E. some of which are violent: and without you have business on this part of the coast, it is best to stand off 2 or 3 leagues, so that you may, with any wind, keep to the westward.

The bay of Gonahives is very large and fine, the anchorage excellent, and the entrance very easy. You range along the shore half a league, or 2 miles distance, steering a few degrees to the northward of east, and let go your anchor in 6 or 10 fathoms, oozy. You will find from the entrance under Gonahive point, which is low, and one mile east of Point Pierre, 15 and 12 fathoms; the water decreases as you get into the bay. When you are a good half league from the land, and 2 miles from the debarcadaire (or landing place) you will have 6 fathoms. After you have doubled Gonahive point, leaving it on your larboard hand, you will see Fort Castries on a point of land which you must not approach too near, as there is a key that lies about a mile south of the point.

From Point la Pierre to Cape St. Marck is 8 leagues. They bear from each other S. by W. and N. by E. true north, which is likewise the direction of the coast.

One league to the north of St. Marck bay, is a low point, which appears at a distance like an island; it forms a cape that runs out a mile westward of the bearings above given, and is called La point du morne au diable, or the Devil's hummock point; it shows the mouth of the River Artibonite, which falls into the sea, 3 miles northward of the point. There is an anchorage the whole length of the coast for small vessels only.

St. Marc is high, and of a round form; you descry at a great distance the hillock which forms it, and stands only one mile from the seaside.

The opening of Bay St. Marck lies to the north of the cape, extending one league within the land, and the water in it has a great depth. Ships anchor in the bottom of that bay under the town, in 15 or 18 fathoms water; small vessels may come into less water, but they will be very near the shore. Platform point to the north, the coast from the Gonahives to Cape St. Marck to the E. and the coast north of Gonave island to the south, form the Gulf of Gonahives.

Cape St. Marck is the southernmost point, and with the N. E. point of Gonave island, forms the entrance of St. Marck's channel.

When you have doubled Fool's cape, and are 2 leagues west of Pearl point, if you are bound to St. Marck or to Port au Prince, you must steer for St. Marck's channel, which will be a S. E. course. After having run 16 leagues you will be W. of Cape St. Marck, when you will steer for it.

But if you are going to Port au Prince you will continue your course S. E. true north till you make the Arcadius; or if it should be night, after having run 4 or 5 leagues, steer S. S. E. ½ E. to pass in the mid-channel, between the Arcadius and the E. point of Gonave island. Having run 3 leagues in this track, steer S. E. ¼ E. 4½ leagues to make Point Lamentin, which is on the S. side. You must range this coast pretty near, without fear, to avoid the shoals of Sandy islot, which lies a small league to the northward of Point Lamentin. If you should pass this point in the night you would do right, after you have run a mile or half a league, to anchor; you will find 12 or 18 fathoms water, the ground good, and the water always smooth.

Sometimes you are forced to turn in this channel, but you must not go so near Gonave island, as the St. Domingo side, which is a safe shore, that may be approached any where within half a league.

The Arcadius are not much to be feared; a shoal stretches out from them a mile, or half a league at most, with five or six fathoms on it; on the edge of the west and S. W. sides you will have from 12 to 15 fathoms corally ground; in the hurricane months you are almost sure to have every night violent storms.

The best method to follow, if you are caught in the gale, will be to lay to sometimes on one tack, and then on the other, as well to avoid the force of the wind, as the shoals of the little Gonave. If you can foresee the gale, it will be better to get an anchorage on the St. Domingo side, near Archahie point, or on the N. of Leogane, to the S. E. of the Little Gonave, as you have soundings from the white grounds of Little Gonave as far as Leogane.

You may pass likewise between the Arcadius and St. Domingo; the channel is 5 miles wide, and in the middle of it you will never have less than 10 fathoms. The water decreases as you go towards the Arcadius, or on the coast side. One mile from the Arcadius you will have 6 or 8 fathoms water, corally ground; at the same distance from the St. Domingo shore, the like depth, but with a muddy bottom.

The greatest length of Gonave island is 10½ leagues E. S. E. and W. N. W. Its breadth, which is very regular, is 2 leagues from N. to S.

The N. E. point is low; there is a reef which runs out to the eastward of it half a league, and then extends along shore to the southward of the same distance from the land.

The east point is steep and high, without any white grounds, but you fall in soon after with the white grounds of the Little Gonave, which come within a quarter of a league of the point. These do not extend much to the northward of the east point of the Little Gonave, but they project a league to the eastward.

S. E. of the Little Gonave is another white shoal, separate from the other about half a mile; its outward extremity lies 2 leagues from the island, and there is no danger; for although the bottom appears very white, you will have on it from 7 to 12 fathoms. A large ship ought not to go within 1¼ league of the Little Gonave.

From the Little Gonave to the W. point of the Great Gonave, the coast is clear and safe.

The north side of this island is also safe and clear, having only one white ground, which extends half a league from Point Bahama, situated nearly in the middle of the island.

Vessels bound to Port au Prince, after getting up the bight as far as Cape St. Marks, must have a good look-out kept from the fore-topsail-yard for white water. The channel between the Arcadius and the reef off the east end of Gonaves is only 5 miles wide, and the coloured water shows itself on both those reefs.

Your course from the Arcadius over to the main is S. E. by E. distant about 12 miles; after running this course and distance you haul up E. S. E. In running in for the harbour, you leave several reefs on the larboard hand, which are very plain to be seen from the mast-head. Plenty of good water to be had here from a rock that empties itself on the S. W. side of the bay.

Leaving Port au Prince, and bound to the Petit Guave, you range along the south coast, at the distance of 1 or 2 miles; all this shore is bold and safe, as far as Point Leogane.

From Point Lamentin to Leogane point there is no anchorage; but you find a good bottom for anchoring between the latter point and the anchorage off the town of Leogane.

After you have passed Leogane, you must steer for the Tapion or Hummock of Petit Guave, and come in the bay, leaving on your larboard hand a little island that lies off the coast north of the town, and to the W. S. W. of which you may anchor.

Petit Guave is 9 leagues from Port au Prince, but as you are forced to double Point Leogane, your run is near 12 leagues.

From the Hummuck of Petit Guave to the Hummuck of Miragoane, the coast runs W. by N. 5° N. 8 miles, then W. by S. 1½ league to the Careening island of Miragoane bay.

Two leagues and three quarters N. of this islot, is the eastern extremity of the white ground or shoal, which joins the reef called Rochelois.

To anchor at Miragoane, you come within a mile of the Careening island, when you perceive a small town at the foot of a mountain, and some mangrove islands to the westward. You keep the mid-channel between the first islot and the shore, where the village is situated, and come to an anchor within from 8 to 18 fathoms, sandy bottom. This anchorage ought not to be taken without a pilot; the channel is not more

than a cable's length in width, and you must anchor as soon as you are within.

From Miragoane Careening island the coast bends in, and forms the bay of that name. It is shut in on the north by Frigate island, off which runs a white shoal half a league to the eastward, and nearly N. to the anchorage at Miragoane, which obliges you, in coming in or going out, to keep the island shore very close aboard. From this place the coast runs W. as far as the village of Rochelois, which is situated at the foot of a large hummock.

North 3° east of this village, 3 leagues, lies the reef of Rochelois, which is not of very great extent; some of the rocks are out of water, and you may go pretty near them on the N. and S. sides. On the W. side is a white shoal, which runs off 2 miles; on the edge of that shoal is 4 or 5 fathoms.

One league east of these breakers is a rocky bottom, but hardly visible, having from 6 to 8 fathoms water; so that there is nothing to fear but the rocks themselves, whose extent is only a cable's length; they lie 9 miles from the S. shore, and 10 miles from the Gonave. The channel on the N. side being as bold as that on the S. side, and the south coast being also very clear, it is easy to avoid those rocks.

From the village of Rochelois to the entrance of the Bay of Baradaires, the coast runs W. by N. 5 leagues. Baradaires bay is formed towards the east by Roitelet's point, and towards the west by the east extreme of the Bec du Morsouin, or the Porpoise snout; these points bear from each other N. N. W. and S. S. E. 1¼ leagues. To anchor in this bay you keep one third nearer the Porpoise snout than you do the other point, ranging along the peninsula of the snout, and come into from 8 to 10 fathoms; you have a great depth of water in the middle of the bay, which is of great extent, but there are several weedy shoals, which ought to prevent your going in without a pilot who is well acquainted.

The north point of the Porpoise snout, and the north part of Grand Caymite island, bearing W. N. W. and E. S. E. and are distant 4½ leagues.

The coast west of the peninsula of the snout, bends in to the south, and forms a bight of 2 leagues; then rounding out a little it runs W. N. W. 10 leagues, as far as Jeremy. This bight, and Great Caymite island, form a large bay, named Caymite bay, where there is a very good anchorage for all sorts of vessels. You may come to it without a pilot, and anchor under the island, in what depth you choose. You may also proceed to Flamand's bay, near the peninsula, ranging along the peninsula side, and anchor opposite a sandy beach, in what depth you please.

The bay of Caymites presents several very fine anchorages, very easy to come at, with the assistance of the lead alone, but there is not a good passage between the Grand Caymite and the shore: and you will not find more than 13 feet water upon the white shoals of the Little Caymite, or of Foucaua Islot; and then there are several coral rocks which rise within 2 or 3 feet of the surface of the water, so that no vessel, but very small ones, ever attempt it without a pilot. These white shoals extend 3 leagues W. S. W. off the Grand Caymite.

From the north part of the Grand Caymite to Salt river point, which is 1½ leagues W. N. W. of point Jeremy, is 9½ leagues; this Salt river point is the northernmost of all from Port au Prince; under point Jeremy is the village of that name, whose anchorage is very small and not proper for large ships; schooners and small vessels may anchor within the reef, but no ship which draws upwards of 12 or 14 feet should ever anchor here.

except in case of necessity; there is no shelter for her; in short, it is a bad anchorage, and which you must avoid during the north winds.

From Salt river point to Cape Dona Maria, the coast runs W. by S. 5° S. 4½ leagues.

All this shore is safe and bold within ¼ league; it does not present any shelter, though, in case of necessity, you might anchor in Clair bay, which is 1¼ leagues from Salt river. This bay, or rather cove, is so very small, that 2 ships, 100 feet long, would be puzzled to swing clear of each other; it can only serve as a shelter to very small vessels, and is easily discovered by keeping along shore.

As soon as you descry Cape Dona Maria by the false cape of that name, and are ½ league distant from it, you will strike soundings from 15 to 18 fathoms, and you may range along this cape at ¼ league distance, in from 8 to 12 fathoms, weedy bottom.

Should you want to anchor in Dona Maria bay, you must keep the shore on board, steering about S. E. the winds being generally against, and with your lead you come to an anchor W. N. W. off a large white tapion, or hillock, on which stands a battery, and within a musket shot of which you will find 5 fathoms. There is bottom all over this bay; a mile from the shore you will have from 4 to 6 fathoms, and at 2 miles from 6 to 10. You are sheltered from the winds between the N. and S. passing by the E. notwithstanding which, ships that lie in 8 or 10 fathoms will swell, if there is a fresh breeze without.

From Cape Dona Maria the coast runs S. by W. ½ W. 5 leagues to Point des Irois, and forms, at that distance, several bays and coves, where vessels may anchor. There are no shoals, and the ground increases to the shore.

To the S. S. W. of Cape Dona Maria, 2½ leagues distance, and about half a league off Minister's point, are some rocks, called the Whale; these rocks are above water, and surrounded with a white shoal which does not extend more than half a cable's length from them, and on which are four fathoms; a ship can sail between it and the shore; in the mid-channel she will have 6 fathoms, and may go as close as she pleases to take them on the off side; the sea always breaks on this shoal.

One league and a half from the Whale lies Joseph's islot, where a convoy might anchor: the anchorage is very good and easy; and large ships anchor to the S. W. of the islot.

All along this W. part of the coast, you have ground two leagues from the shore: the depth gradually increasing as you leave the land, so that in general you will find 4 or 5 fathoms, at 1 mile distance; 10 or 12 at 2 miles; and regularly from 15 to 17, at 3 miles; when you get into 30 fathoms, you will lose soundings suddenly.

Point des Irois, or Irish point, as the English sailors call it, is the westernmost point of St. Domingo island; it is not very high, though remarkable from a small hummock on its extremity, which appears detached from the coast, and makes like an island; this point forms the north part of Bay des Irois, or Irish bay; you may range very close to the land on the north side of the bay, there being from 9 to 18 fathoms touching the shore.

The anchorage is to the N. W. of a Black rock, which is seen a little way to the southward of the town; it is in from 9 to 10 fathoms, shelly. You may anchor likewise to the southward of the rocky islot, N. N. W. of a small hummock toward the middle of the bay; the depth is here from 8 to 9 fathoms, sand and muddy ground.

The bay is exposed to southerly winds; there is always a great sea within, and the debarcadaire is of course a bad one. It is situated in the eddy of the currents, which set to the northward on the W. side, and to the S. E. on the E. coast. Besides, the sea in the offing is alternately agitated with violence by the N. E. and E. breezes which prevail on the west coast, and by the S. E. winds that blow on the S. coast. Irish bay is terminated to the S. by Cape Carcasse, which, with Fool's Cape, forms a large roundish point, whose end is at Cape Tiberon.

These three capes seen at a distance, form but one, which is called Cape Tiberon, and is very easily known by its form and height. It is a large mountain, very lofty, whose top is rounded like the back of a dosser, and comes gradually down towards the sea.

Cape Tiberon, properly speaking, is 4 miles S. 30° E. of Irish point, and forms the entrance of Tiberon bay, which is to the eastward of it. You will get no ground at 50 fathoms, 2 cables' length from the coast, between Cape Carcasse and very near Cape Tiberon; but off the latter, at that distance, you will have from 24 to 30 fathoms, and a little further out quickly lose soundings.

Tiberon bay is sheltered on the E. and partly on the S. by Point Burgos, off which runs a reef a cable's length out; you anchor to the northward of this point ¼ league from the town, in 7 or 8 fathoms, oozy bottom; in most parts of the bay the ground is clear and good, if you do not approach too near Point Burgos, where the bottom is rocky. You have nothing to fear here but southerly winds; and small vessels can get so close to the shore, in 3 or 4 fathoms, as to make Point Burgos shelter them; with all other winds the water is smooth, the landing place is very easy; and ships may with great facility get excellent water.

From Cape Tiberon to Point Burgos is a short league; they bear from each other E. S. E. 5° S. and W. N. W. 5° N.

From Point Burgos to a low point called Old Boucand, the coast runs E. S. E. 5° S. 4 miles. This shore is not so safe as the other part of the coast, as there are some white shoals and breakers off Aigenettes point, but which do not extend more than half a league at most.

From Old Boucand point, the coast runs to the N. E. 1½ leagues, and then rounds to form what is called Le Fond des Anglois, the English bottom; all this part is safe, but does not offer any good anchorage; indeed a ship may anchor very near the land, but will every where be exposed to the sea breezes.

From the Fond des Anglois, the coast begins to run to the E. S. E. 4 miles to a large hummock called Les Cherdonniers, and which is very remarkable at a distance; then after having formed a bight of half a league it goes S. S. E. 6½ leagues to a point called Point Gravios, forming in that space several little coves, which cannot be considered as anchorages. The only one of tolerable size is Port Salute, which is N. N. W. of Point Gravios.

Point Gravios is low and difficult to distinguish, people often confounding it with that of Port Salute. From it the coast is not very high, and runs E. 2° N. 3 leagues to Point Aboucou, which is low at its extremity, though it rises a little in shore; this is formed by two points of reefs, stretching ¼ of a league into the sea. You may pass without fear at half a league distance, and will have no ground at 40 fathoms. At this point begins the Bay of Aux Cayes. The coast, after having doubled Aboucou, runs to the N. N. W. then to the N. W. and afterwards rounds towards the E. till you come to the town of Aux Cayes, which bears from Aboucou N. by E. 2° E. 3½ leagues.

The S. W. point of the la Vache, forms the east side or the entrance of this great bay; it bears E. by N. from Point Aboucou 7 miles. In the mid-channel between Aboucou, and the west side of la Vache, you will have 25 fathoms, which depth decreases as you approach the island. Off the S. W. part of the island there is a white ground, on which you will have from 5 to 7 fathoms, 1½ mile from the shore, rocky; but as you approach Diamant point, you will not find the white ground more than ¼ league, and the bottom is good in 6 and 7 fathoms. When you bring Diamant point to bear East you will have soundings all the way across. There is good anchorage to the westward of Diamant point, or further to the northward of it, opposite a sandy cove, from 6 to 7 fathoms muddy sand.

To go into Aux Cayes, you range along the N. W. point of la Vache, in 6 fathoms water; and you steer nearly N. by E. to make on your starboard hand the white hummocks of Cavaillon. You will then leave on the larboard hand a large reef, surrounded with a white shoal, which takes up almost all the middle of the bay. When you have brought the town to bear N. W. ¼ W. you must haul up two points to windward of the town, standing towards the Company's islot, where you may anchor if you do not mean to go into the road; if you do, you shorten sail a mile from the shore, and wait for a pilot. The channel is ⅔ of a cable in breadth. Ships drawing more than 13 feet water cannot go in; those of 15 and 17 feet water always anchor at Chateaudin, ½ a league to the westward, and which is separated by shoals from the port.

To anchor in the Road of Chateaudin (coming from the mooring of la Vache) W. or W. N. W. off Diamant point, in 8 or 11 fathoms, you must steer directly for Torbec, which is a small town very easily distinguished in the cod of the bay; this track will be about N. W. When you are within about two miles of the shore, you will discover a little white flag, which is on a shoal; you double it to the westward at about half a cable's length, leaving it on the starboard hand, when you have brought it to bear south, you steer along the coast for the road of Chateaudin, and anchor in 6 or 7 fathoms, mud. In all this passage, if you keep the proper channel, you cannot have less than from 7 to 9 fathoms, and often 12 and 16, muddy ground.

The Isle la Vache is 3 leagues in the greatest length, and its breadth not more than one; it is hilly, and at the distance of 6 or 7 leagues, appears like a heap of small islands. From the N. W. point, in going to that of the S. W. the coast is safe, the water shoaling gradually as you come near the land. Off the S. W. end is the white shoal already mentioned, to which ships coming from the eastward must give a birth. The south side is bold: and along a whole length, a reef runs at a cable's length distance, to the east point of which is a white shoal extending to another reef, lying off the Point of la Folle, to the northward.

From the Point of La Folle, to the N. W. point on the north side of the island there is a chain of shoals and islands, amongst which are some narrow passages.

On the north side of the island is the bay of Feret, where there is a very good anchorage; but you must be exceedingly well acquainted before you can attempt it, as you will in many places find only 2 and 3 fathoms, if you are not in the channel.

The northernmost of these islands, Caye de l'Eau, or Water key, is easily known by a large tuft of large trees, one of which is considerably higher than the rest; this island is bold.

At some distance from it, on the north side, there is a good anchorage from 15 to 30 fathoms.

From Aux Cayes, the coast runs a league E. N. E. as far as the Tapion, or hummock of Cavaillon, which forms the entrance of the bay of that name; half way between is the Company's island, where you anchor if you do not choose to go into the harbour of Aux Cayes.

You must not go too close to the S. E. part of the Tapions of Cavaillon, as there is a shoal with only six feet water on it, called La Mouton, (the Sheep;) it lies S. E. from the east point of the Tapion, about ½ a mile; and there are 8 fathoms between it and the shore.

Cavaillon bay is pretty spacious, though the anchorage is of very little extent; the coast on the west is too steep, and the bottom full of rocks. You must come to an anchor on the east side of the bay, opposite a coast covered with mangroves; approach it without fear, the bottom being clear: and you have five fathoms close to the shore. In this bay you are sheltered from the sea breezes, by the east point of an island, which leaves a passage between the mangroves into the Bay des Flamands.

The Bay des Flamands, or Flemish bay, which lies ¼ league from Cavaillon bay, runs into the land toward the N. E. Its entrance and shores are clear and bold, and it is the place where ships lie up in the hurricane months; there is a good careening place, and you may anchor any where in the bay.

From this bay the coast runs E. by N. 2 miles, as far as the Great Bay of Messe, where the anchorage is good all over, but you are no way sheltered from the southerly wind, as the entrance opens to the southward, and is very broad.

The coast continues its direction to the E. by N. as far as Point Pascal; half way towards it is the Little bay of Messe, in which you may likewise anchor, but are not even sheltered from the sea breeze. Off the great bay of Messe, is a shoal that lies like a bar across the bay, and extends opposite the point which is to the westward of the Little bay of Messe. This shoal in some places has not more than from 15 to 18 feet water; it is very narrow, and leaves a passage of ¼ of a league between it and the coast; it does not extend to the southward more than ⅓ a league from the shore. If you want to go into the Great bay, and your ship draws more than 15 feet, you must keep close to the shore on the west side of the bay, ranging by Point Paulin, which forms the west entrance of the bay; the beginning of the bank is north and south of Point St. Remi, at the distance of about a mile.

Point Pascal is steep, and of a white colour; it forms, with a little island that lies to the eastward about half a league, the principal entrance of St. Louis bay. This island is called Orange key. You see it from the entrance of Aux Cayes, which is 4 leagues distant; it is then nearly in a line with the shore S. of the bay of Messe.

From Point Pascal the coast runs N. N. E. one mile, as far as Point Vigie, from whence you discover the whole bay of St. Louis, which is shut in, in the east, by Cape Bonite, that bears from point Vagie N. E. ¼ E. 2 miles.

To anchor in St. Louis bay, you range along Point Pascal, then Point Vigie, and along the west coast in 8 or 10 fathoms; the anchorage is west of the Old fort, about ¼ mile from the shore, in such a situation that you can see the town between the Old fort and the shore in the bottom of the bay. The Old fort is built upon an islot of rocks, from which there is a passage towards the shore in 6 fathoms, to the anchorage before the town,

where the greatest depth of water is 5 fathoms. South by east of the Old fort, $\frac{1}{4}$ of a league, and west of Cape Bonite, the same distance, is the shoal called La Mouton, and there is a good passage between it and the shore, or the Old fort; the depth is less considerable, however, than on the west side of the bay. You may go between Orange key and that shore, in deep water, and then you will meet with a small island, called Rat key, between which and Orange key you may pass, or between the shore and both; but those passages are not large. There are shoals off the shore, which makes it necessary to keep closer to the two islands than the shore.

One league and a half distant E. by N. of Orange key, is Moustique key; this island is clear of shoals except very close; you may pass without or within it; on the N. side of it, one eighth of a league from the shore, you will have 10 fathoms. If you sail within shore, you must not keep too close to the St. Domingo coast, as there is an island between Cape Bonite and Cape St. George. You will find no other shoal till you meet the Trompeuse, which lies 4 miles E. N. E. of Cape St. George, off which is a shoal called La Teigneuse, and running out from it about a mile. North of Moustique key is Cape St. George. which you may approach; and N. of a key called Caye a Ramiers, or Wood Pigeon's key, which bears E. by N. 2 miles from Moustique key. It is known by a white hummock, rather steep, and seen at some distance; there is a deep passage between it and Moustique key, by which you go into the Great bay of Aquin. S. of Caye a Ramiers lies a shoal, which extends half a league, and has only 3 fathoms in the middle. E. of the same key is a small island, called L'Anguille, (the Eel) and to the N. E. is another called La Regale; the three form an equilateral triangle, whose sides are nearly half a league.

To the E. N. E. $\frac{3}{4}$ of a league from Caye a Ramiers, is the Great key of Aquin, which is an island of a tolerable height, upon which are two white hummocks, very remarkable. This island runs to the E. by N. being $\frac{3}{4}$ of a league long, and $\frac{1}{4}$ league broad, and bold on the S. side. You must take care of the white shoals of the Eel, which is S. of the W. point, so that it does not leave a passage between Caye a Ramiers, and the Great key of Aquin, for vessels that draw more than 12 or 15 feet water.

East of the Isle of Aquin is a white insulated rock, at a short $\frac{1}{4}$ league distance, which is called the Diamond. East of it, at two cables' length on the St. Domingo shore, is the point of Morne Rouge, or Red hummock; so that the E. point of Aquin, Diamond rock, and the point of Morne Rouge, form the two passages into the bay. All these shores and islands are bold; you will find in the Morne Rouge passages, 5 and 6 fathoms, and between the Great key of Aquin, and the Diamond, 6, 7, and 8. The bay is very extensive, and trenches a great way inland, though the water is very shallow; anchoring in 3 fathoms, you will be a long way from the land.

Another passage into the bay is between Caye a Ramiers and the Moustique key; you then steer E. N. E. to come into the mid-channel between the shore and the islot; when you have doubled Caye a Ramiers you will see La Regale, which is a very low sandy islot, and leave it on the starboard hand, keeping in the mid-channel between it and the shore; then you haul up for the Great key of Aquin as much as the wind will let you, and anchor to the N. of the Great key, in 6 or 7 fathoms: but you may, if you choose, go further in.

The point of Morne Rouge is very easily known at a distance, by three white hummocks, which are very high; they are called the Tapions of Aquin, and form together a huge cape, under which is an anchorage in 10 or 12 fathoms, at a good distance from the land. This bottom continues as far as the little bay Des Flamands, or Little Flamingo bay, which is W. N. W. 3 degrees W. one and a quarter league from the Tapions of Aquin.

You must observe that from Point Pascal all the capes are cut out, as it were, and steep, and front the S. and S. E. and as on all this shore, the land is white, you see a great many white hummocks; Aquin key has two, but the highest and easternmost are those of the Morne Rouge, and, with a little attention, it will be impossible to mistake them. From the point of Morne Rouge, or the hummocks of Aquin, the coast, after having trenched in a little to the northward, to form the small bay Des Flamands, runs 9 leagues E. ½ S. as far as the Cape of Bayenette. All the shore is bold and free from danger, but does not offer any bay or anchorage, which would shelter you from the common breeze. Two leagues and a half before you come to Cape Bayenette, there is a considerable depth of water off the shore, which is iron bound.

Cape Bayenette is known by the white hummocks which are at its extremity, and form the entrance of a large bay of the same name, that faces the S. E. It is supposed to take this name, Bayenette, (i. e. Clear bay,) from the great depth of water found all over it, and its being entirely clear of shoals; you are here very little, if at all sheltered, and must anchor on the N. side of it, pretty close to the shore. This bay trenches in a league to the northward, after which the shore again runs to the E. ½ S. 5 leagues, as far as Cape Jacquemel, which is high and steep, and makes the W. entrance of Jacquemel bay. From this cape the coast runs W. N. W. as far as Redoubt point, which is well in the bay; in all this extent no ground is to be found: the other entrance is Cape Marechaux. When you are between these two points, and nearly in the middle of the bay, you will see at the bottom of it a reef which you must double to the N. N. W. leaving in on the starboard side, you anchor between it and the shore, which you must keep pretty close to, otherwise you will have a great depth of water. The anchorage for large ships is E. of a white hummock, in the bottom of the bay, and W. of the great reef. Cape Marchaux bears N. N. E. a small league from Cape Jacquemel.

From Cape Marechaux the land trenches in a little to the northward, and rounds out again to Cape Morne Rouge, which is seen at a distance, and is known by white hummocks. It bears E. 10° N. 20 miles from Jacquemel. The coast in all this space forms several little coves, where small vessels may anchor, but in none of them will they be sheltered any way.

One league and a half E. of Morne Rouge, is Saletrou, or Foul hole, where you find a good anchorage for ships which do not draw more than 16 feet; larger vessels may likewise anchor there, but they must lie farther out, where the ground is not so good.

From Morne Rouge the coast trenches in a little to the northward, then out again, running to the E. S. E. as far as the Anses a Petres, or Petres cove, which is the last French settlement on the S. of St. Domingo. All this part of the coast is very safe, and you may approach without fear.

There is good anchorage at the Anses a Petres, which is very easy to come at: you must not be afraid of running in, as at two miles distance from the shore the water is very deep. All this shore appears white, and the coast is chalky. You may anchor either before the plain of Anses a Petres, or south of a small cape, which is before the mouth of a river, and considerable enough to be easily distinguished; the water is smooth, and you are well sheltered in 6 or 8 fathoms, good ground, or in 4 fathoms farther in shore.

From this anchorage the coast begins to run to the southward, trenching in to the eastward one league, to form a cove, called Bottomless cove. It runs afterwards S. by W. as far as the False cape (Cape Lopez) which bears E. by S. ½ S. 32 leagues from Morne Rouge, and 20 leagues E. S. E. from Jacquemel. From Cape Lopez the coast runs E. S. E. 5 leagues, as far as Cape Beata, and then N. E. ¼ N. and N. N. E. to form the Great bay of Neyba. South of Cape Lopez 4 leagues, is an islot called the Frailes.

To the S. S. E. at the same distance is another islot, called Altavela, safe and bold too, and south of Cape Beata, is Beata island, whose length is one league N. and S. and its breadth E. and W. two miles. There is a breaker off the N. by E. part of it, that runs towards Cape Beata, at whose extremity is a white shoal, which very much narrows the passage between Beata and the shore; you have but 3 fathoms water in the passage with a tolerable anchorage to the westward of Beata, between it and the shore in 8 or 10 fathoms, grassy ground.

You may generally see the bottom, near all these islands; but the water is very deep near the shore of St. Domingo. This part of the coast, which projects towards the south from the sea shore to Cape Mengon, as far as 3 leagues N. and as far as the sea towards the E. and W. is a flat of white and hard rocks, in which you see large holes and breakings, and which is about 40 feet high; nothing grows there but some prickly pears.

When you come from the southward or eastward, and are bound to the N. side of St. Domingo, you must make the islands of Mona and Monica, which are two small islands situated in the passage between Porto Rico and the island of St. Domingo; they are both clear and safe, and you may go within two miles of either of them; and there is even an anchorage to the leeward of Mona, half a league from it, in 7 or 8 fathoms, sand and weeds; having then the N. W. point of Mona N. by E. 2 miles, the S. W. point (off which is a small reef) S. E. ¼ E. and Monica N. by W. You pass to the westward of Mona, and when you have brought it to bear E. S. E. 3 or 4 leagues, you will perceive the coast of St. Domingo. All this S. E. part is very low, and in the channel the current, which sets to the northward, is very perceivable. There is a reef close to the shore which boats must pick a passage through.

The point of St. Domingo nearest Mona is Cape Espado, a low point encompassed with a reef and a white ground; it bears from Mona nearly W. N. W. 10 or 11 leagues. From Cape Espado the coast runs N. by E. 5 leagues, as far as Cape Enganno; this is a small flat point, off which stretches a reef to the N. E. 2 miles. When you are abreast of it, you lose sight of the islands of Mona and Monica.

W. by S. ½ S. from Cape Espado, 2 leagues distant, lies the east end of Soan island. This island extends E. and W. 15 miles, and N. and S 5 miles, covered with trees, and surrounded with a white shoal project-

ing about 2 miles. Should you come off the west end of Soan island, and wish to anchor under St. Catharines, you must steer W. by N. until you see the island, and in doubling the west point (which is low and rocky) you may approach within a ship's length, when you will see the bottom, and when you are abreast of the Sandy bay anchor in what water you please. The ground is good and clear; but, should you wish to anchor between the island and the main, you will have 14 or 15 fathoms.

There is a white sandy spit runs out a little way from the N. E. end, but it is always seen by the white water.

From Cape Enganno the coast runs N. W. $\frac{1}{4}$ N. 14 leagues; it is low to within 3 leagues S. of Cape Raphael, where it begins to rise a little till you come to Cape Raphael itself, which is of a middling height, and appears at a distance like an island; it is easily known by a round mountain seen inland, and not unlike a sugar-loaf.

From Cape Raphael the coast runs W. by N. and then W. to form the Great bay or Samana, which is shut to the N. W. by Point a Grapins, or Grapels point, 2 leagues S. S. W. or Cape Samana, which is about 6 leagues N. W. $\frac{1}{4}$ W. of Cape Raphael.

To anchor at Samana, after you are round Cape Raphael, steer for Samana, and being about 9 miles off shore you will see white water—steer on until you are 4 miles from Samana, then steer to the northward until you see Bannister's key, by which time you will have soundings in 7, 6, and $5\frac{1}{2}$ fathoms, green grassy bottom, and the nearer you approach Bannister's key the more will the water deepen. Keeping the north shore on board when abreast of Bannister's key and Busky (which is a rock very bushy) you will have good anchorage in 14 or 15 fathoms.

The coast of St. Domingo trenches a little to the northward towards St. Catharine's island, distant from Soan 8 leagues.

The coast continues to run towards the W. some degrees N. to the river of St. Domingo, which lies 16 leagues from the island of St. Catharine, 27 leagues from Cape Espado, and 21 leagues from the W. point of Soan island. You may anchor before the river of St. Domingo, pretty close to the shore, and vessels not drawing more than 12 feet water may go into the river.

This place, which is the metropolis of the Spanish part of St. Domingo, is known by a great fort, built on the right hand bank of the river Ozama, upon which the city is situated. You will likewise perceive to the westward of the fort a large savanna, forming an amphitheatre, which affords a delightful prospest.

From St. Domingo the coast runs W. S. W. 14 leagues, as far as the Point des Salies, or Salt Pans point; then it trenches in to the northward to form the great Bay of Neyba, which takes its name from a large river, whose mouth is in the bottom of the bay. From this river the coast runs south, to form Cape Beata, which is W. S. W. $\frac{1}{4}$ S. of St. Domingo, 32 leagues distant.

In sailing from St. Domingo to Cape Beata, you must guard against the currents which run to the eastward, along the coast, and in the entrance of Neyba bay are setting weekly to the northward.

Observations on the navigation round the Gonave Islands, *and in the Southern Channel.*

The most dangerous reefs are those which seem to be joined with the land of the Little Gonave, and are stretched above a league in the offing; however, they lie at about a mile from the shore, and you might pass, in an urgent case, between them and the Little Gonave, even with a ship; but the attempt would be imprudent, if you are not forced to do it, and have not the wind well set in, as the currents are very strong and irregular, though they run more generally to N. N. E. in this part, and between the two Gonaves.

Small vessels drawing 8 or 9 feet water, may find a good anchorage to the west of the Little Gonave; to come to it the south channel is far preferable to that of the north.

The N. E. point of the Gonave, called Galet point, is low and bordered with a reef which stretches along the east coast, coming from the south, and extends a little more than 1½ mile opposite the place called Trou a l'Eau, or Water hole: within is a white ground, where you find from 4 to 6 fathoms water.

To sail near this reef, which every vessel can do, that draws 9 or 10 feet, you must, in coming from the east, take a channel which is opposite a fisherman's hut. There are several other channels, which are easily known by the non-appearance of white ground; about 88 fathoms within the reef you may range along the coast as far as Galet cove, in case the wind should fail, there is anchorage every where; but in the places to be preferred are Piron cove, Constantine's hole, and especially Galet cove, which is very convenient, the hold is good and the reefs shelter you from the swell of the sea.

The several anchorages on the N. coast for boats or schooners are L'Islet a Marck, Grand Lagoon, and Bahama channel, where you are equally sheltered; the remainder of the coast is likewise bordered with reefs, but they are very near the shore, and you find there no anchorage.

The W. part is an iron bound coast, along which you may range pretty near, but it is not so from the S. W. point to Point-a-Retures, where you find a number of small reefs asunder, and almost even with the water. Several small vessels may anchor in that part, on the spot named Les Baleines, or the Whales; but you cannot do it without a pilot well acquainted.

The only place where two or three great ships, such as frigates, could anchor, is La Baie du Parc, Park bay, which lies to the N. W. of Point Fantaque; but coming into it is dangerous, on account of several reefs asunder, which are never seen.

The reef called Rochelois has been fatal to many ships, and still much feared by navigators; it lies in the channel which separates the S. coast of the Gonave from that of St. Domingo; its breadth is near 2¼ miles, in a direction N. and S. nearly, and its length about 4 miles from E. to W.

The extent of the rocks which are toward the middle of this reef, is about 110 fathoms, they are quite uncovered at low tide, but three heads only are perceived at high water. There are two other shoals of very small extent, which are dangerous, having only 2 fathoms water. They

lie to the N. W. of the rocks in the middle, one at 600 fathoms distance, and the other at 260. There may be some dangers on the Rochelois, and prudence requires that, with a great ship, you should avoid it entirely; there is more room for tacking to the N. of that reef than to the southward of it. You are only to keep at the distance of one mile at least from the Gonave, if you pass by the north; whereas, in passing by the south, you may range along the St. Domingo coast, which is safe and clear in this part.

The latitude of the middle of the Rochelois, is 18° 39′ N.

Instructions for sailing along the Coasts, and into the Harbours of Jamaica, Port Royal, *and its Channels.*

An experienced navigator observes, "in running for Port Royal in lat. 17° 43′, long. 75° 41′, we passed over a bank of fine white sand; our soundings were 21, 21, 21, 21, and 18 fathoms, then no bottom with 40 fathoms. It extends from E. to W. 5 miles. The situation by the ripple of the current, on the east and west edges of it, seemed to be north and south, but what length I am not able to judge."

Being off Morant point, or the east end of Jamaica, and bound to Port Royal, you are to steer down 3 or 4 miles off shore, until past Morant bay; as the coast from the east end to the southward of Rocky point, is lined with a reef that stretches 2 miles at sea, and part of which reef generally breaks.

From Rocky point to the westward, the coast continues rocky, about one mile from the shore, as far as Morant bay; then it is clear till you come to the white cliffs, called the White Horses, off which there are some rocks about half a mile from the shore.

From the White Horses to Yallah's point, the distance is about 13 miles; in running it down, when the former bears N. and Yallah's point W. you will have soundings, and frequently see the bottom in 7½, 8, 9, and 10 fathoms; and as you approach Yallah's point, the water deepens till you lose soundings.

From Yallah's point to Cow bay point, there are no dangers; this point is low, but bold too, as well as all the coast to the westward, as far as Plumb point. The course between the two points is W. by N. 8 miles; but if you are 3 or 4 miles from Cow bay point, you must steer more to the northward.

Plumb point is the S. E. point of the Pallissadoes; you may run in boldly for it, and approach its extremity within half a cable's length, having nothing to fear till you are abreast of it, and off the Middle ground. Between this and Plumb point is the entrance of the eastern channel into Port Royal. When you bring Rock fort N. by E or N. N. E. you will come over a cross ledge, just as you are out, and in with the leading mark, which is the magazine on the highest part of Salt pond hill, or on the Nab and flag-staff on the fort at Port Royal W. by N. or the north part of the Twelve Apostles' battery, and the magazine of Fort Charles in a line. The cross ledge is rocky ground; in going over with the above marks, you have 7½, 10, 10½, 11, 11½, 13, and 15 fathoms water.

You sail down with those marks which lead you near mid-channel, till you are abreast of Lime key; then a little to the southward toward Rackham key, giving Lime key a good birth, till you open Port Royal between Gun key and Rackham key. Thence go between these two keys, in mid-channel, and immediately after they are passed, steer directly for Port Royal point, till you bring the fall of Yallah's hill on the centre of Gun key, which will bring you between the Knowl and Port Royal point; you may approach the point within half a cable's length, and by sailing close to it, you will also pass between it and the Harbour knowl, which lies to the westward, about the length of a cable and a half, with 19 feet on it.

Having passed the point, steer to the northward, till the Admiral's Penn comes to the north of Gallows point. This mark leads you clear of Old Port Royal, where you may anchor abreast of the dock-yard, or even before you come to it. With a land or N. wind the channel between Gun key and Port Royal is to be preferred; then the Twelve Apostles' battery on the S. angle of Fort Charles leads you clear of Gun key reef.

Strangers, in case of necessity, might pilot their ship down to the anchorage, in the channel even when the marks are not to be seen, as nothing is to be feared on the side of the Pallissadoes, which is low and bushy. They must only keep within half or three-quarters of a mile of Plumb point, and steer down by the Pallissadoes, till they bring Lime key to bear S. S. E. or S. E. by S. then they anchor in 15, 16, or 17 fathoms, near the middle of the channel.

The most remarkable shoal in the E. channel, is the Middle ground, or eastern Middle ground, which lies 1¾ mile S. S. W. from Plumb point; it consists of two patches, rocky bottom; the E. patch having 12 feet, and W. patch (about 70 fathoms to the W. N. W. of the other only) having 9 feet; they are divided by a narrow swatch 10 fathoms deep, and both break with strong sea breezes. You may sail within the Middle ground, or without it to the southward, as necessity requires, but to the northward is the best and safest channel. The soundings in that channel are uneven, from 7 to 19 or 20 fathoms; but when you are past the Middle ground, they are regular, from 19 to 13 fathoms between Rackham and Gun keys.

The first key you meet with, steering from the Middle ground towards Port Royal, is Lime key, from the N. end of which a reef stretches about a cable's length; your eye is the best mark for it, as it is generally seen; to the westward of the key lies another shoal, with 8 or 10 feet upon it.

The Knowl of Port Royal point, is the third shoal; it is a small hard coral bank to the southward of the point, with only 16 feet water upon it. If your ship draws 12 or 13 feet water, you must be careful to keep clear of it.

1. To go within the Knowl, the leading mark is to bring the highest bush on Gun key (which is near the middle of it) in one with Yallah's point; you have then 10 fathoms water and the channel is 70 fathoms wide. The mark to strike the Knowl, is the S. point of Gun key, on the high hill of Yallah's, or a ship's length open of Yallah's point; the breast mark is the church on the 7th or 8th embrazure of the fort, Sandy key just open with Lime key, and you will have 16 or 17 feet water.

2. To go between the Knowl and the Middle Ground, which lies about 300 fathoms to the south-westward of it, the leading mark is True Land's hummock, within Yallah's on the southernmost part of Gun key, or Yal-

lah's point well open to the northward of the N. point of Rackham's key. This channel which is the widest, and has 12 fathoms water, is mostly used when taken with the land wind. When the church is on the second embrazure, counting from the westward, this Middle Ground is called the Western ground. The anchorage is good all over Port Royal harbour; but the best anchoring for ships that are bound to sea, is in 9 fathoms, with a notch on the E. side of a high mountain, called the Leading notch, a little open to the eastward of Fort Augusta and Rackham key, in one with Port Royal point.

To go to sea from Port Royal, you make use of the south or the new channel; the small craft generally go through the east channel, but it is to be avoided by large vessels, except they are prime sailers, and have a strong land breeze or north, with an appearance of its lasting long enough to carry them through.

Leaving Port Royal and bound to the westward, being clear of the shoals of the South channel, your mark to clear Wreck Reef is the magazine of Fort Johnson, open of George's Rocks, until Portland bears west. You may then alter your course along the land, as there are dangers to be apprehended until you are nearly as far as the Alligator Pond Bay, about 4 miles S. E.½ E. of which is Burn's shoal; this shoal is about one mile and three quarters in extent from east to west, and 1½ miles in breadth, and has from 4 to 6 fathoms water over it. The outer edge is about 8 miles from the shore. Pedro Bluff is very remarkable, and may be known from any other land on the coast. About 4 or 5 miles to the eastward of the bluff, there is a remarkable white spot in the cliff called the White Horses; when you first make it from the eastward, it appears like a schooner under sail close to the land. If going to Black River, or Bay, run towards Parretta Point taking care not to approach nearer than one mile, as there is a reef extending off the S. W. nearly one mile; your leading mark into this Bay to the anchorage where merchant ships load, will be the church just open to the eastward of a large cotton tree; run in with this mark until you are within half a mile of the town and anchor in about 18 feet.

When you are bound through the South channel, you should get under weigh with the land wind as soon in the morning as you can see the marks, observing that the current then sets most commonly to the westward, and the great leading mark is the leading notch in one with the magazine at Fort Augusta, which is the easternmost building of the fort. This carries you clear through in 16 or 17 feet water. To keep well to the westward of the Middle Ground, be careful not to bring the church steeple upon the corner of the wall with embrazures, until Yallah's hill is brought in one with Lime key. In case you should not see Yallah's hill point, look for a hummock on Hellshire, and when it is open of Salt Pan Hill, you are to the southward of the Middle Ground, which, as we heretofore observed, is here called the Western Ground.

The Middle Ground is a large coral bank, which often breaks with only 3 feet on it in the middle; the north and west sides are almost steep. On its N. W. edge lies a buoy, whose marks are Port Royal tower, on the 4th embrazure of Fort Charles, counting from the westward, and Hellshire hummock on the flag staff of Fort Small.

When you have opened Hellshire hummock with Fort Small, you steer out with the Leading notch a little to the eastward of the magazine, which carries you between the Drunken Man's Key, the Turtle heads, and the South Knowl, or to avoid these heads, you are to haul up so as to bring

the church steeple to the easternmost part of the fort, and continue to keep that mark until the South Key is brought on with Yallah's point.—Then you may haul to the westward, if the wind will permit. But if you should not keep up the leading mark, and the church steeple should come near the corner of the fort, you must then come to, or tack and stand in. The mark, when ashore on the Turtle heads, and three fathom bank, is the church steeple on the magazine of the fort and Spanish town land just open.

When Maiden Key is open a ship's length to the southward of Drunken Man's Key, you are then to the southward of South Knowls, and should bring the Leading notch in a line with the magazine, which will bring you close to the westward of the Little Portuguese, 8 or 9 fathoms; when Yallah's hill come to the southward of South Key, you are then clear of the Portuguese, and may haul to the S. E. giving South Key a birth of about a mile.

Drunken Man's Key is a narrow ledge of rocks, just above water, covered with some loose sand, that gives it the appearance of a sandbank.—To the southward of it about ½ a mile, there is a shoal which breaks with strong sea breezes, and between it and Drunken Man's Key is a channel, having 6 or 7 fathoms water.

Bearings taken on Drunken Man's Key.

South Key	S. 33° E.
Portuguese Buoy	S. 16° W.
Buoy on the Three Fathom Bank, No. 1.	S. 23° 30′ W.
Buoy on the Turtle Head, No. 2.	N. 81° W.
Buoy on the Inner Middle, No. 4.	N. 18° W.
Flag Staff of Fort Charles	N. 5° W.

The Turtle heads are three dangerous spots, with 10 or 11 feet water on the shoalest part, and deep water close to them. The South Knowls to the S. E. of these heads, are two small patches about 70 fathoms asunder, with 23 feet water on them. And to S. by W. of these lies One Bush Reef which always breaks, and is almost steep to. The Three Fathom Bank is a large coral shoal, with 19 or 20 feet water, which breaks with strong sea breezes. A small patch about a quarter of a mile to the S. S. E. of it has 20 feet water; it is called the Warrior's bank, from the English ship the Warrior having lost her rudder there in 1782.

On the east side of the south channel, the Little Portuguese is the southernmost shoal; it has from 22 to 26 feet water, and in general a great swell; it is a cables' length from N. to S. of three heads. The middle Key is the shoalest; 6 fathoms between the heads and 7 or 8 fathoms round them. This shoal is more than a cable's length from the west of the great Portuguese, which has but 10 or 11 feet water on it.

The new channel lies to the eastward of the South channel and almost parrallel to it; it is certainly preferable, on many accounts, to the South channel; it has smooth water till you come to South Key, with good anchoring ground, easy riding, and a facility of going to sea to the southward with the sea breeze, as far as S. E. &c.

The leading mark to enter this cannel is a remarkable flat hummock on the mountain to the N. N. W. of Port Royal; when the middle of this hummock is in a direct line with the White house, standing to the N. W. of Fort Augusta it leads you to the westward of the harbour and Point Knowles, as well as between the east edge of the South channel, Middle Ground, and the west end of Rackham's key shoal. You steer with these marks on till a remarkable round hillock to the westward of Stony hill barracks, comes open to the eastward of Gun key.

After you have opened this hummock, you steer away to the southward, keeping it open till a saddle in the mountains to the N. W. comes in a line with Fort Small. Then you bring the same hummock on the centre or west edge of Gun key, which marks carry you to the westward of the shoals on the east side of the channel, and about a quarter of a mile to the eastward of the Great Portuguese, and as soon as Portland appears like an island, you may then haul to the eastward, being clear of the reef and shoals of south key.

The shoals in this channel are—

I. The South channel Middle ground (on the east side of which there is a buoy) and the small shoals to the southward of this ground.

II. The Great bay shoal, which has 16 feet least water, and a floating beacon in 18 feet.

III. The four fathom knowl, a very small spot, with no less than 24 feet water on it, and deep water all around. Ships of 20 feet draught may sail over it, as the water is smooth.

Between Great bay shoal and South key breakers, there are two shoals; the northernmost about half a mile S. by W. from the former is steep, and a small part of it appears just above the surface of the water. This shoal almost always shows itself by the rippling on it. About half way between this and the breakers lies the second shoal, having only 16 feet water.

The South key breakers have a buoy upon them. The marks for the west edge of this reef is the Leading notch open a little to the eastward of the Capstain house, and a saddle mountain to the north-west, and Fort Small in one.

Half a mile to the southward of these breakers is the Eighteen feet reef, remarkable by the great swell upon it. To the westward of that reef lies the Great Portuguese, which is the southernmost shoal on the west side of the channel.

When you come from Port Royal to Portland, being clear of the South or New channels, the course is S. W. distance 9 leagues; but you must keep further to avoid Rock reef and the key. There are soundings so far out as to bring the easternmost land of Hellshire to bear N. by E. and Rocky point, or the southernmost land of Portland N. W. by N. At the same bearings soundings have been found from 17 to 23 fathoms, and the next cast no ground with 80 fathoms line, though not a ship's length between the first and the last. Upon this flat are several keys, two of which bear from Portland E. distance two or three miles, and Negro head rock, with the other keys, lie in N. E. by which is the going into Old harbour; right off from Portland you have gradual soundings for 8 or 9 miles.

From Portland S. distance 13 or 14 leagues, lies Portland rock, which is a single key, and little higher than Drunken Man's Key, off Port Royal, with small bushes on it; a mile from this rock are knowls of 14 and 15 fathoms water.

To sail into Carlisle bay, or Withy wood road, you must keep to the westward, till you bring a little round hill in the bay to bear N. or N. by W. (taking care in coming from the eastward to keep off shore, so as to avoid Rocky point, to which you must give a good birth of 3 or 4 miles.) Keep the same bearing as you run in sight of the Old Fort; then between you and the hill, in 10, 8, 7, 6, 5, 4, 3½ fathoms water, when you will be within a mile and a half from the shore. The fort N. E. or N. N. E. is the best place to anchor in for loading because your boats can sail both

ashore and abroad with the sea winds, and then Rocky point will be on the southernmost point of Portland, bearing E. S. E.

Withy wood lies about 5 leagues from Portland point; it is an open road only sheltered from easterly and northerly winds, and open to S. W. and southerly. There is little danger coming in; only bring the town to bear N. or N. N. E. from you, and then run in and come to an anchor in 3, 4, or 5 fathoms, muddy ground; it is a flat a long way off, so that you lay a great distance from the shore. In going out you may get under sail when you please; there is little or no danger but what you may see. No tides here, but a strong westerly current generally runs in the offing. Variation 6° 50′ east.

If you want to anchor off Milk river, a little more to the westward you must do as for Carlisle bay. Between this and Pedro bluff is Alligator pond, a dry key, 2 or 3 miles long, having a sandy reef round it even with the water, and there is 3 fathoms water within, and good soundings, 3½ and 4 fathoms for a long way without it.

From Portland point to Pedro bluff or Point, is near 14 leagues W. by N. Off this bluff there are soundings for 5 or 6 miles, the edge of which runs E. S. E. and W. N. W.

From Pedro bluff S. 7° E. distance 14 or 15 leagues, are the Pedro Keys, towards the east end of Pedro shoals; to anchor there in 9 fathoms water, hard ground, you may bring the easternmost key E. ½ S. distant 4 or 5 miles; the Middle key S. E. ½ S. and the Western, or Savannah key, S. by E. ½ E. There are soundings for 3 or 4 leagues to the westward, in the following depths, 9½ to 7, and then to 10 fathoms, hard ground.

From Pedro keys, S. W. ½ W. about 24 leagues, is Baxo Nuevo, a bank called by the English the New Boar, being about S. 32 leagues from the W. end of Jamaica.

Observe, that in running through Pedro shoals, you will see several spots and breaches S. W. about 5 leagues from the keys; and round breaches S. W. by W. two leagues from them. The breaches are about a cable's length; when you come abreast of them, you will see, from the mast head, a very large tract of breakers, bearing about S. W. by W. and W. S. W. 5 leagues from you; and 5 leagues from those, a round spot, which breaks pretty high, and is the westernmost breach of the shoals. Being come to the westward of the round spot, about 5 leagues, you may haul gradually over, in 9, 10, or 11 fathoms, and sometimes overfalls where you have no ground. In running down before the wind, you must give these breakers a good birth, and come no nearer than 9 fathoms at most, the banks being very steep all along; in hauling a little to the southward, you have very deep water.

Some pilots pretend, that where you do not see it break, you may run over the shoals any where, and not find less than 3 or 4 fathoms; but no stranger ought to make the trial.

Baxo Nuevo has a key, which is about 2 cables' length long, and one third broad; stretching E. by N. and W. by S.

To anchor at Baxo Nuevo, bring the easternmost point of the reef to bear E. N. E. distance 6 or 7 miles, and the small sandy key E. S. E. distance 3 or 4 miles, the westernmost breakers in sight from the deck of a 20 gun ship, bearing S. S. W. then you will have hard sandy ground. "Observed at anchor and found the latitude 15° 57′ N and sounded from the ship S. by W. 2 cables' length, and had 10; at 3 lengths 8, at a mile 7½ fathoms; all coarse sandy ground. In my sounding fell in with a rock,

with 7 feet water upon it. The ship bore from the rock, N. by W. ½ W. distant 2½ miles; and the key E. N. E. 2½ miles; S. by E. ½ E. from the rock at Knowl; at the distance of one fourth of a mile there is another Knowl with 4 feet water; both of them are steep too, and not bigger than a boat; I sounded from the Key to the ship, ⅓ of the way 5 fathoms, ½ way 7½, and ¾ of the way 8½ fathoms."

From Pedro Bluff to Black river, the distance is about 5 leagues N. E. If you should want to go into this last place, you must keep Pedro bluff open of Parrete point, till you bring the church in with a gap on the high land, or to bear N. E. easterly; then steer right in for the church, which will carry you into the best of the channel. It is full of heads of coral rocks.

The soundings become narrow at Bluefield's point (Crab pond point) but you may sail down by them. If you steer in for Bluefield's bay, you will have 7, 6, 5½, 5¼, and 4 ½ fathoms water; and within that depth 7 and 8 fathoms. The bay through is foul ground, and you must seek for the best sandy spot for your anchorage. To come to an anchor there, you must keep the land to the eastward in sight, open of the point, until you bring the leading mark (which is the overseer's house, on the W. side of the bay, standing upon a small round hill) in one with the Tavern, by the water and river side, they bearing when in one, N. E. by E. Then steer in for them, till you can bring the easternmost point of the bay to bear S. E. by E. or S. E. by S. when you will have four and a half and quarter less 5 fathoms water, and the best anchoring ground. The watering place is to the northward of the bluff, in the lee side of the bay; you may water likewise at a stream of Bluefield's river, near the Tavern.

N. B. The mountain called Dolphin's head, is far to the westward of Bluefield's, and bears due north from Savannah la Mar.

Savannah la Mar bears from Bluefield's point W. by N. ½ N. distance 8 or 9 miles. The entrance is very narrow, between the Middle Ground, a small rock, with only 4 feet water, and a reef which has 8 feet; a general leading mark is to bring the fort north, and keep it so all along the channel; but the best and surest way is to bring the large gap at the N. end of Dolphin's head, in one with the large tree on the low land to the northward of Savannah la Mar, bearing N. ¾ W. This carries you close to the Middle Ground, which you will perceive, and as soon as it is passed, you haul to the eastward, and anchor in 17, 16, or 15 feet water. But strangers should not attempt to enter without a pilot.

From Pedro bluff to Negril by South, which lies in lat. 18° 17′ N. the course is W. N. W. or N. W. by W. about 16 leagues.

From Negril by S. to Negril by N. the course is N. ¾ E. 9 miles and all round this W. end of Jamaica, it is flat off, with good soundings for a long way. Between Negril by North and Lucea harbour, or St. Lucy, are several places, as Orange bay, Green island, and Davis's cove, which are seldom used but by those who go thither on purpose to land, and have pilots on board.

W. N. W. from North Negril point 55 leagues distant, lies Grand Cayman, 7 leagues in length and very low; no vessel should run for it in the night except by moonlight. It has beautiful groves of cocoa nut trees on it; the S. W. point lies in lat. 19° 18′ N. E. N. E. from Grand Cayman, 13⅓ leagues distant, lies Little Cayman, about 6⅔ leagues in length the S. W. point of which lies in lat. 19° 36′ N.—E. N. E. from Little Cayman, 2⅔ leagues distant, lies Cayman Brack 2 leagues in length, the East point of which lies in lat. 19° 43′ N. Off the E. N. E. of this island lies a shoal,

about $1\frac{1}{3}$ leagues in length, the three Islands and shoal extend from long. 79° 27′ W. to long. 81° 8′ W.

ALBION BANK—On board the ship Albion of New-York, George Randall, master, on a voyage from Liverpool to New-Orleans; "on the 8th November, 1816, nautical account. At noon the lat. 18° 52′ N. the mean of three observations, and long. 83° 13′ W. by lunar observations taken by me at 16, 11, 2, Nov. 7, nautical account; the angular distance being measured between the moon and the star Regulus, with a Sextant I have used for several years and found correct. At 00 40 P. M. discovered a bank; at one P. M. the ship went off its W. extremity, tacked ship and steered E. N. E. found the bank extending from W. S. W. to E. N. E. two leagues distance. My soundings commenced on its East extremity and continued to its West, the depth of water ran thus; 25 fathoms, 20, 17, 15, 11, and $10\frac{1}{4}$ for three miles distance, thence boldened to 13, 17, 19, 25, 35, and then no bottom at 60 fathoms. This bank I think proper to denominate the Albion Bank. On the two extremities of it the bottom exhibited coarse white sand mixed with broken shells, and the body of the bank for three miles distance, coral rock with a small admixture of green moss, &c. The appearance of this bank throughout its whole extent was strikingly singular, presenting the semblance of a marble sky, insomuch that after I discovered it, the passengers and officers were doubtful for a moment, whether it was not the reflection of what is called int he sea-phrase, a mackerel sky: from $10\frac{1}{4}$ to 15 fathoms, the bottom is so very plain to be seen, that a person would imagine there was not more than 5 fathoms water. The position of the W. S. W. part of this bank may be depended on, as the lunar and meridian observations were carefully taken and worked.

The lat. of the W. S. W. part of Albion Bank 18° 53′—E. N. E. 18° 55′—long. W. part 83° 16′—E. part 83° 09′." [*Capt. Randalls' track with the Bank alluded to, are correctly laid down on the Chart of West-Indies published by the Author of American Coast Pilot.*]

Lucea harbour is about 13 or 14 miles north-eastward of Negril by North; when you are out in the offing the marks to know this place, and sail into it are as follows: open the harbour by bringing the Dolphin's head to bear South, then stear right in which will bring you in sight of the fort. You may borrow as close to the E. side of the harbour as you please; but on the W. side you must not come too near, for there lies a stony bank (about a musket shot N. from the point on which the fort stands) to which you must give a good birth.

On the E. side you will have 7, 6, $5\frac{1}{2}$, and 4 fathoms water, very good anchoring ground, till you come to the anchorage in the harbour, in $5\frac{1}{2}$, 5, and $4\frac{1}{2}$ fathoms. In the middle of the harbour there is a small rock, which is steep all round.

Mosquito cove is an excellent harbour, secure from all winds; the channel at the entrance is little more than half a cable broad, but it widens as you go in, with a depth from 7 to 6, 5, and $4\frac{1}{2}$ fathoms, mud.

Montego Bay lies about 16 miles to the eastward of Lucea. In this Bay there is very good anchorage for 20 or 30 vessels, except where the strong N. winds are blowing, which generally commence in the beginning of November and end in the latter part of February, with the general trade wind which is from the N. E. and E. N. E. Ships will ride here in perfect safety.

There is a small harbour or cove in the N. E. part of the Bay that will hold from 10 to 12 vessels, and which is the only safe place for ships to lie in during the strong North winds.

In coming into the Bay with the sea breeze, which is from N. E. to E. N. E. you should endeavour to get well to the eastward before you attempt to run in. Your leading mark to run clear of Old Fort Reef, (which extends from the anchorage in the Bay to the northward of the northernmost point) is the Boge Road end on bearing South or South a little westerly; proceed with that mark until you open Montego church with Old Fort Point, then haul in for the Southeast part of the town, and when you have shut in Sandy Point with Old Fort Point, you may anchor in from 17 to 10 fathoms fine sand and mud.

The reef off, and to the northward of Old Fort Point, lies nearly one mile and a quarter from the shore; therefore come no nearer to the point to the northward of Old Fort Point than two miles. *The leading mark into the Bay with a fair wind*, keep the house on Cooper's Hill in a line with the church, bearing E.½ S. With this mark you may anchor as soon as you have shut in Sandy Point with Old Fort Point. *Marks for the shoal on the south side of the Bay*, are Bluefield's Penn, on with the highest round hill bearing S. E. by E. ½ E. and the house on the Sandy Beach just clear of Old Fort Point, bearing N. E. by N. the Boge Road end on; the water on the tops of the rocks, is from 5 to 10 fathoms.

About 5 miles to the westward of *Montego Bay, is a small creek called Great River; in this Bay and without it, merchant ships lie to load. There is a shoal which extends nearly the whole of the way across the Bay that affords good shelter for the ships lying there in strong norths.

If lying in Montego Bay and going to the eastward, I should recommend leaving the Bay in the evening as soon as the land wind comes off, which will generally run you clear of the Bay, and in a good offing for the sea breeze.

In working from hence to windward, when it is clear weather, you may make the copper hills, the highest on the island of Cuba. They bear from Montego point N. E. by N. distant about 34 leagues; and from St. Ann's bay N. and N. N. E. about 30 leagues.

From Montego point, 6 leagues E. lies Martha Brea, or Brae, where vessels load; though the place is frequented only by those who go there on purpose. There is a bar with 16 or 17 feet going in, and the passage in coming out, between the Triangle rocks, is not more than 60 feet wide, with 6½ or 7 fathoms water.

Directions for Falmouth *Harbour Bay.*

Going in, endeavour (if by night) to keep the shore close aboard, and the land wind will lead you to the eastward. The passage into Falmouth harbour is intricate and only fit for merchant or other small vessels.—About 12 miles to the eastward of Falmouth, is Macabeona Bay, which is very remarkable; it is a fine low pleasant plantation; close to it and on

* All ships, lying either at Montego Bay or at Grand River, pay harbour dues at the rate of one shilling a ton, register tonnage; and in the event of any ship going into the inner harbour of Montego Bay, they pay one half-penny per ton for every day they may lie in the harbour, in addition to the dues that are paid for anchoring in the bay.

the hill over it, is a large house or castle, formerly the residence of Bryan Edwards, Esq.; 3 or 4 miles to the eastward of this, is the small harbour of Rio Bueno. This harbour is also intricate and open to the North and W. N. W. winds, and is seldom or ever frequented by any other than merchant vessels, which go there to load. It is about 2 miles from the entrance to the anchorage, and the harbour is formed by two reefs.

About 3 miles to the eastward of Rio Bueno, is dry harbour. This is a good anchorage for small vessels only.

Twelve or thirteen miles further from Dry bay is St. Ann's bay: the usual method of going in there (between the two reefs at the entrance, as the water is clear) is to sail close to the westernmost reef, leaving it on the starboard side; but there is always a pilot at this place. You anchor in 6½ or 7 fathoms, good ground.

About 8 miles to the eastward of St. Ann's bay is Ocho rio (or Ochee rees) bay, to anchor in which, you may sail by the reef to the westward. This reef spits off from the E. side of the bay; so you must haul up, and bring its westernmost part N. N. W. or N. W. in 7 fathoms water. There is another reef to the southward of you, but as the water is very clear, your eye may be your pilot.

From Ocho rio bay to Ora Cabecca bay, an open anchorage to N. and N. W. winds, the distance is 12 miles E.

Galena Point lies 4 miles to the eastward of Ora Cabeca. This Point is low, but the land to the southward of it is high; and in making it from the westward, a remarkable round hill which stands within the point will, on its first appearance, form the point, but on a nearer approach the land slopes off to the northward to a low point. The harbours and principal headlands on this side the island, are laid down too far to the northward.

To sail into Port Maria, from the eastward, you will see the high island of Cabarita, which must be kept a little to the larboard bow, so as to give the N. part of that island a birth of a pistol shot; then luff right in, and anchor close under the island, in 4 or 5 fathoms water, where you will be within a cable's length of the island, and one and a half from the main; small vessels may anchor between the island and the main. Observe that when you lie here at any time, you must buoy your cables, because ships are too often apt to heave their ballast overboard, and spoil the ground.

If you are to sail from the eastward into Ora Cabeca, you must go in by the W. of Galena point; but if you are off at sea, and want to go in for that point, you must bring the westernmost land of the Blue mountains S. by E. ½ E. and keep it so, which will lead you in with the point. To anchor in Ora Cabeca bay, bring the easternmost point of the reef N. E. by N. distance about ¼ of a mile, and a house upon the hill, on the larboard side, S. E. by S.; bring also the Guard house, on the W. side of the river, S. W. by S. distance half a mile, and the westernmost Bluff point W. by N. then you will have 5½ fathoms water, sandy ground. You may also anchor further in under the Red cliff bearing W. S. W. and there you will have deep water.

About 10 miles S. E. of Porto Maria, is Anatta bay; to sail into this open anchorage from the eastward, you must steer down for Green Cas-

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* Small vessels drawing not more than 10 feet water, may find excellent shelter and good holding ground by warping into Allan's hole, at Ora Cabeca, nearly under the battery. Those drawing only 8 feet, may sail in through an opening in the reef.

tle windmill, until you bring Old Shaw's house (in the middle of the bay) S. of you; then push in directly for the said house, which will carry you clear to the westward of the Schoolmaster, the only shoal in the bay. As the bank is steep and narrow, the first sounding is 9 or 10 fathoms water; therefore you should have your anchor clear, and moor in 6 or 7 fathoms, when you will be one fourth of a mile from the shore.

About 7½ leagues S. by E. ½ E. from Anatta bay, is Port Antonio, which was formerly a king's port, and there still are to be seen the remains of the careening wharf, &c. It is divided into two harbours, viz. the east and the west. To sail into the east harbour, coming from the sea, bring the eastern part of the Blue Mountains to bear S. S. W. and steer in that course, which will carry you in sight of the Commodore's house, upon Navy island; keep that on your starboard side, keeping about mid-channel between Navy island and the east point of Mr. Pleasant's house (which is two stories high) open of the Fort point. There is in the middle of the east harbour a reef of 7 feet water, which keeps off the swell sent in by a N. wind, and without or within this reef you may anchor; if you choose the latter, you must keep over to the Fort side, till you open a great Cotton tree, with Mr. Trower's house on the east shore; then you may haul up and come to an anchor in 7 fathoms water, good holding ground both here and without; indeed it is difficult to get the anchors out of the ground. The east harbour is not so secure as the west, being exposed to the north, which sends in a great swell; but its channel being broader, is not so difficult.

If bound into the west harbour, after making the entrance, which may be seen 2 or 3 leagues off, by the houses on Titchfield, or Navy island, you may run close to Folly point, and then steer on for the Fort till you bring some negro huts below Bryan's house, open of the Old Warehouse; this keeps you clear of the shore lying off Navy island, on which are coral rocks, whereon you have not more than 9 or 10 feet water. You may keep as close to the breakers off the Fort as you please, being steep too. When near abreast of the Old wharf, you may haul in and anchor at pleasure, in 6 and 7 fathoms, muddy clay. The entrance of this harbour is so narrow (not being above 70 fathoms wide) that it must not be attempted without a leading wind. There is a channel for vessels of 9 or 10 feet draught of water, through the reef, to the westward of Navy island.

The tides here are not regular, but influenced by the winds, the variation in 1771, was 17° 15′ E.

Directions for sailing from Port Royal *to* Morant Point, *or the East end of* Jamaica.

THE best way in sailing from Jamaica, for the windward passage, is to get as soon as you can, the coast of Hispaniola on board, where you will never miss of a windward current, and in the evening the wind off shore. Coming out of Port Royal, after you are clear of the keys, reach off till 1 o'clock, and then you will be well in by the time the land breezes come on. You may turn or stand into 13 fathoms water aback of the keys, for within that depth it is not safe; they stretch N. E. by E. and S. W. by W. There is a shoal which lies about 1½ mile off the shore, between

the Yallah's and the White horses; and nothing else till you come to Morant keys, or the Ranas. If you have occasion to sail into Port Morant, the following directions will be your guide.

Observe a house which stands upon a hill, on a red ground; the hill being right over the road leading to the path, which you may always see; bring that house and the path due north, then you may sail into the bay with safety. Take care not to sail too near the leeward or windward reef, but bring your marks north, as above mentioned. Then you will find 9, 8, 7½, 7, 6½, 6, 5, and ¼ less 5 to 4 fathoms water, till you have opened the Cooper's house and the Store house on the E. side of the bay; after which you come to an anchor, in what water you please; though there is on the same side a bank, right before the Store house, and not far from the shore, with not more than 3 and 2½ fathoms on it. NOTE—That this sailing is to be attempted only between the hours of 10 and 2 in the day.

The body of Morant keys lies from Port Morant, S. E. about 11 or 12 leagues. Carrion Crow hill, or the first rising hill of the Blue Mountains to the eastward, bearing about N. W. by N.—N. W. ½ W. likewise the body of Yallah's hill N. W. by N. ½ W. joined with the above at the same time; so that by seeing these hills, you may judge of your distance off them, on the shore as well as the place your ship is in; and night drawing on, you govern yourself accordingly in turning or sailing.

These keys, which are only 9 or 7 feet above the surface of the water, lie from lat. 17° 22′ to 17° 29′ N. There are four of them, called north-east key, or Eastern key; Sand key; Bird key; and South-west key, or West key; they have all small bushes on them, and there are some cocoa trees planted on Bird key, by which they may be descried at a greater distance. The North-east key is bearing from Point Morant, or at the east point of Jamaica S. S. E. distance 11 leagues; it stretches S. ½ E. and N. ½ W. being in length 2950 feet; from its S. end, to the S. W. key, the bearing is S. S. W. and from the West key S. W. ½ S. From the north end of the Eastern key to the southern, the bearing is S. by W. and to the West key S. S. W. ½ W.

When Morant keys are bearing S. W. about 4 miles, you have about 18 fathoms water, stony ground, mixed with fine red speckled gravel. When they bear S. W. by S. about 4 miles, you have 16 fathoms, and when S. S. W. ½ W. 6 miles distance, you have 23 fathoms, ground as above.

To know when you are to the eastward of the keys, coming from the southward, note, that Morant point, or the east end of Jamaica, and the North-east end of the same, bear from each other N. W. by N. and S. E. by S. So that when the North-east end, which is high and bluff, is to be seen on those bearings, or to the westward of them, you are to the eastward of all.

Also coming from the southward, and keeping the Yallah's hill to the northward of the above bearings, or Carrion Crow hill to the northward likewise, you are to the westward of the keys.

To anchor, coming from the eastward, borrow no nearer the reef than 6 fathoms. This reef runs down by the N. side of the Eastern key, and may generally be seen; steer down to the westward by it, until you bring the West key to bear S. S. E. or S. E. by S. then haul in for it, and you may anchor in what water you choose, from 12 to 11, 9, 8, and 7 fathoms, white sandy ground, and at what distance you will from the key;

or you must bring the key S. or S. by W. then you come by your lead on good sandy ground, as nigh as you will in 18, 16, 15, 12, 10, 8, 7, 6, and 5 fathoms water, taking care that you may be able to sail in all kinds of winds; you may go higher under the reef to an anchor, but danger may ensue.

Take always great care that in night time you do not come too near these keys for fear of being drove on shore by the current.

In turning between Morant keys and the east end of Jamaica, there is good 3 leagues turning ground; and as it happens but seldom that you do not descry some of the land before night, you must govern yourself by its bearings, to act properly in turning or sailing for the night.

NOTE—About 11 leagues E. N. E. from Morant keys, and E. by S. 16 or 17 leagues from Morant points, there is an Overfall, having 20 and 16 fathoms water on it; but it is seldom met with, being very narrow.

About 12 or 13 leagues from Morant Point, between N. N. E. and N. E. by N. lies the shoal, called the Formagas, or Pismires. This is a large shoal, stretching E. N. E. and W. S. W. about 10 miles in length, and 6 in breadth; the east end, on whose edge, which is steep too, there is generally a great swell, has 18 or 19 feet water, and several patches of coral, with only 14 and 15 feet; about a mile on the shoal, to the westward of the eastern edge, the water deepens to 4½ and 5 fathoms, and further in the same direction, to 5½, 6, 6½, sand, with spots of coral, where you may anchor. In standing over the Formagas, when you come to 7 or 7½ fathoms, you deepen your water immediately from 10 to 15, and then no soundings at 20 fathoms. On the eastern edge the bottom is dark, and not easily seen in hazy weather, but to the westward it is lighter, and may be perceived at some distance.

The fall of the highland over Plantain garden river, which is the easternmost high land on Jamaica, bearing S. W. by S. it leads you on the Formagas; in the day they may be discovered by the discolouring of the water.

From Morant Point, *or the* East end of Jamaica, *to the* South Shore of Cuba, St. Jago, Cumberland harbour, Occoa Bay, *and* Cape Mayze.

FROM Morant Point N. N. W. are the Copper Hills, mentioned in the preceding article, as the highest land on the S. part of the island of Cuba; they are round and peaked, lying a little way inland, and may be descried from most parts of the N. side of Jamaica, making pretty much alike at all bearings from thence. Sometimes you may see them and the east end of Jamaica at the same time. The Copper hills bear from Montego point N. E. by N. about 34 leagues, and from St. Ann's bay N. and N. N. E. about 30; whence by their bearings, when they can be seen, you may know what places you are abreast of, on the N. side of Jamaica.

From the east end of Jamaica to St. Jago, the course is N. 6° E. near 41 leagues.

From ditto to Cumberland Harbour N. by E. ¾ E. about 43 leagues.

From ditto to Occoa or Spinx's bay, near N. E. by N. 54 leagues.

St. Jago is about 22 leagues to the eastward of the Copper hills. The Morro Castle lies in latitude 19° 57′ when the east point of the entrance

of St. Jago bears N. E. then the innermost battery is shut in with the west point.

From St. Jago to Cumberland harbour, (which the Spaniards call Guantanamo, and is in lat. 19° 54′) the course is nearly E. about 15 leagues; and when you come so far to the eastward, as to bring Cumberland harbour N. distance 5 or 6 miles, then the land to the westward of the harbour, and St. Jago Morro castle will be in one, they bearing W. ½ N. by compass, and the outermost land to the eastward E. N. E. From hence may be seen the High land of Grand Ance on Hispaniola, bearing E. S. E. ½ E. and then you will be in latitude 19° 45′ N.*

Cape Cruz is a bluff point and the land near it is low and level. On the east side of the Cape, the shore stretches N. N. E. and N. E. by N. for about 4 leagues. Bird's Island lies off the Cape; they make a good harbour. Vessels may sail through between them, but as the island is low and lies pretty close under the Cape land, you must make bold with the shore in order to open the channel. This is a good place for ships to wood and water in, and they may have plenty of fish.

Between this place and St. Jago, there are several harbours in which vessels may lie with safety. Cape Cruz lies in lat. 19° 47′ N.

Directions for Cumberland *harbour.*

The entrance of this harbour is about two miles wide; in entering it you will observe in the middle of the Bay, a remarkable light yellow cliff, which bring to bear N. by W. or N. by W. ½ W. and run in with that bearing until you open Fisherman's point, which is a small sandy point with two huts on it. This point cannot be mistaken as there is no other sandy part on the west side of the harbour. After you have opened Fisherman's point with the above bearings you may steer N. N. E. and when Fisherman's point bears E. by S. haul up N. E. or N. E. by E. and anchor in 6 or 7 fathoms muddy bottom. The best marks for anchoring are Fisherman's point S. by E. or S. S. E. The west head of the harbour S. W. ½ W. The light yellow cliff W. ½ S. in 7 fathoms.

In coming from the eastward, you may keep as near to the east head of the harbour as you please, as there are 10 fathoms close to it. After passing it run to the westward, and bring the before-mentioned bearings on, which will clear the reef that lies off the point a little to the S. W. of Fisherman's point.

The marks for the Reef which has heretofore been stated to be a single Rock.

SOUTH END. The two Huts on Fisherman's point, on with each other bearing N. E. by E. and the point within the east head S. by E.—West head S. W. by W. ½ W. entrance of Augusta river W. ½ S. and the yellow cliff N. W. by N.

* The Mountains of Grand Ance, which are the westernmost high land of Hispaniola, are often seen also between Cape Mayze and Cape Nicholas; they may be descried at 30 or 40 leagues distance; and by their situation and bearing become a good guide in working up through the Windward passage.

NORTH END. The N. E. hut about its breadth, open to the northward of the S. W. hut bearing N. E. by E. ¾ E. The point within the east head S. ½ E.—The entrance of Augusta River W. S. W. The Reef lies N. by W. and S. by E. about 1½ cables' length, and 20 fathoms in breadth; has 17 feet water on its shoalest part, 3½ fathoms within it, and 15 fathoms close to the outer edge, which lies about 2½ cables length from the shore.

In coming in from the westward you may approach the point to a cables' length, as it is steep to, but from the appearance of the point at a distance, a stranger would suppose there was a reef lying off from it at least a quarter of a mile. After you are within this point haul more to the eastward, as there is a flat which extends from the entrance of Augusta river in a straight direction for the light yellow cliff. This flat reaches nearly one third of the distance across the harbour towards Fisherman's point, but the soundings to and from it are very irregular.

If the wind is off the land and you have to work in, your lead will be your best pilot when standing to the westward, but when standing to the eastward, be careful not to approach the land nearer than three cables' length as the reef before-mentioned is steep to.

In running in with the leading bearings you will be within the point before you get soundings; after which you will have them very irregular from 18 to 7 or 6 fathoms.

Augusta river is very narrow at the entrance, and has only 12 or 14 feet water about a quarter of a mile up. You may continue up the river by keeping the starboard shore on board, or go into a large lagoon on the larboard side.

The whole of Cumberland harbour abounds with fish but no other provisions can be procured; water may be had by going 12 or 14 miles up on the east side of the harbour, to a small river to which the name of Water River has been given.

Directions for Trinidad (*Cuba.*)

In running down the coast of Cuba, give Cape Cruz a good birth, and when it bears E. N. E. distant 12 miles, you can haul up W. N. W. in the night time or N. W. by W. ½ W. by day light to Key Largo, which is 112 miles. Be particular not to come too near Key Largo, as there is a reef extending 10 or 12 miles from its N. W. end. If the weather be clear you will see bearing N. W. by N. of you, a vacancy between two hills, which you can steer for to take you to Key Blanco; you will first see a Key on your starboard hand; and then two Keys, the next is Key Blanco. Be particular to keep a look out at the mast-head, as your eye is always your best pilot to keep you clear of rocks at sea.

About 5 leagues to the eastward of Cumberland harbour, is the mouth of a little river, where many small vessels may lie. It is called by the Spaniards Peurto Escondido, or the hidden port; and has no more than 12 feet upon the bar; its opening being small, and the west point running out very narrow, it is sometimes very difficult to find out that river. The deepest water is close by the point, but there is anchoring to the eastward to the mouth of the harbour.

From Cumberland harbour to Cape Bueno, or Hoka point, the course is E. by N. ½ N. near 20 leagues. Within this Cape is the Bay of Occoa, called by our sailors Hoka bay, and named also Spinx's bay; the mark for anchoring in the bay, is to bring the easternmost point to bear E. S. E. distance about 1 mile and a half, and then the platform land on Hispaniola, will be in one with the point. The latitude is 20° 6′. You may anchor in any water from 35 to 7 fathoms, but 16 or 18 are the best depths; and there is plenty of fish to be caught with hooks. Two fresh water rivers run into this bay; the one named Rio de Mel, or Honey river, lies 2 or 3 miles to the westward of the anchorage; the other, which lies nearer, is to the eastward, and at the bottom of the easternmost gulley, but it is generally dry, by reason of the scarcity of rain in this part. At most times there are at Hoka bay Spanish hunters, and shepherds, who will supply you with fresh provisions.

From Hoka point or Cape Bueno, to the pitch of Cape Mayze, the course is N. E. and the distance about 5 leagues.

From Morant Point *or the* East End of Jamaica, *to the* Navaza, Cape Tiburon, *and* Cape Donna Maria, *on* Hispaniola.

From the east end of Jamaica, to *Navaza island, the course is E. N. E. ½ N. about 21 leagues. But in sailing from the Navaza to the E. end, it is best not to attempt to steer to the westward of S. W. by W. for the following reasons: 1st. If you have a weather current, it would naturally throw you to the northward of the East end; 2d. If a lee one it would set you between Morant Keys and the East end, and you should likewise see the land before you had got the distance.

It has been observed that the current generally sets to the eastward or northeastward, between the E. end of Jamaica, in the track of Navaza, and the W. end of Hispaniola; and to the northward or southward of this track the current has not been perceived. As you approach Navaza, you will frequently meet with light unsteady winds, and a weather current.

From the Navaza to Cape Tiburon, the course is E. southerly about eleven leagues. This cape appears on the top with many white places, like ways or roads, and is the highest on the W. coast of Hispaniola; it makes the N. side of a small bay, called from it †Tiburon bay, the open-

* The east end of the island of Navaza appears as if deposited in three different layers or stratas; the undermost white cliff with (in some places) apparently pretty large white stones lying above it. The middle and upper strata resemble each other; but in some places the upper is precipitous, forming small cliffs perceptible on a close approach. The next end is of a different character, seemingly a kind of cliff from top to bottom; part of it appears in a shade.

There seems to be some scrubby bush wood on the island; on a close approach, when steering S. W. to weather the west end of the island, its appearance remained much the same, and the greatest height may be about 70 feet above the level of the sea; it is about one league in length. When about a mile distant from Navaza, it loses the appearance of three strata, and what appeared loose white stones on the top of the low cliff, seems now to be merely the upper part of the rocks washed bare as far as it is subject to the action of the water in gales of wind.

When near the island it does not appear one league in length, and very narrow from N. to S. There is a thin coat of low brush-wood on the island; it lies in lat. 18° 24′ N.

† Tiburon bay is about half a mile deep to the eastward. On the north shore it is deep to within two or three cables' length of the rocks, and within half a cable's length you have 6 and 7 fathoms, stiff clayish ground. On the E. and S. E. shores, you have

ing of which from side to side is but 1½ mile over. Running with the sea breeze you must give the S. or lower point a birth of half a mile, and when you have opened the bay, so as to see the houses, push right in N. E. It shoals gradually from 15 fathoms to 7 or 6, where you anchor in good ground; the cape bearing W. N. W. 2 or 3 miles, and the S. point S. S. E. or you may bring the S. point to bear S. E. by S. distant half a mile, and then you will be right against the river or watering place.

All night you have a fresh land breeze at N. E. and all day fresh sea breezes at S. E. by E. If you moor, lay your best anchor to the S. W. and the small one to the N. E. Here you can find good fresh water, and plenty of good limes; but the inhabitants of a dozen houses, near shore, will not suffer you to cut any wood. There is generally a great swell in the bay, and a great surf on the beach, unless it is very good weather.

The course from the E. end of Jamaica to Cape Donna Maria, alias Cape Dame Maria, is E. N. E. ½ N. 33 leagues, and from the Navaza to the same cape N. E. ½ N. 12 leagues. Cape Donna Maria is about 7 leagues to the N. of Cape Tiburon, the course being N by E. or from Cape Tiburon to Irish bay point N. N. W. and from thence to Cape Donna Maria N. by E. The land between the two capes is pretty high, rugged and uneven, till you come within 2 or 3 leagues of Cape Donna Maria, when it is somewhat lower. There are soundings a good way betwixt them. There is also a small bay 2 leagues to the northward of Cape Tiburon, called Irish bay, in which wood and water are to be had, and about 2 leagues farther up north, off a small point, lies the Whale, a reef or ledge of rocks, 4 miles from the shore right off, which must be avoided; this ledge bears from Cape Donna Maria S. by W. 3 leagues.

Cape Donna Maria lies in lat. 18° 38′ being about the height of Beachy head bluff, and steep to the water side, and of a reddish colour. There is a bay to the southward of the cape, which is called by its name, and is a good place for wood, water, and fish; it shoalens gradually, and you may run in till you bring the cape to bear N. ½ E. one mile and a half; the white cliffs (to the southward of which is the fresh water) E. by S. the S. side of the bay S. ½ W. and the large white house on the hill by the water side, E. N. E. ½ E. from 16 to 8, 7, 6, 5½, and 5 fathoms water, good sandy ground all over. Within the cape in the bay, there is a low point with a small red cliff a quarter of a mile in length, which makes the cape remarkable. From this point lies a shoal right off a mile or two, which shows itself very plain; after you are clear of the shoal, you may steer into the bay in what depth you choose, keeping your lead going as you come in. There are no houses in Donna Maria bay, which may be seen, but the large white house above mentioned, and another about 2 miles to the southward by the water side. From Cape Donna Maria to Cape Nicholas, the course is N. E. by N. distant 30 leagues.

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4 and 4½ fathoms fine muddy ground, within a cable's length, all round the shore. No shoals or rocks all over the bay as we could find. The edge of the soundings runs as the bay forms, half a mile from its head. You may anchor any where in the bay: but bring the point to the eastward, to bear S. by E. and the cape to bear W. by N. ½ N. in 4 or 5 fathoms; from that to 8 or 9 is very good ground; wooding and watering in great plenty. You may either land your casks and roll them over a narrow neck of land into the river, or fill them in your boats with buckets. No refreshments of the meat kind, but some vegetables and fruits, as limes, &c. There is a small battery of 5 guns, mounted on a hill above the houses on the bay, to command the watering place, which would annoy small vessels. No shipping here; their trade consists chiefly of indigo, coffee, and cotton.

Directions for falling in with the Loggerhead Keys, *at* Cape Catoche, *and to sail from thence to* Campeche.

The northernmost of these keys, which lies in 21° 38′ lat. N. is called by the Spaniards El Pontoy, and the southernmost Isle de Muger, or Woman's islands; our sailors name the first Loggerhead Key, and the second Key Mohair. When you imagine you draw near the bank of Cape Catoche, keep your lead going; and if you strike ground, and do not see the northernmost key, or the land, you may depend upon it you are to the northward. Then haul up south till you see the land, and you may be sure it is one of the two keys; if you are to the southward of them, you have no soundings, until you see the main land.

Key Mohair lies W. S. W. and E. S. E. on the E. part it has a bluff, and on that the appearance of a castle, to the southward of which is the watering place. About 2 or 3 leagues to the N. W. of Key Mohair, lies Loggerhead Key, which may be known by the southernmost part, having many small sand hills: give that key a small birth, and you may anchor in 7 fathoms water, all gradual soundings. The two keys are joined by a long reef, which only breaks at the N. end of Loggerhead Key; there are many rocks, and among them plenty of Jew fish.

To sail from hence to Campeche, steer N. W. keeping your lead going, and do not go further to the northward than 18 fathoms water, nor to the southward than 16 fathoms; but when you come into 17 or 18 fathoms, steer west by south and keep in that depth till you have run 80 or 82 leagues, or more if you think you have not made this distance good. Then haul up to the southward, till you come into the depth of water necessary for your vessel to ride in with safety, which may be in 4 or 5 fathoms, and then you will hardly see land from the mast head. You will lie smooth here in all winds, even if it blows hard.

Observe that 4 or 5 leagues to the N. of Point Piedras, or the W. point of Yucatan, there lies the shoal of Sisal which has not above 12 or 13 feet water; but your lead will give you timely notice, when you draw near.

When you are at anchor, you must send your boat away for Campeche; it lies S. E. 30 leagues from Point Piedras, and to the northward of the only high land on that coast.

Negrillo, *in* Gulf of Mexico.

Such a shoal no doubt exists, and the best information respecting it, is from Capt. Cassals, in 1816. It consists of two rocks of about 30 or 40 feet each, with a channel between of more than 120 fathoms water, and each perpendicular at their edges. They must have some connexion together, as they are not over 20 or 30 fathoms apart, but there is no bank of soundings to indicate their proximity. It lies in lat. 23° 25′ N. long. 90° 11′ W. with 3 feet water on it.

Directions for sailing into and out of Campeche.

If bound to the Bay of Campeche, keep in the lat. from 21° 30′ to 22° 20′ N. in order to keep between Cape Catoche and the Alacranes shoals,

which lie 40 leagues N. W. by W. from the cape. You have soundings here about 30 leagues from the land, and all the way from Cape Catoche to Point Piedras you have regular soundings and white water. I would not advise any one to come nearer the shore than 5 fathoms (then you just see the land from the mast head) nor stand farther off than 15 fathoms, for there are 10 or 11 shoals and rocks, which lie in the form of an elbow from the Alacranes, and run as far S. as Campeche; this bank of shoals is very broad.

The course from Cape Catoche (or rather the keys before it) to Point Piedras, is W. S. W. You must run at least 80 leagues before you bear to the southward for Campeche; and go by your lead in chiefly from 5 to 12 fathoms, sandy ground. There is a bank which you must take care to avoid; it lies 5 or 6 leagues about W. N. W. from the town of Sisal, and has only 3 or 4 feet of water on some parts of it. All this land is low along the coast, and remarkable only in few places; 8 or 9 leagues S. W. of Point Piedras is Point Delgada, called by our sailors Cape Conducedo; by this Cape there is land which appears like islands at a distance, and one sandy hillock, having the appearance of a fort. Northward of Campeche, there is a hummock called Morro de Hina, and 2 or 3 leagues to the S. W. of the town another hummock or round hill, called Morro de los Diablos, or the Devil's Mount. The water is very shoal, off the town, for 7 or 8 miles; merchants' ships unload 3 leagues off, and then go into the hole close to the town, in 3 to 2 and a half and 2 fathoms water.

In sailing from Campeche, you must steer to the northward as far as 21° 30′ lat. N. in order to keep clear of Sisal bank, and when you find yourself in that parallel, and are clear of the bank, then you may stand according as you have wind, and to where you are bound.

The currents set sometimes to the N. W. but for the most part to the northward. The most prevailing winds are from N. to N. E. and E. to S. E. but sometimes variable.

The latitude of Campeche is near 19° 50′ N. long. from London, 90° 30′ W. Variation 8° 35′ E.

Winds and Weather in the Gulf.

On that part of the coast of Yucatan comprehended between Cape Catoche and Point Piedras, and which continues to the southward as far as Campeche, there are no other winds than the general N. E. trade, interrupted by heavy northers in their season.

On this part of the coast and towards the last of April, the thunder squalls from N. E. and S. E. commence. They are formed after midday, and at night the serenity of the atmosphere is again established.—This squally weather lasts until September, and in all this epoch there are verazones or winds from sea which blow from N. N. W. to N. E.; and it is observed that the fresher the verazon, the harder the squall will be, especially from June to September. The verazon enters at about 11 A. M. and at night the wind hauls to E.—F S. E. and S. E. so that it may be called a land breeze.

On the coast from Tampico to Vera Cruz, the reigning wind is from E. S. E. & E. that is in the months of April, May, June, and July, and at night it hauls off the land S. & S. W.; but if at night the land wind should

be N. W. it will the day following be at N.—N. N. E. or N. E. particularly in August and September. These winds have no force, and raise no sea; so that with them you can get to an anchorage as well as with the regular trade; but it impedes your sailing, on which account you should industriously make use of the land wind to get an offing. The above winds from N.—N. N. E. or N. E. are by Spaniards called Cabesa, and only extend to 20 or 25 leagues from the coast, at which distance you will meet with the wind at E. and E. S. E.

You must be very careful in making Vera Cruz from the middle of September to March, because that is the season of Northers, which blow very heavy: the narrowness of the port and obstructions of shoals at its mouth, beside the little or no shelter it affords in a norther, makes it very dangerous to run for it in one of these gales, as it is impossible to bring up when one of them blow. Don Bernard de Otta, commander of a ship of the line, says; "Although in the Gulf of Mexico we find ourselves situated within the tropics, and it cannot be said that any other than the general trades reign in this region, yet the general law of its continuation is interrupted from September to March by Northers, which divide the year into two seasons, which may be termed the wet and the dry; the first, in which the trades or breezes are not interrupted from March to September; and the second, in which the Northers blow, is from September to March. The more clearly to explain them, we shall speak of both separately."

The month of September is the time when the first Norther enters, generally speaking; but it seldom blows with much violence either in this month or that of October; but when it does, it is broken by the regular trade with rain squalls. The Northers are established in November; they then blow heavy and continue long, and follow this way in December, January, and February. In these months directly on its commencement, it takes body, and at the end of 4 hours it acquires all the force with which it continues for the space of 48 hours, after which it continues blowing for some days, but not with such force but you can manage it.—In these months the Northers are cloudy and wild, and they repeat so frequently that ordinarily between them is not more than 4 to 6 days.

In March and April they are not so frequent or hard, and are more clear; but for the first 24 hours they have more force than in the anterior months, and fly about less. Fr m November forward in the season of the Northers as we have said, the exists between these Northers very fine weather, the sea breeze blowing with great regularity by day and the land breeze by night.

There is some degree of certainty to know the entrance of a Norther by various signs; such as the wind at south, the humidity of the walls of the streets and houses, the peak of Orazimba clear, and the serene appearance of this as well as the mountains of Perote and Villarica, the border of St. Martin lined with a white cloud, great heat and difficulty of breath, and the clouds rolling over and flying from the southward. But the best prediction is given by the Barometer; this instrument in the season of the Northers in Vera Cruz, never makes more difference between its extreme height and depression than 0.8; that is to say, that it never rises above 30.6, nor falls below 29.8, its medium being 30.1; the Norther is predicted by its falling, but it does not blow until it begins to rise, which it will always do a few minutes before the Norther commences to blow. On the Barometer's beginning to rise, you will hear something like heavy musketry in the horizon, especially in the N. W. and N. E. the sea will

be in motion and the rigging filled with cobwebs; these are signs sufficient to warn you not to confide in the weather, because a Norther is infallible.

These winds generally moderate at sun-set; that is, it does not blow with so much force as it did from 9 A. M. to 3 P. M. except when it begins to blow in the afternoon, or at night-fall, whence it continues taking body without respect to the above rule.

It also happens, that after night, and between midnight and morning, the wind hauls to the shore; that is, from W. to N. in which case, if in the morning, the wind hauls further round from S. to W. the norther is broke and done, and at the regular hour the sea breeze will come in; but if it does not haul as above at sun-rise, or after on flood tide, the norther will blow with the same violence as the day before, and then is called tide northers.

Northers also conclude by taking a turn from N. to E. which is most secure, therefore, if in the afternoon, the wind hauls N. E. although the day following may enter cloudy, and in the night of the gale it has been from S. to W. there is security of the regular trade in the afternoon and that the weather will hold good for 4 or 6 days, which is the longest time good weather lasts in the season of the northers; but if the wind makes a retrogade movement from N. E. to N. N. E. or N. then the weather is not secure.

Examples are not wanting of experiencing the most furious northers in the months of May, June, July, and August, when they are called Red Bones, or Hueso Colorado.

The wet season, or that of the regular trades, is verificated from March to September; the trades at the end of March and all April, as we have said are from time to time interrupted by northers; the trade blows from E. S. E. and fresh, clear sometimes and cloudy others, hauling to S. E. and blowing at night without giving room for the land wind, which in general blows at night, except when the wind is at N. and the land breeze is freshest when it begins to rain.

From the time the sun passes the meridian of Vera Cruz to its return to it again, that is, from 16th May to 27th July, the trades are inclined to calms, and the sky cloudy, with small thunder; after passing this epoch, the winds are variable from N. W. to N. E.

From 27th July to the middle of October, when the northers commence, the squalls are strongest, with abundance of rain, thunder and lightning; the wind which now blows heaviest is from E. though of the shortest duration.

In the season of the trades the whole variation of the barometer is 0.4, its greatest ascension being 30.35, and greatest depression 29.96.

The thermometer in June rises to 87°, and does not fall below 83½°. In December it rises to 80½°, and does not fall below 66½°, this is understood placed under shelter and in the best ventilated hall in the house.

In the months of August and September it is rare that a year passes when hurricanes are not experienced in the Floridas and islands of the West Indies, but they never reach to Vera Cruz and other places on the coast of Campeche; at most you only feel the sea which the hurricane creates while blowing further north. The hurricanes enter from N. to E. and although they do not always take the same turn, yet they generally cant from E. to S. If you have no barometer you may observe in these months that the wind from N. to E. with mist, is a strong signal of a hurricane.

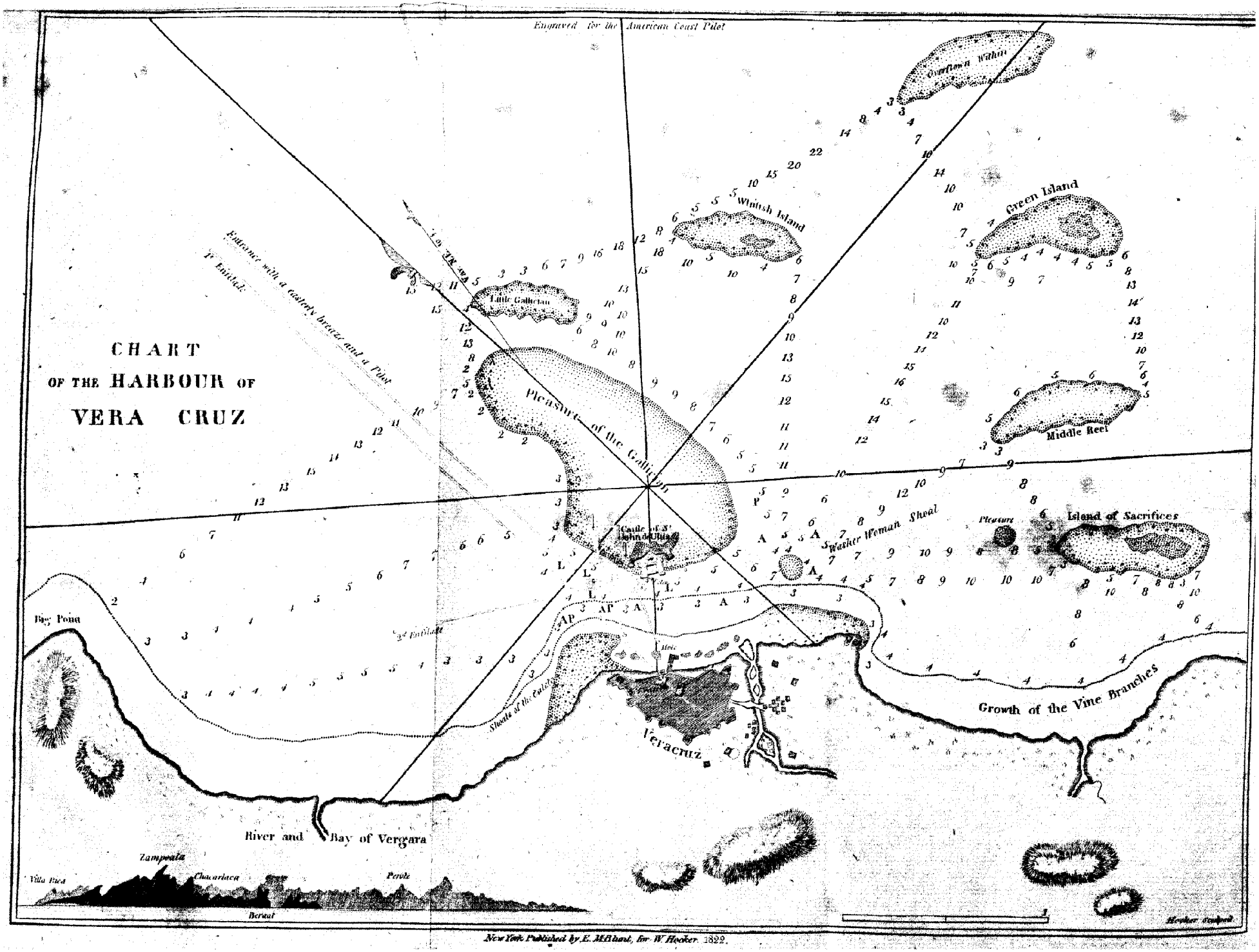
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CHART
OF THE HARBOUR OF
VERA CRUZ
Entrance with a easterly breeze and a Pilot
1st Entilade
2d Entilade
Overflown Within
Green Island
Whitish Island
Little Gallician
Pleasure of the Gallician
Middle Reef
Castle of St John de Ulua
Washer Woman Shoal
Pleasure
Island of Sacrifices
Big Point
Shoals of the Caldera
Veracruz
Growth of the Vine Branches
River and Bay of Vergara
Zampoala
Villa Rica
Chacarlaca
Perote
Beraat
Hooker sculpsit
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Directions for going to, and sailing into La Vera Cruz.

You must take care and be sure not to fall into the southward of 19° 50′, or between that and the latitude of 19° 40′, which is very high land, particularly one hill, called Mount Orisava, whose top is covered with snow: care must be taken not to bring that mountain to the westward of W. S. W. It may be seen in clear weather 30 or 35 leagues off. You must not fall farther to the southward, on account of the shoals, which are many and dangerous, to the eastward and south-eastward of La Vera Cruz, from which town the shore trenches N. W. by N. and is bold too. You must not strike ground above 15 leagues off, and then you have 30 and 35 fathoms water, which shoal gradually into 10 and 12 fathoms, within a league of the shore.

This place is easily distinguished by the castle of St. Juan de Ullua, situated on a sand called the Gallega, which forms the harbour; as you approach the castle you discern a high black tower, called the tower of Merce; you bring it to bear due S. per compass; then you will have a large church, (or hospital,) with a cupola on the top of it, on which is a round ball, with a cross; keep that ball on with the W. part of the Merce Tower, it will carry you clear along the edge of the Gallega sand, which generally breaks when the sea breezes blow. When you open the S.W. facing (or side) of the castle of St. Juan de Ulua, steer for it along in the inside edge of the sand, which you will see, to avoid two shoals of hard black rocks, having 18 and 19 feet water on them, with small spits of sand from each; on these shoals flags are placed on the approach of any Spanish vessels, but not for foreigners. You anchor under the walls of the castle, and moor to large rings, fixed there for that purpose. You lie two anchors out to the N. W. from your larboard bow, and one to the S. W. of your larboard quarter; your shore cables being on your other bow or quarter; and then you lie in 6 and 6½ fathoms water. No tide here but a rise and fall of about 3 feet, which is augmented or lessened as the wind blows.

You have regular sea and land breezes from March to November; then you are subject to north winds, which make a great sea, and dangerous riding in the harbour.

Lat. 19° 11′ N. long. from London, 96° 1′ W. Variation 4° E. [See the Plate.]

Remarks on the courses steered by the Spaniards from Vera Cruz *to the* Havanna.

When you make sail from St. Juan, (N. Pera,) and are clear of the Gallega, you will steer N. E. by N. until you reach lat. 25° N. You then shape a course E. for the soundings on the Tortugas Banks, and when you get soundings from 40 to 45 fathoms, you may steer S. S. E. for the Havanna, but should you have the wind to the eastward in lat. 25°, or to S. S. E. you will steer so as to reach 26° 30′ N. (or nearly,) when it is probable you may have the wind at N. W. then you steer E. or E. by S. according to the latitude you are in search of, the soundings on Tortugas. When you find soundings, run in 38 or 40 fathoms, then steer S. always trying to keep in 38 fathoms soundings after. Should

you not have a sight of the sun to know when you are off the Bank, and when you lose bottom, (the weather being moderate,) but if the wind is fresh from E. or E. N. E. steer S. E. by S. southerly, which will carry you in sight of the Havanna.

The Colorados, *off* Cape Antonio.

The Colorados are the west end of the Bank of St. Isabella, a steep, dangerous shoal, extending in length 26 leagues as far as Rio de Puercos, or Hog River, on a course chiefly W. by S. They consist principally of three rocks, or keys; the westernmost, or Black Key, shows itself above water, like the hull of a ship, and may be seen about 4 miles off. The other two, or the Red Keys, are not seen unless it be quite calm; they have not above two feet water on them, and to the westward is no ground at a short mile distance. They lay about E. and W. Between them is a channel half a mile wide, and between the Black and Red Keys there are 4 fathoms water, very foul ground. Captain Street, in his account of these rocks, gives the following detail: "We took our departure from 4 or 5 leagues abreast of Cape Antonio, and made our way good N. E. by N. 15 leagues, and then fell upon the Colorados, in 3 feet water. They were about me dry in several places, without any distinction of swells and breakers: we saw flocks of pelicans sitting on the red-white sand. In this place we could see no dry land from the top-mast head, though very clear weather; but we saw to the east of us, three hummocks on Cuba. The innermost, or biggest, bearing E. by N. so near us, that we could see other hummocks within and without these three, and low land tending away from the innermost hummocks to the southward, and likewise the hummocks almost join with the low land between them. All this we could see on deck, or but two or three rattlings up; but the three aforesaid hummocks we raised upon deck, when we were about 8 or 10 leagues off our aforesaid station of 5 leagues to the westward of Cape Antonio."

Remarks on the soundings on the Aleoranes Bank, *on the part of the* Catoche Bank *to the westward of* Campeche.

If in lat. 21° N. after leaving Vera Cruz, and have the wind northerly and stand to the eastward, should you get soundings in 40 or 45 fathoms, you should steer, if day-light, N. until you see the shoals, under which you may have shelter, but if night, and you have 35 fathoms, steer E. When you find the bottom mud and shoaling fast to 27 or 26 fathoms, you are in the channel. Sound every hour; if 27 fathoms the next sounding sand with shells, you are in the inside, and you come between the Triangles and Las Arcas. When in the lat. 20° N. should you have the wind N. you should stand to the eastward, and when you get bottom in 45 fathoms mud and sand, if in the night and you should shoal your water a little, and have the bottom fine sand in an hour, you are two leagues N. E. and S. W. with Las Arcas, but if you get soundings mixed with small stones and shells, you are E. and W. with them. If you get

50 or 60 fathoms and the bottom soft mud and the water shoal fast, you are to leeward of the bank Tabasco, and off the river St. Pedro and St. Pablo, or St. Peter and St. Paul.

If the wind should be N. in lat. 22° N. and you run between the Triangles and the Isle Arena, and have soundings in 50 fathoms or more muddy bottom, and in running in you get soundings 40 fathoms, the bottom small stones, you are near the Triangles, but if sandy you are near Arena. Between the Triangles and Arena there lies Bayo Nubo, which you will be close to before you see it. It has a sand bank a mile in circumference, which bears from the Triangles N. W. by W. With three Islands the largest bears N. W. and has on it small trees. Two leagues from it are the Elliones, (very dangerous,) which are surrounded with a reef. There is a bank with from 3 to 4 fathoms S. E. from the island Arena, and a key about a pistol shot from it. Between the isle and key there is a channel with from 12 to 15 fathoms. To the southward of the largest island there is a bank, where you may anchor from necessity with a tolerable sized ship. To the N. E. of the island there is a rock.

Directions for sailing to the mouth of River Balliz, *or* Balise, *in the* Bay of Honduras.

Take your departure from the island of Jamaica, in lat. 18° 01′ N. and make your course good about W. by S. ½ S. as near as you can, for the distance of 90 leagues; between these places the current is generally setting to the northward; do not stint your full run to the westward, and keep a good look out for Swan's islands.

From Swan's islands steer for the Isle of Bonaca, S. W. by W. ½ W. distance about 36 leagues; lat. 16° 32′ N.

From Bonaca, which is a large, high island, run to the west end of Rattan, the next and largest isle on that range; there are three small islands between these two, viz. Barburatta, Moratta, and Helena. Rattan is 9 leagues long with many hummocks on it.

From the west end of Rattan to the Southern four keys, the course is N. W. ¼ W. distance 18 or 19 leagues; and from Bonaca to the said four keys, W. by N. ¾ N. distance 37 leagues. This last is safest from the Spaniards, who often harbour in Rattan; but your departure from Rattan is the safest and more eligible to avoid running on the reefs, as the distance is so short; this is a matter of prudence depending on the captain. Observe to time well your departure from either place, to avoid danger in the night, when it cannot be discovered, as well as running aground where there is no possibility of saving a ship. The Southern four keys ought to be made in the forenoon, to get to anchor before night at Key Bokel, or further in at Water key as the time will allow. The southern four keys are on the south end of a reef extending 7 leagues in length to the northward; on the north end thereof lie two keys, one long with tall trees, and the other a small spot with bushes on it, within a mile to the northward of the large one.

The southern four keys in lat. 17° 12′ N. The easternmost on the edge of the reef, is pretty round and high, with a large sandy bay on the east side; the westernmost is a long key with tall trees; the northern-

most is the next smallest; when you come from the eastward, an opening shows itself in the middle; the southernmost key, which they call Hat key, is the smallest, with bushes on it, and is near the south point of the reef; from this to the easternmost key, the reef runs in the form of a half moon. When you make the sandy bay, on the last, or sooner, you will see all the rest, for they are not far asunder.

From the south end of this reef your course is west to Key Bokel, distance 7 leagues; this is a small spot, with low bushes on it, lying close to Turneff reef, a low intersected island, which is 10 or 12 leagues long, N. N. E. and S. S. W.

Glover's reef has its N. E. end due south, 6 or 7 leagues distant from the Southern four keys, and is reckoned, with reason, a very dangerous place. This reef, which is named by the Spaniards the Long reef, is at least 7 leagues long, in a direction S. W. by W. and N. E. by E. No keys are to be seen on it, except a small spot or two, towards its north end; but on the south end there lies a range of 5 keys at least from east to west.

From the S. W. point of the Southern four keys to Key Bokel, the course is W. ½ N. There is good anchoring at this latter key to the northward, and within 1 or 2 miles of it; when you run out you deepen your water, but two cables' length in is far enough on the bank in 4 and 5 fathoms water. N. N. W. winds make the roughest riding here; it is a rendezvous for Spaniards, therefore a good watch at night is necessary, for fear of the small craft which lurk under the land.

From Key Bokel to English key, the course is N. W. but the best to steer is N. W. by N. to open the channel bounded on the south by English key, and on the north by Gough's key; these two are remarkable, being the southernmost on the main reef, with trees on them; they bear from Key Bokel, N. W. by N. and when you come near Gough's key you will see a small spot with bushes on it to the eastward; besides this you perceive three keys more, on the same range to the northward of them, viz. Curlew, Paunch gut and Serjeant's keys; Serjeant's key, the middlemost of these, is the largest, and has a large sandy bay. You will observe that they are all situated on the main reef, which runs a vast way, and for the most part north and south.

When you have the aforesaid channel open, and English key to bear west of you, steer a little to the northward of the middle of the channel, towards Gough's key, to avoid a rocky shoal that runs to the northward from English key; then steer in W. by N ½ N. but you must not quite depend on this, without keeping your lead going, because the channel is narrow, the entrance being about a mile broad, and narrower within.

To the N. W. of Gough's key is Water key, which is pretty long, with tall trees on it; from the south end of it runs a spit, a pretty good way into the channel. When you get to the westward of this, haul up N. by W. and to know your time for this, observe a small key very near the north end of Water key (not on the reef) half a sail's length open with the northward of the said key, you will then have Serjeant's key shut in with the south end of Water key, and begin with the narrowest part of the channel; so keep your lead going, and if you get hard bottom you are on the west shoal, called the Twelve feet bank; but on the east side, by Water key, it is soft ground. For your better direction to avoid running aground on either side, keep on to the northward, as before, until you see Serjeant's key, the north part opening with the north part of Water key; then you will be in what is called the Blue hole, where, in a small

space all round you, you will scarcely get bottom with 20 fathoms line; when you are thus in the Blue hole, run W. by N. and W. till you open Gough's key, the half out open with the south end of Water key; keep it so until you get over a bank which runs quite across; the best water you can carry through is 13, 13½, and 14 feet water; there is no danger should you ground on it, and it is only a north wind that should make you uneasy.

From this bank to the mouth of River Balliz, the course in N. W. Northerly; you will have on your starboard hand the range of Drowned keys, on which side the Stake bank (part of which may be seen) lies more than half way to the river's mouth; it is bad anchoring near this bank, though you may have 6 fathoms water. On your larboard hand you will descry a cluster of keys, called the Triangles; and within a league of the river's mouth, due south from it, is a small bank, called the Middle Ground; to the northward of which you may go in 14 feet water, and to the southward of it, in from 3 to 5 fathoms. There is but 7 feet water on some parts of this shoal; the best place for anchoring is right off the river's mouth, both for the facility of coming on board, and going on shore, and for having the advantage of the crafts which come down the river; here you lie in 16 feet water, and may remove in moderate weather into a deeper birth.

The River's mouth, from the Cross bank in the Blue hole, is between 4 and 5 leagues broad, and lies near the north point of the main land a-head of you, by the course prescribed; it is rarely without some vessels at anchor; but if you are at a loss for the opening of the river's mouth, and choose the vessels for your guidance, rather steer for them to the northward, than to the southward, because you risk grounding on the Middle Ground, which is like to be between you and the latter.

If no vessels are to be seen there, look attentively, and you will descry one tree taller than the rest, with a round top; this stands on the north side of the river's mouth, showing about half a mile from the main aforesaid, or Mother tree bush.

A stranger must return the way out which has been directed to come in; and while he is within the Cross bank, he may make long stretches from the north to the south side, turning with the trade winds; but when he comes into the Blue hole, he must take notice of the marks, and mind his lead as before. You can be bolder to the northward, when without the Stake bank. than you can to the south side; that is, while within the Cross bank, keep your lead constantly going, and venture no farther than 5 fathoms to the eastward of the Triangles, because it is rocky, with sudden shoalings. This caution is also for large ships going out of the bay loaded.

Other general directions.

In coming between Gough's and English keys, steer in W. N. W. until you shut in Serjeant's key with the south part of Water key; then steer N. by W. till you bring Gough's key on, or in a range with Water key; a course N. W. ½ W. will then carry you in the best of the channel over the Narrows, taking particular care not to shut in or open Gough's key with Water key; for if you do, you will certainly be aground on one side or the other; after this, when you shut Bannister's keys with the Drowned keys, you are over the Narrows; you may then steer in N. W. for the river's mouth, and come to an anchor, as in the foregoing directions.

Directions for sailing from River Balliz, *in the* Bay of Honduras, *through the* South Channel.

As soon as under weigh, steer S. by W. in gradual soundings, from 3¼ to 3½ 4, 4½, and 5 fathoms; about 7 miles to the southward of Balliz, is River Shebon or Sherborn, 2 miles off which, E. by S. lies a bank, about the bigness of a 40 gun ship; it is full of oysters, and has not above 7 feet water. Abreast of Shebon you will have 6 and 6½ fathoms water, for many casts, and when the S. part of the Triangles bear E. about 4 miles, and the S. end of Water key is in one with the N. part of the Triangles, you will have but 4, 3½, 3¼, 3, and 3½, then 6 fathoms; in this last depth the north end of Middle Long Key is touching the south part of the Triangles, this shoals in spits to the westward of the Triangles; but keep well to the westward, and you will find sufficient water; steer S. by W. till you bring the north part of the Triangles N. E. and the south part E. S. E. then steer S. you will have a quarter less 5, 5, 5½, and 6 fathoms, soft ground, keeping about 4 or 5 miles from the main. This channel is about 3 leagues broad, and you may ply, and stand well over to the keys of the main.

When you have the south part of the Triangles east, and distant 5 or 6 miles, steer S. by E. till you get the length of a bluff point, about 8 leagues from River Balliz; it is called Colson's point; E. N. E. 2⅓ miles from it lies a shoal, in part dry. This point bearing W. S. W. 4 miles off, you will have 4 fathoms water.

To the north of Colson's point is a small creek, called Salt Creek; here the land rises much in the country, and more to the northward are many hills and hummocks; under the southernmost of which is a large river, called Mullin's river, very commodious for watering; within one and a half mile of the mouth of this you may anchor in 4 fathoms. From thence steer S. S. E. half E. at three miles distance from the land you will have gradual soundings from 5 to 8 fathoms.

From Colson's point to Bawdy point, as it is called by the bay men, the course is S. E. and the distance about 8 miles.

Directions for sailing out of the Bay of Honduras.

When you weigh anchor from the vessels, at the mouth of River Balliz, steer away south for the westernmost part of the Triangles, untilyou see a grassy swamp below Rouge's point (the southernmost point of the river) then you are clear of the Middle Ground; then haul your wind as close as you can lie, until you come into 3½ fathoms water, off the Triangles, but come no nearer. Then tack, and stand towards Stake bank, which you will see time enough to go about, you then tack again, and stand to the southward, taking care not to come into less than 3½ fathoms water; at this time you will see Gough's key, which you may keep open a quarter of a mile, or shut in at that distance, till you come into the Narrows: these you will know by opening of Bannister's key; then you are close to the Narrows, and must have Gough's key in a range with the southernmost part, taking great care not to open it above a handspike's length, nor shut it in above that length, till you are above the Narrows and in the Blue hole, where you will have no ground. Then S. E. from

you, about a mile, lies a spit, to the northward of which you must go, between it and Water key bank. When you have weathered that spit, steer away for the westernmost part of the Long key, which will carry you right through safe between the two banks, and run to the southward till you open Serjeant's key; then you will be mid-channel between Gough's and English keys, which will be E. S. E. You must go into less than 3½ fathoms; then go about and stand over for Water key bank, into 3 fathoms, where you may come to an anchor. In weighing from thence take care to come no nearer English key than 5 fathoms. From English key S. E. near two miles, lies a shoal, which appears very plain, and which you must take care of in turning out; the safest way is to go to the northward of it.

General and particular directions for Port Omoa.

If from Black river, on the Moskito shore, you are bound to Port Omoa, or San Fernando de Omoa, as it is called by the Spaniards, you must sail to the southward of the isles Bonaca and Rattan, passing between Rattan and the Hog's islands; and without a thorough knowledge of these parts, you are not to pass southward of the Hog's islands, on account of the Salmedina reefs.

You steer from Black river for Bonaca W. N. W. till you come to this island, which is 23 leagues distant from it. Then you steer W. S. W. in order to pass between Rattan and the Hog's island, which course is continued till you get the island Utila in sight; then you are to steer W. or W. by N. as you choose.

To pass to the southward of Utila, you must take great care not to come nearer than 2 leagues to this island, on the N. W. or S. sides, unless you are very well acquainted with it. When you have made the west point of Utila, then you sail for Point Sal, which lies 10 or 12 leagues W.S.W. but you must steer W. S. W. ½ S. to prevent being driven away by the N. W. current which would carry you on Glover's reef; with a W. S. W. ½ S. course you make the land to the southward of Point Sal, and then come to the N. W. of the said point.

You then sail along as far as the low point of Puerto Cavallo, which lies 8 or 9 miles N. E. by E. from Puerto, or Port Omoa.

The windward, or larboard side of Omoa is a low sandy point, running off towards the sea, full of high mangrove trees, and having a look-out house, which is very discernible. This makes the bay of Omoa very safe in a north, and equally secure in all winds. You may come as nigh the windward point as you please; quite close to to it there are 6 fathoms, and about a cable's length from it, 17, 16, 15, 14, 12, 9, 8, 7, 6, 5, 4½, and 3 fathoms water; this depth runs from the point as far as the river; you will have from 17 to 12 fathoms, when you come to sail in, and you luff as near as you can to the point. If you cannot lie in the bay, it is best to come to an anchor in 12 fathoms, and warp up in the bay and moor the ship. You must not come too near on the side of the river, nor where the houses of the town stand, but you may go as nigh as you please to windward. You will have twelve fathoms water near the wharf at the fort.

The river lies to the westward of the town, and has the following depths; from 12, to 9, 8, 7, 6, 5, 4½, 3, and 2½ fathoms water; about a cable's length from off its mouth, you will have 7 fathoms, and so on to 2½. When you are at anchor at Omoa, if the weather be clear, you may see

Cape Tres Puntas about W. by N. or W. N. W. The land to the westward of Omoa is very high, and remarkable by 3 or 4 peaks, or sugar loaves, considerably higher than the rest.

Directions from Port Omoa *to* Golfo Dulce, *at the S. W. end of the* Bay of Honduras.

The course is westerly to Point San Francisco, or Buenavista, about 6 miles from Omoa, and which is very low. Then it is W. N. W. to Cape Tres Puntas, 8 or 9 leagues from Point St. Franciso; between the two points, keeping about 4 miles from the main shore, you may come to anchor in 20 or 15 fathoms, and less water, muddy ground; near the latter point there is a sandy bar, running a league into the sea, before the mouth of a large river, which bar you must be sure to avoid. When you have sailed about 13 or 14 leagues then you may haul W. by N. leaving Cape Tres Puntas on your larboard side, about one and a half league off; and having passed that cape, you open Golfo Dulce, and steer for it S. by W.

The S. W. bottom of the bay of Honduras, into which you enter after having doubled Cape Tres Puntas, is generally known by the name of Gulf of Amatique; and Golfo Dulce, that is, the mouth of the river, called also Guatimala Lagoon, lies 8 or 9 leagues from Cape Tres Puntas; you must go by your lead, and will have from 9 to 3½ or 3 fathoms. The mouth of the river shows itself very plain; you bring it to bear S. S. W. and anchor in what water you please, mooring the ship S. E. and N. W.

Five or six leagues N. E. by E. of Golfo Dulce, and within the land, is the Golfeto, or Little Gulf, called formerly Pirats Lagoon, and Lake St. Thomas; it is 3 or 4 leagues broad, and as many deep, the land round it being very low near the sea, with large manganeel bushes, but very high within the country. The little Gulf is known by a remarkable table mountain to the southward of it.

Directions for sailing from Black River, *on the* Moskito Shore *to the* Bay of Honduras, *through the entrance of the Main reef at the* Zapodilla Keys.

From Black river to Bonaca, the course is W. N. W. 22 leagues. From the west end of Bonaca, to the east end of Rattan or Barburatta island, it is W. S. W. 5 leagues. The harbour is about one third down the island on the S. E. side; it is a very narrow entrance; in going in you have 6 and 7 fathoms, and then you deepen your water, as you advance; keep close to the keys on the east side in going in; the harbour trenches towards the N. E.

Observe there is a small shoal off the east point. When you are going into Rattan harbour, after you have passed the point on the starboard side, which runs off a little way, there is no more than 3½ fathoms; do not borrow too near that shoal till you are shut well into the harbour, which is noble and spacious, and where you may anchor in 10 or 12 fathoms; the deepest water is on the north side, and the best lying is to the eastward, up the harbour.—There is a small spot, right opposite the en-

trance, on the north side, that has no more than 20 feet water on it; the soundings in general are very irregular.

From the west end of Rattan to the entrance through the reef by the Zapodilla keys, the course is W. 29 or 30 leagues. From the W. end of Rattan to Utila it is S. W. 6 leagues. From Utila to Triumpho de la Cruz it is S. by W. 10 leagues. From Point Cavallo to Port Omoa, S. W. by W. 3 leagues. From Port Omoa to the entrance through the reef by the Zapodilla keys, N. N. W. 9 leagues.

You may know the Zapodilla keys by the five dry sandy keys among them, which are without shrubs or trees, except that on the starboard side, on going in, on which there are two dry trees which appear like a schooner at anchor, when you first make them. All the keys to leeward are bushy and full of Zapodilla trees. In the passage through there is 4½ fathoms, and there you have but two casts before you deepen your water to 6, 7, 10, and 17 fathoms. This makes it the best passage for large ships; the course through is W. and W. by N. when you are over the reef, it is termed the harbour of the Honduras.

From the Zapodilla keys you steer W. N. W. between 4 and 5 leagues, to avoid several ugly shoals and rocks which lie to the northward of the passage through the keys: and when you bring Point Placentia to bear N. by W. or N. ½ W. steer for it; it will be about the distance of 6 leagues from you.—From Point Placentia to Settee river the course is N. by E. ½ E. 6 or 7 leagues. From Settee river to Colson's point it is N. 6 leagues. From Colson's point to the river's mouth N. ½ E. 6 or 7 leagues, where you anchor, taking care of the Middle grounds.

Observe that after you have got through the Zapodilla keys, and up as high as Point Placentia, you may anchor all along the main, in any depth of water from 5 to 17 fathoms, keeping at the distance of 2 miles from the shore, except at Colson's point, where there is a bank or shoal due E. from the point, which has not more than 7 feet water on it; it lies between 2 and 3 miles off the shore, and extends due S. 4 miles.

Directions for sailing into and out of Truxillo Bay.

In sailing from Camaron to Cape Honduras, the course is about W. ½ N. 20 leagues, lat. 16° 0′ N. and long. 86° 11′ W. and to the island Bonaca, W. N. W. 2 leagues, lat. 16° 32′ N. long. 86° 07′ W. This island bears about N. N. E. 8 or 9 leagues from the cape. The next island is Rattan, which bears from the cape about N. W. 12 leagues, lat. 16° 24′ N. long. 86° 20′ W. There is Port Royal harbour on the eastern part of the island, and another harbour on the southernmost part, called Calket's hole. The next island to Rattan is Utila, which is about 3 leagues in length, and has a harbour on its S. side.

Coming from the eastward to Truxillo bay, be sure to make the land to the eastward of the cape; it is low by the water side, but up in the country it rises high; when you have run down your distance, and got the cape to bear S. W. and Bonaca N. or N. by W. steer more southerly for Point de Castilla, or the pitch of the cape; your soundings along shore, at one mile distance, will be 20 fathoms, muddy ground. Run S. W. and S. S. W. till you bring Point de Castilla to bear N. N. E. or N. by E. from you; give the point a good birth, then haul up E. and E. S. E. you will have about 9, 10, or 11 fathoms off the point; run up to the head of the

bay close to Old Truxillo town, and come to an anchor in what depth of water you please, soft muddy ground; you will have coming in, 18, 17, 16, 15, 12, and so on, fathoms water, This bay is about 4 leagues wide, and 5 deep; there is only one shoal in it, called Luke's key, which lies on the south shore, clear from you: and the rest of the bay is very clear, except close to the shore.

There are no tides here. The latitude has been observed 15° 53′ N. and the longitude 86° 06′ W. The variation 8° 40′ E. The easterly wind blows here most of the year; but the bay is open to N. W. and westerly winds.

Coming to an anchor you are to bring Point de Castilla to bear N. N. W. to N. W. about one mile off shore.

Description of the Coast between Black River, *on the* Moskito Shoro, *and* San Fernando de Omoa; *with directions for sailing, anchoring, &c.*

BLACK RIVER lies in lat. 15° 56′ N. and Cape Camaron, called also Cape river, in lat 16° 00′ N. the course between the two is W. by N. 3 leagues. Praunow creek lies 2 miles to the westward of Cape river; the opening of the latter river shows itself very plain; on the E. side appears a high sand hill, and on the west side there is a sandy spit stretching a mile into the sea, and which you must be careful to avoid.

Two miles W. ½ S. from Praunow creek lies Zachary Lion's creek, whose high land right over it, has the form of a sugar loaf, not unlike to that over Black river, but distinguished by a saddle mountain a little to the westward. The Little rocks are one league distant W. by S. from Zachary Lion's creek; the land over them is double, not very high, and the southernmost appearing above the other.

Four leagues W. S. W. ½ S. from these, are the Great rocks, which show themselves like a round bluff; close to the seaside, about a mile from shore, is very foul ground, mixed with sand and stones, which you may avoid. The bluff point of the Great rocks to the eastward, and Old Roman point, make Limehouse bight. Between the Little and Great rocks, there are two rivers, the nighest to the Great rocks being called Great Piaw, and the other Little Piaw river.

Limehouse river is 3 miles distant S. W. by W. from the Great rocks; it is known by a saddle mountain, with a sugar loaf on one side, and by another sugar loaf on the other side, whose top appears to be broken off.

New Roman river lies 2½ leagues farther W. N. W. near its mouth, which is very wide, and always open, are 2 or 3 black sand hills; Old, or Great Roman river, whose opening is also very wide, is 4 miles W. N. W. from this. Between the two rivers you meet with a bank of stones and sand, 2 miles from the shore, and about 3 miles long; it lies nearly east and west; to get clear of this bank, you steer from New Roman out of the Bight W. N. W. and pass to the northward, until you come to Three leagues point, then you steer right for Cape Honduras. The point is easily known by a round sand hill, covered with many palmetto trees, of an inferior size.

Cape Honduras, or Point Castilla, lies about six leagues W. by N. from old Roman river; and 10 leagues to the W. of this cape, you meet with

the Hogs islands, which are two high islands southward of Rattan, with 18 small sandy keys, which extend from the S. E. of the easternmost island, to the westernmost one, on the southward side of both; to the N. W. of the westernmost isle, there are 3 or 4 of these sandy keys, which afford no passage, but you may pass between the others. A rocky reef stretches along to the southward of these two islands, 2 miles distant from the shore, and running from E. S. E. to N. W. You must not come nearer on any side of the westernmost island than one league; but you may approach the easternmost as near as a mile, and at its W. end you come to anchor in small vessels with a sea breeze, but it is very bad with a north. On the N. side of this island is the best channel to anchor at the west end; you may sail on boldly, and keeping a good look out for a few rocks, under water, which are close to the shore, you come in a bay to an anchor, in 6 or 7 fathoms water, good sandy ground. There is a channel on the south side, but you are obliged to go between the reef and the keys, and must be well acquainted with it, before you attempt to pass through it.

About 5 or 6 leagues to the south-westward of Cape Honduras lies the town of Truxillo, on the south side of the bay of that name; and 5 or 6 miles to the north of this town, you meet with a little sandy island called Luke's key. The Barcadere of Truxillo is about 3 miles to the west, with a small island before it, called Isla Blanca, or White island, near which you have 4 fathoms water. West of the Barcadere lies Horse point, with a rocky reef running east and west 4 miles off the shore.

Having sailed seven leagues S. W. from the Horse point, you come to a low sandy point, running a good way into the sea, which the bay men have named Pull and be damned point. Between the two points is a deep bay, wherein you may anchor in 5, 4, and 3 fathoms water. It is called Cutchahutana bight, and is renowned for its turtles and manattees, or sea cows.

From this bight the coast runs in a westerly and W. by N. direction for 20 leagues, as far as the Bishop and his clerks, and in that interval has many rivers, the principal of which are Congrehoy, a river remarkable for its high peak, and river Leon, one league to the eastward of the Bishop and his clerks, which is a noted place of trade with the Spaniards. All along this coast you may anchor with the sea breeze, but it is very bad in a north, except at Porto Nuevo, to the N. N. E. of Truxillo, within Cape Honduras, where ships are well sheltered against that wind.

The Bishop and his clerks, under which is good anchoring, are three or four rocks above water, one mile from the shore, and about 6 leagues distant S. W. from the south end of Utila island, which lies at pretty near the same distance S. W. by W. from the S. W. end of Rattan. In the middle of the channel, between these rocks and Utila, are the Salmedina reefs, which render that passage hazardous.

Six leagues N. W. by W. from the Bishop and his clerks, lies the point called Triumph de la Cruz by the Spaniards, and Point Sal by the bay men; it is known by three or four rocks, pretty high above water, and larger than the Bishop and his clerks; they lie about half a mile off shore, and there is a little channel practicable for small craft; the point off the main shore appears with little hills, as broken land, high and low.

The anchorage is under this point to the westward, and right before the opening of Puerto Sal, a little harbour for small vessels; in 18, 17, 16, and 15 fathoms water, there is rocky ground, but from 13 to 12, and less, you may come with safety to an anchor, in fine muddy ground.

The low point of Puerto Cavallo lies about 10 leagues W. by S. of Point Sal; there is no high land between the two points, and you meet with two large rivers, viz. Rio de Ulloa, commonly called Rio Lua, and Chamalucon, at both of which you may anchor, in very good muddy ground, with a sea breeze. To the westward of the Low point, the anchorage lies in 7, 6, and 5 fathoms water, sand, but without the point you have muddy ground.

From Puerto Cavallo to Puerto Omoa, which is about 8 or 9 miles farther to the S. W. by W. it is all very high land; five or six broken hills, appearing red, lie close to the sea between the two places and off these red hills, a stone bank stretches to the northward into the sea, about 1½ mile. You must go no nearer in shore than 8 fathoms water.

Directions for sailing to the Moskito Shore, Rattan, *and* Bay *of* Honduras, &c.

Your course from the west end of Jamaica, or Negril by south, to Swan's islands, is W. by S. a little southerly, distance 97 leagues; then if you don't make those islands, you may safely haul up S. W. by S. and not more southerly, especially from the first of November to the first of April; these months are subject to frequent north winds, that blow excessively hard, and make a prodigious sea, which with the currents, then rapid and uncertain, might make you fall in with Carrantasea shoals, called also Hobby's keys, both very dangerous in the night, or thick weather, which you are almost sure of meeting with in north times.

Those dangers lie about 25 leagues to the E. by S. of Cape Camaron, and the same distance S. S. E. from Swan's islands, whose latitude is 17° 21′ a S. W. by S. course, will much about run you in with Cape Camaron, between which and the above shoals, the shore is bold too, and all low land, till you come to Black river, over aback of which, begins the high land, which continues to the westward; when you have made this high land, you may haul up more southerly for Black river. Your mark for anchoring is to bring the Sugar Loaf hill (so named from its shape) to bear south, and to stand in 12 fathoms, then anchor; you are not to stand nearer than 12 fathoms, on account of the many anchors left there by trading vessels in the north times. This is a wild open roadsted, and the bar is too dangerous for strangers to attempt it with their own boats, almost all the year round.

Your course from hence to Guanaja, or Bonaca island, as we call it, is W. N. W. about 20 leagues distance; but with a tolerable breeze of wind you will soon rise it, as the island is very high, and may be seen from Black river bank in a clear day.

But if you should not have occasion to call on the Moskito shore, from Swan's island to Bonaca it is S. W. by W. ¾ W. 38 leagues. To sail into the harbour of this island, coming from the eastward, run down the south side thereof; a range of rocks, or rather small keys, trenches down on that side, and one of these in particular will show itself in a semi-circular form, from which it has been called Half-moon key; when you see this range, you run close with the latter key; giving the others a good birth as you pass by them, and continue so till you bring a small sandy key abreast of you, then haul up close round this key, until you are shot in

within it a large cable's length, and the eastward withal. In letting go your anchor, you are to observe, as you shoot in, that a key will appear to leeward, or to the westward of you; it is called S. W. key; be sure to leave this two thirds of the distance over from Sandy Key, or rather more, on your larboard hand; for between these two keys, and above mid-channel over to the eastward lies a very dangerous shoal; on this shoal there is hardly 8 feet water in some places. You will likewise descry three keys more on the larboard side in going in.

To the S. W. of this island lies the island Rattan, in lat. 16° 25′ N.—W. S. W. ¼ S. 143 leagues from the west end of Jamaica, and N. N. W. 11 leagues from Truxillo bay on the continent. Towards the sea, on both sides, it is mountainous and woody; on the south side are harbours from one end to the other, and in the dry season, some of them without fresh water. The most remarkable is New Port Royal; it is a very fine harbour, the sea breeze meeting no obstruction, blows quite through, and renders the place extremely healthy: the air is there cooler and more temperate than in most parts of the West Indies.

In sailing from Rattan for the Bay of Honduras, you are to time your departure in the close of the evening and not before; then you will steer N. W. or N. W. a little northerly, which will run you in with the Southern four keys, distance about 20 or 22 leagues; therefore you must be particularly attentive to sail your vessel with such canvass, as to the weather you may have, or the way she may make through the water, taking also great care to keep a very good look out; never attempt to run above 16 leagues by the log, as the currents are very swift and uncertain, which has proved fatal to many ships.

As soon as daylight appears, then make what sail you can, still steering the same course, and you will soon rise the Southern four keys; run well in for them on your starboard hand, and steer west about 6 leagues for Key Bokel, to which you will give a good birth on your starboard side likewise; you may know this key by its being round, low, and small, with bushes on it, and particularly by a large range of keys to appearance, although they are but one key: it is called Turneff, and extends a good way to the northward of Key Bokel.

If it is late, and you have not daylight enough to run for English key channel, or Coseen, or Corsiana, (called St. George's key) which last is safest, especially for vessels of large draught of water, that is from 12 to 16 feet, as it is a straight, clear channel, while the other is very narrow and crooked; you may haul up round Key Bokel inside, and stand into 5 fathoms water, and anchor; abreast or in shore of you will appear small inlets, or lagoons; but if not too late in the day, you may with a good breeze get clear in, especially at Key Cosina.

From Key Bokel, after giving the southernmost part of Turneff, which is then near you, a good birth, your course is N. W. by N. which will soon lead you in sight of the shipping lying at Key Cosina, as well as of the key itself. At the same time you will make to appearance, ahead of you, a large high bluff which lies more inland, and to the west of Key Cosina; it is known by the name of Royden's bluff; keep this bluff open a cable's length of Key Cosina, and run in with that mark till abreast of the south end of the reef, which is just without the shipping; when abreast thereof you must haul under the reef, and not far from it, and you may bring up in 17 and 18 feet water, but a better place is a little further up to the northward, inside the reef, called the blue hole, where you have clay ground, and from 18 to 20 feet water.

Key Cosina lies in the latitude of		17° 34′ N.
Southern four keys	do.	17 12
Key Bokel	do.	17 13

N. B. From the westernmost of the Southern four keys, trenches a reef, which breaks 3½ or 4 miles, due S. S. E. and of which care must be taken.

A dry sand bank, about a mile long, lies from Cape Camaron N. N. E. ½ E. distance 59 leagues, and from Swan's islands N. by E. ¾ E. 25 leagues.

Description of Porto Bello Harbour.

At the entrance of the harbour there are two small islands, which lie S. by E. ¾ E. and N. by W. ¾ W. from each other; between them you sail, or warp in, and have 15 or 16 fathoms across, all soft ground. Due west from the northernmost island, and about 3 cables' length from it, lies a bunch of rocks, called the Calmedinas; you have 20 fathoms, soft ground, between these rocks and the island. You may go in and out on either side of them, they being steep too all round, and always showing themselves.

The north side of the harbour is steep too; on the south side there is a reef along it, about a cable's length from the shore.

You may anchor any where, taking care not to go too high up in the cod of the bay.

Wood and water are in great plenty here; you may either land your casks and roll them about 10 or 12 yards, or fill your boat with small casks. Cattle may be purchased, though not cheap nor good; vegetables there are none to be procured, but you have plenty of fish and turtle in the season.

To the northward and southward of this harbour there are very good bays, with many fresh water rivulets, where any fleet may ride and fill in safety; there is no danger but what is discernible.

Lat. 9 deg. 33 min. N. long. from London 79 deg. 25 min. W. Tides none, but a rise and fall of about 6 or 7 feet. Variation 9 deg. 40 min. E.

The winds are generally between the north and east, except in the hurricane months; and then they are mostly from the S. W. and W.

Directions for sailing into and out of Arenas Bay, *to the northward of* Carthagena, *on the Spanish Main.*

If you are bound from Jamaica to the Spanish Main, you must work up to the Yailahs, or the east end, and steer S. E. to make your course good S. S. E. that you should fall in with the high land of St. Martha, or the river Magdalen, and the hills of Morro Hermoso, on the west side of the river, in 11° N. lat. The distance from Jamaica is 145 leagues on a S. S. E. course. You meet always with a westerly current in crossing over, and coming near the river you have white water 30 leagues off. The high land of St. Martha is the highest all along the coast, and Point Ocea is a bluff point.

Coming in with the coast in the night, approach it no nearer than 22 fathoms. The course from point Occa to Morro Hermoso is W. by S. 10 leagues; from that to Point Arenas S. W. and S. W. by W 15 leagues, and then to Carthagena S. W. by S. and S. W. 15 leagues; the land between Morro Hermoso and Arenas bay, is high hills, the most remarkable of which are Samba hill, that appears like maiden's paps, and another next to Arenas, called Galera de Samba, that shows like a barn. Arenas point is all low, except the volcano, which appears flat and round.

The danger going into Arenas bay, is a reef at the N. E. part; give it a good birth of 2 or 3 miles, and steer S. S. W. and S. W. by S. in 7 or 8 fathoms water. The next shoal is the 4 fathoms bank, which bears W. N. W. about three miles; steer S. by W. and south round Point Arenas in 6 or 7 fathoms, keeping at half a mile or one mile distance, then steer up S. E. and E. S. E. and you may anchor in what depth of water you please, from 3 to 20 fathoms, good holding ground.

The bay is about 6 or 7 leagues deep, and 5 broad, with many lagoons where small ships may lie in 2 or 3 fathoms water; large ships lie in 8 or 10 fathoms. There are two small keys above water, in this bay, one bearing S. E. from Arenas point, the other about S. by E. There is a bank which lies about N. N. E. 2 leagues from Point Palmerita, with only 9 feet water on it. This bay lies about N. E. by E. and S. W. by W. no winds except N. W. can hurt you here, and they blow very hard. Sometimes N. E. winds blow here the most part of the year. Point Arenas and Point Palmerita make the bay; they bear from each other about N. by E. and S. by W.

Sailing out of this bay, bound to Carthagena, steer to the W. N. W. to get 2 or 3 leagues off, then steer S. S. W. But if you are bound to the eastward, or to Jamaica, you must work up as far as the river Magdalen or Point Occa, to be sure of fetching near the E. end of Jamaica. The current sets in the offing mostly to the eastward, except in strong N. E. winds.

Latitude 10° 50′ N. Longitude 74° 55 W. Variation 6° 22′ E.

To anchor, bring Point Arenas N. W. and the Volcano N. E. or N. E. by E. and Samba hill E. S. E. to E.

Carthagena.

Being at anchor off Carthagena, Point Cunnoa bearing N. E. by N. Point Salmadina S. ½ E. and the Citadel E. ½ S. in 7 fathoms water, dark sandy ground, distance off shore about 6 or 7 miles. Sounded from the ship towards the land, and carried 7 fathoms for nearly two miles, and the water shoaled very regularly until one mile from the shore, when there was 4 fathoms. Ran along the shore at the distance of half a mile in 3½ fathoms water until to the southward of the tower, then stood off and found the water deepen very gradually as it shoaled when standing in.

The land to the northward of Carthagena is high, sloping to the northward until it comes to a point very much like Portland* in the English

* This point has no resemblance to Portland until you bring it to bear about E. S. E. when it considerably resembles the outer point, but is much higher. In working up from Boca Chica to Carthagena there are three points, two on the larboard and one on the starboard hand, every one of which much resembles the outer point of the Bill, though in miniature, indeed the southernmost (or the larboard side) resembles both the inner and outer part of the Bill.

channel. On the highest part of this land is a monastery, a battery, and a flag-staff. This building, on any part of the city that is walled, and the lead going, any ship may come near enough to command the town. The sea breeze sets in very late, about noon or 2 P. M. It sometimes blows almost a gale of wind until midnight, or even later. Calm in general about daylight.

In making Carthagena from the northward, if well out to sea, you may, in clear weather, perceive the monastery (before mentioned) as far north as lat. 10° 47′, rising like a rock from the water. There is no apparent entrance to the northward of the town or monastery, but after you have run considerably to the southward of the city, you perceive a wide opening called Bocca Grande. This, however, is not the entrance to the harbour, but at Boca Chica (or a Little Mouth) which lies round Point Salmadina about 10 miles to the southward of the city. In coming into the entrance of Boca Chica, you will perceive a strong fort with a low battery stretching west from it, but connected with it. This fort and battery stand nearly in the middle of the entrance, and to a stranger the best passage seems to be to the eastward of the fort, but this is not the case, as not only is the proper passage to the westward of the aforesaid fort, but you must shave close round a low sandy point on the west side, which point, when so close to that you might heave a biscuit on shore, is so bold that you will then have ten fathoms water. There is a small fort on the larboard or west side, which you round before you come to the Boca Chica, with 3 or 4 guns mounted on it. When once round the Sandy Point you will generally get a Pilot, but if you should not, you must, after passing a large fort on the larboard hand, come to an anchor for the fort boat to board you. You must anchor in about 17 fathoms, sandy bottom, pretty close in a small sandy Bay with some houses on the west side of it, and which is to the northward of the larboard large fort. It sometimes blows very hard here early in the morning, and vessels are apt to drag their anchors. It is therefore adviseable always to come to with your best ground tackle. There is a pretty strong tide of flood sets up the harbour from Boca Chica towards the city, and the ebb sets down. There are perches set on the starboard side of the channel up from Boca Chica to the anchorage at the city, but the channel is extremely intricate and not to be attempted by a stranger without a Pilot. In anchoring in the bay to the northward of the large fort on the larboard side at Boca Chica, you will perceive a perch to the eastward, which will show the necessity of being in as close to the western shore as you prudently can before you anchor. Pilots here are extremely ignorant, and masters of vessels will do well to work their vessels themselves and make their own people steer, allowing the Pilot to point, or if they understand Spanish, to tell them how far they may steer towards each shore.

Other directions for Carthagena.

In the former directions it is mentioned the sea breeze sets in very late in the day, and that it blows half a gale of wind. The former part is true, but the latter not so at all seasons of the year. "I have," says the writer, "been in this harbour from the 21st June to the 18th July, and have scarcely had any thing to call even a fresh sea breeze. The land

wind, on the contrary, has been three or four times pretty violent, particularly on the 22d June, about 5 A. M. when it blew so fresh that we drove at the anchorage inside of Boca Chica (in 7 fathoms) with both our best bower anchors down ; and July 18, about the same hour, an American brig (the Connecticut, of Hartford, Capt. Blin) drove with her small bower down. In neither instance did the violence of the gale (or more properly squall) continue more than an hour."

Fort St. Jose stands almost in the middle of the entrance at Boca Chica between the islands of Baru and Tierra Bomba, but rather nearer to Baru. To any vessel coming from the northward and rounding the sandy point of Tierra Bomba close, (as they ought) the entrance of Boca Chica will appear to be between Fort St. Jose and Barra, (viz. to the eastward of Boca Chica,) but this is not the case, as I have before mentioned, but between Fort St. Jose and Tierra Bomba, viz. *to the westward of Fort St. Jose.* The water between Fort St. Jose and Isla Baru is shallow.

Fort St. Jose has a low battery connected with it which runs out to the westward. The land breeze in general sets from about S. E. and E. S. E. inside the harbour.

Coming to this place from St. Martha, after passing Point Samba we experienced a very strong northerly current in shore, and I understand this is generally the case ; therefore, any vessel bound from hence for Jamaica or Hayti ought to work close in shore, (at least as close as prudent for avoiding Negril and the other Rocks off Point de Cunnoa, and Point Samba, and indeed it will not be always necessary) to work, as by timing their departure from Boca Chica so as to answer the land breeze early in the morning, they may often be well up with Point Samba before the sea breeze sets in.

In passing Point Samba during the night, give it a birth, as it is very low and a reef lies off it. Its lat. is 10° 51′ N. long. 75° 30′ W.

From many circumstances and such observations as I have been able personally to make, and the information I have collected, I am induced to think any vessel bound from hence to the Windward Islands, ought to work in shore as far up as St. Martha, (attending to the previous remarks) as there is almost a certainty of a northerly current up to Point Samba, and also between Point Samba and the west point of the entrance of the River Magdalen, from which river there is generally an eddy current sets up the Bay towards the Lagoon St. Martha, and from thence along the coast up to St. Martha.

Off the entrance of the river Magdalen the water is much discoloured, and where the fresh water in part covers the salt, its appearance is really alarming, but the lead will shew there is no danger. Weak vessels should pay attention, if possible, to avoid the large trunks and roots which frequently float down the river.

By taking advantage of the currents which set out from the different entrances of the Magdalen, vessels working up for St. Martha may get a good shore to the northward.

[NOTE.—Water may be procured about half a mile below the city on the island of Santo Domingo, but it is brackish ; however, excellent cistern (rain) water may be obtained at the powder-magazine which lies on the starboard hand going up from Boca Chica. After heavy rains, water may be had at the isle, bearing nearly E. by S. ¼ S. from anchorage without paying for it.

At Carthagena, as in all other Spanish ports, no person is allowed to land from any vessel that arrives, until she has been previously visited by the custom-house boat, and permission granted by the captain of the port.]

St. Martha

Is situated in a valley at the foot of high mountains. Any vessel from the northward may easily and safely make the harbour by running down along shore at one or two miles distance until the town with 3 churches and the custom-house (which is remarkable by towers, &c.) is seen, and then run in on either side the Moro rock, on which a small fort is built, but observe the south point of the Moro rock ought to get a birth of at least a cable's length.

There are some old wrecks in St. Martha harbour which, as the water is very clear, may be easily seen under water. The bottom is fine sand.

Small vessels generally moor in the Horse-shoe (shaped) bay, above the town, where they are exceedingly well sheltered. No farther directions are necessary for St. Martha, as any person may take a vessel into it safely in day-light, and no prudent navigator, who is a stranger, will attempt it at night.

From Cape Blanco *to* Cape St. Roman, Cata Bay, Porto Cabello, &c.

The land is still very high and mountainous, the westward of Cape Blanco, for about 10 or 12 leagues, when it begins to become lower; the coast all along is bold and clear; you may stand within a mile of the shore, all the way down from La Guayra to Porto Cabello, about 10 or 12 leagues to leeward of Cape Blanco, and about 6 to windward of Porto Cabello, you meet with a very fine bay, or rather harbour, called Cata Bay; there is not less than 10 fathoms in going in, and when you are entered, you may anchor in what water you please, from 5 to 20 fathoms being land-locked from all winds, but from N. N. W. to N. N. E. which winds seldom blow here; you have a regular sea breeze all day, and a fine land breeze all night, with plenty of wood and fresh water. There is a town 4 or 5 miles from this bay, and many planters and other people live in the neighbourhood, who have abundance of cocoa, and money likewise. This bay, which lies from Curassoa S. E. by E. by compass (there is half a point of variation here) is seldom without one or more Dutch vessels trading for cocoa; the land is very high, on both sides the bay, with a fine valley in the middle; there are several other small bays, to the eastward, the best of which is that of Turiano, but it is not so good as Cata bay, either for a ship to lie in, or for trade.

From Cape Blanco to Porto Cabello, the course is W. ½ S. or W. by S. distance 17 or 18 leagues; the land is very high till you come about a league to leeward of Cata bay, and then it runs lower down to Porto Cabello: this port is in a large valley, round a low point, 6 leagues to lee-

ward of Cata bay; you may see from this bay the land which runs out from Point Tucaras; it bears W. N. W. from the bay 18 or 19 leagues; from Cape Blanco N. by W. above 36; and from Porto Cabello N. W. by W. distance 12 leagues.

From Point Tucaras to the Point of Coro the coast lies N. by W. about 14 leagues; the land all along is low and full of islands and keys, but down towards Coro it is higher. Cape St. Roman lies 23 leagues to the N. W. by W. of Point Coro, and may both be descried from Curassoa in clear weather. On this coast you find very little lee current, till you come without the stream of Point Coro, but at most times you have fine weather, and variable winds.

From Cape Codera *to* Cape Blanco—Jasper Bay.

If you come out from Cape Codera, and are bound to the westward, you may stroke the cape as close on board as you please, as it is steep, too; there is a small sandy bay on the west side of the cape, and close to it, wherein you may anchor in what depth you find convenient; this bay has nothing remarkable. The anchoring is good, as we have already observed, but no fresh water.

When you come round Cape Codera, if it is day-time, you will see the White rock, which bears from the cape N. by W. distant 6 miles, and from Chuspa bay N. E. by E. 8 or 9 miles. It is about as large as the hull of a first rate, and almost as white as Beach head; you have all clean ground about it, but on the west end there is a small ledge of a quarter of a mile from the rock.

Having rounded Cape Codera you will see a low point to the southwestward, about 7 miles; it is the first you come to; you may run down to it within half a mile of the shore; then a fine sandy bay opens to the westward, into which you may haul round the point, and giving it a birth of a quarter of a mile. This bay is called by the Spaniards Chusba bay, but the English have named it Jasper bay; you may anchor there within less than half a mile of the shore, in 7 fathoms water.

When you have run into 7 fathoms water, you will bring the E. part of the bay, that is the point round which you came, to bear N. E. and in the S. E. corner of the bay you will get fine fresh water, and good wood.—There is always a little swell in the bay; when you anchor you will perceive a small point about a mile to the westward of you, and close round that point there is a small town; but the landing here is very bad, on account of the great surf on the beach. The land to the westward trends to the W. by S. and is very high, both inland and near the coast; very little is to be had here but wood and water.

From Jasper bay to Cape Blanco, the course is W. by S. 13 leagues, and to La Guayra W. by S. 10 leagues. La Guayra is in a small bay, about 3 or 4 leagues to the windward, or to the eastward of Cape Blanco. There is a prodigious high mountain aback of La Guayra, which is almost as high as that of Teneriffe: it is called the mountain of Caraccas. Cape Blanco is low land, so that when you are 4 leagues off you cannot possibly see it on account of that mountain. Being off Cape Blanco, within a league or two of the land, you may see the fort, batteries, and town of La Guayra, which appear of a whitish gray, while the soil about the town

looks red. When you are within 4 or 5 miles from Cape Blanco, it looks like a town under the high land, and has a gray and ragged appearance; the shore is clear and bold all along. Cape Blanco lies in lat. 10° 50′ and Cape Codera in lat. 10° 36′.

If you wish to anchor under Key Blanco, give its west edge a birth of half a mile, and haul up N. or N. N. E. until the middle of the key or the huts on it bear S. E. by E. S. E. when you may come too in from 3½ to 4 fathoms. If the current sets to leeward do not give the key so wide a birth, but you will see a reef to the westward of you, for which your eye must be your guide. If you draw but 10 feet water you may proceed to the harbour or near it, by bringing the W. end of Cape Blanco to bear S. E. ½ E. by compass (that is, after you have passed two reefs to the westward of you) and steer N. W. by N. until you cross a bank of 12 feet, and when you deepen into 4 or 5 fathoms you will be about a mile off a thick bushy point on your starboard hand; thence steer N. W. by W. or if there be any vessels in port keep in the middle between point and point; but if you get confused, the best way is to anchor and send on shore for a pilot. If you draw more than 12 feet water, I would advise you to go to the eastward of Key Blanco, and keep the blue water as long as you can, letting your eye be your pilot always and that from the mast-head.

From the Dispirited Keys *to* Cape Codera *or* Quadera.

The course between the two places is N. W. by W. distant 25 leagues; it is all a bold shore, so that you may run down along, close within 2 leagues, or less; and when you come within 2 or 3 leagues of the cape, there is a fine bay, wherein you may anchor, in what water you please, and good ground; you run so far into that bay, as to bring Cape Codera to bear N. or N. by E when you have 5 fathoms water, 2 miles from the shore. When at anchor, with the above bearings, and the cape distant 3 leagues, there is a lagoon W. S. W. from you, where you may get good fresh water; you will see a table land on the main, bring it to bear S. S. W. or S. W. by W. and you may run into that bay in the night by the lead, and anchor in what water you choose; inland it is very mountainous, but by the water side the land is low. This bay is called Capaya bay; several planters are settled round it, from which you can procure plenty of cocoa.

The Dispirited Keys *on the* Spanish Main.

The sailors have given this name to the small islets, called by the Spaniards Cayos de Ceritu.

From Salt Tortuga to those keys, the course is S. E. by S. or S. S. E. distance 18 leagues; they are low sandy keys, with some mangroves upon them, but no fresh water, lying about 4 miles from the coast; you go in round the N. end of them, within half a mile of which there are 6 or 7 fathoms water.

After you are got round the N. W. end of those keys, you may run the inside of them, keeping in 6, 7, or 8 fathoms water, one-

fourth of a mile from the shore, very good ground, and quite land-locked from all winds. You will have the little islands Boraritas 3 or 4 leagues to the E. N. E. The city of Barcelona bears S. S. E. from them, about 4 or 5 leagues.

The land on the main all along is high, mountainous, and uneven; the highest land along shore that you can see when at anchor there, bears W. S. W. distant about 5 or 6 leagues; there is but little to be got at this place, so we will proceed along the coast.

Description of the Spanish Main, *and the adjacent Islands, from* Margarita Island *to* Cape St. Roman.

The Island of Margarita.

From St. Vincent to Margarita the course is S. W. distance 62 leagues, and from Grenada to the same island, the course is S. W. by W. distant 45 leagues.

The island of Margarita is 12 leagues long, and lies E. by N. and W. by S. It is high land all through, except the W. part, on which is a low sandy point, running off shoal to the Pearl bank, which is joined to it.—Four or five miles inland from this W. end there is a very high part of land, with the appearance of a sugar-loaf on the top of it, which sugar-loaf seems as if it was falling down to the northward. Bring that high land to bear E. by N. and if you are bound to Tortuga, steer W. S. W. which course will carry you to that island.

The harbour of Pampata, situated on the E. S. E. part of the island of Margarita, is open to the wind from N. E. to S. E. The anchorage is good, and ground clear. Running into the bay, be careful and not border too close on the northerly part, as there is a small shoal that runs off about a cable's length. In coming from the eastward you may always know this harbour by a rock that lies off the town. The Friars are a cluster of small islands, six in number, distant from the N. E. end of Margarita 9 or 10 miles. The passage between the Friars and Margarita is clear and good from 12 to 14 fathoms, sandy bottom.

There is a good passage between the islands of Testigos and Sola, which is a rock that bears N.E. by E. from the body of the Friars, distant about 12 miles; you will carry from 15 to 27 fathoms between them, sandy bottom and clear ground. Sola is small and cannot be seen more than 7 or 8 miles from the deck of a frigate. The island of Testigos is high, with a number of small ones round it.

Vessels coming from the eastward, and wishing to run between the main and Testigos in the night, should steer well to the southward, before they keep off, as there is a current setting to the westward at the rate of 2 or 3 knots per hour, and should you steer a direct course, the probability is you would be drifted on Testigos or the Green boat before you are aware of it. The channel is clear and good, with regular soundings from 16 to 20 fathoms, sand and shells.

Directions for Cumana.

Sailing into the harbour of Cumana, be careful not to borrow too close to Point Araya, as there is a shoal that makes off the point about two miles to the westward.

The bank you anchor on is steep; you lie about one-half a mile from shore; the holding ground good. The town of Cumana lies two miles up a river that empties itself on the east side of the bay. The water of this river is excellent for drinking, and easy to be got. There are no soundings in the bay until you approach the shore within one mile.

The sea-breeze sets in here about 10 o'clock A. M. from the westward, and continues until 3 P. M. The land-breeze then comes off about east, generally in a light swell.

Laguira, which lies in lat. 10° 37′ N. long. 66° 59′ W. is an open roadstead, where you lie exposed to all winds to the northward of east and west. The bottom is hard, and holding ground not very good. Water not to be had in any quantity, but may be obtained five miles to the eastward. Westerly winds prevail during the months of June, July, and August, but do not extend over 30 miles from the coast.

The Island of Tortuga.

The Tortuga or Salt Tortuga, is a very low island, which cannot be seen above 4 or 5 leagues off; keep on the S. side of it, and anchor about a half or three-quarters of a mile to the westward of a low point on the S. E. part of the island; bring the low S. E. point to bear E. N. E. and you will have 18 or 20 fathoms water; and if you moor, your westernmost anchor will lie in about 30 fathoms, good ground; but do not go any nearer in, for the ground is very bad, on account of the merchant ships who load salt here, heaving their ballast out. You are to moor W. N. W. and E. S. E.

During all the fore part of the day the wind is at E. or to the southward of E. and in the afternoon it comes to the N. E. or N. E. by E.

The north side of Margarita lies in the latitude of 11° 10′ N. and Tortuga lies 10° 57′, bearing from the former W. by S. but in coming down, you must steer W. S. W. on account of a strong current to the N. W.

In approaching the island, be sure to come by the south side of it; for on the north side there are several reefs and shoals, which make it dangerous. The S. E. point of Tortuga lies flat, about half a mile off. Anchor to the westward of this S. E. point, bearing E. N. E. about half a mile, and then the south point of the island will bear W. by S. 6 or 7 miles. A little to the eastward of the south point there is a fine lagoon, which has 12 feet water, and more at the entrance; when you are in, you find a great plenty of wilks, conchs, craw fish; and some chicken turtle; there are abundance of goats on the island, but they are very wild; a large grove of trees is to be seen on the eastward of the island, but there is very little wood any where else, and only a little mangrove here and there.

The Island of Grenada.

The S. W. end of Grenada lies in lat. 11° 58′ N. and about long. 61° 52′ W. The eastern part, called the Cabesterre, is low land; but a ridge of mountains, which may be seen 14 or 15 leagues off, rises in the middle of the island, and runs N. and S. from one end to the other.

There is good anchoring ground all along the coast of Grenada, and on the east and west sides, several small bays and creeks, commodious for vessels, as well as for landing and shipping goods.

The grand bay, in which the port is included, as well as the careening place, lies on the west side, and has the form of an irregular crescent.—The true entrance of the port is from W. S. W.—several men of war have anchored and careened here, and all the pilots greatly commend the goodness of the anchoring ground, as well as its situation, which affords good shelter from the prevailing winds.

Just as you enter the port, there runs out a high rocky point, very steep on every side, excepting to the N. E. On this the Fort Royal, which is but small, is constructed in as regular a manner as the nature of the place will admit; but it is overlooked by the several heights which form and surround the harbour.

On the south side of the island, about 7 miles E. of point Salines, lies the harbour of Calvini which is very deep. It is divided into the outward and the inner port; the entrance into the former is above half a mile broad, with as much extent within; the entrance into the inner port is about a quarter of a mile in breadth, and its depth above a mile; it is for the most part 7 fathoms deep and excellent holding ground, being every where a soft oozy bottom. The ships here may lie alongside of the warehouses, and take in their loading with great ease and convenience; after which they can, with very little trouble, be towed into the outer harbour, which enjoys this peculiar advantage, that ships can sail in or out with the common trade wind.

From Brown's point (the S. W. end of Tobago) to Point Salines (the S. W. end of Grenada) the course is N. W. by W. 27 leagues. The S. side of Grenada is bold, giving it a mile or two birth; there being only two or three small rocky islands, and some rocks very near the shore. As you run down towards Point Salines, you will see the islet Ramier, a very small island, about one mile south, from the nearest shore, and 1½ mile S. E. from the point. Give that island a mile birth; you cannot go within it, as there is but little water. To the point Salines it is sufficient to give half a mile birth, there being no less than 7 fathoms. As soon as you are past that point, you open the Grand bay, and may borrow pretty nigh; turn up, and anchor to the northward of the fort, which bears from point Salines N. E. by N. A mile from the fort you will have 15 fathoms, clear ground, but higher it is much shallower, and a little rocky. If you go into the harbour, run close under the fort, and anchor midway, or rather nearest the fort, then warp up, all clear ground; there are 8 fathoms close to the town. It is full the third of a mile broad at the entrance, and very capacious within.

You are obliged to work up into Grand bay, at most times, by reason that it lies open to the westward, and the trade wind blows out of the bay.

The Granadines, *or* Granadillos.

The Grenadines form a chain of innumerable rocks and barren spots, good for little, which extend to N. E. by N. for about 16 or 18 leagues. Some, however, are of considerable size and value, particularly Cariuacou and Bequia, both inhabited, and producing good coffee and cotton.

Cariuacou lies about 6 leagues N. by E. ½ E. from the N. W. of Grenada; it is of a circular form, of about 6 miles in length and breadth, and has a commodious harbour.

Bequia, called also Little Martinico, is the northernmost of the Grenadines, and lies about 2 leagues S. from St. Vincents; on the W. side it has a very good sandy bay, where you may ride occasionally; and wood is to be got there, with plenty of fish, but no water. The little islands to the southward of Bequia, are very fair, and near them you may stand boldly, having neither rocks nor dangers you need to fear.

N. by E. course from Point Laurent, or the N. W. point of Grenada will carry you clear along the Grenadines.

Observe that, towards the south part, it is rather dangerous to come near in the night.

The Island of St. Vincents.

From Bequia to St. Vincents, the course is north about 2 leagues. The channel between those two islands is very good to come through, if bound from Barbadoes to the Salt Tortuga, or the Spanish Main; and there are small trading vessels which work up through it. St. Vincents is about 5 leagues long, and lies nearly N. and S. and E. and W.—the north end, which is much higher than the south part, is inhabited by about 2000 natives, or Caribs. On the north end there is a volcano, called La Souffriere, or Sulphur hill, near Spanish point. On the west side of the island, which is bold, are several bays, having all of them fresh water rivers, and on the S. W. side you make good anchorage, as near, or as far off, as you please, especially in Kingston bay, where the chief town is situated. But the best bay of the island is Balair bay, called formerly Bay St. Anthony; when you turn up between St. Vincents and Bequia, you will see a large bluff of land, and just to windward of that is Balair bay or Calliaqua; the shore is bold on each side; run into 19, 20, or 15 fathoms and anchor; there are two rivers which run into the sea.

St. Vincent is within sight of Barbadoes; the course from Carlisle bay to the south end of St. Vincent, is W. northerly 33 leagues. If you intend to anchor in Kingston bay, you will see a small high peaked island called Young's island; pass the bay to leeward of this island, and go round a long sloping point; you may borrow within pistol shot; but if the wind takes you short, you may anchor in 35 fathoms, and warp in. There is a small ledge of rocks close on the weather shore, within 6 fathoms.

The Island of St. Lucia.

From Spanish Point, the north end of St. Vincent, to the Pointe de Gros

Piton, or the S. W. point of St. Lucia, the course is N. E. ½ E. 7 leagues; there is a deep and good channel betwixt the two islands.

St. Lucia, which is about 9 leagues in length, and about 4 in breadth, is a very high and broken land covered with forests. Some of the mountains rise like pinnacles, to an astonishing height, and are very steep; others have broader bases, and are covered with woods, to the summit, which terminates in the craters of the volcanos. These volcanos indeed are all exhausted, except one, which the French call La Souffriere, (The sulphur hill,) on the S. W. end of the island. The crater lies on an eminence, between two mountains.

About 1½ miles to the west of the volcano, on the seashore, stand two high peaks, called by the French, Les Pitons, and by the English, the Sugar loaves; they lie very nigh each other, but between them is opening enough to distinguish them both, when you come from the southward.

On the west side of St. Lucia, less than 3 leagues from the Gros islet, is the Carenage, one of the best harbours in the West Indies, with deep water, and exceeding good ground all over. Three careening places have been formed there by nature, which want no wharves, and require nothing but a capstern to turn the keel above water. Thirty line of battle ships would lie there, secure against the hurricanes, without the trouble of being moored.—Add to this that no ships can enter without warping in; there is always a breeze to carry one out, and in less than an hour, the largest squadron may be in the offing. The shores here are so bold, that a first rate man of war may come within 6 yards of them.

A league to the southward of the Carenage, lies the Grand Cul de Sac, and two leagues to the northward, the Bay of Gros Islet, both excellent roads for large vessels.

The course along St. Lucia, from the point Du Gros Piton to the Gros islet, is N. N. E. 9 leagues.

When bound from the northward to the Carenage, you will see a bluff two leagues to leeward, which you may make bold with; you must haul close in to see the harbour, run into the mouth of it as far as you can fetch, and warp in; when the sun shines you will see all dangers.

If at any time you should have occasion to anchor at the south of St. Lucia, there is a fine deep bay, called Man-of-War bay, (*Ance de Vieux fort*, by the French) under the S. E. bluff; you may turn in till you bring the south point to bear S. S. W. and anchor in 7, 8, or 10 fathoms, good ground. There is a river in the north part of the bay running into the sea; if you water there you must go up half a mile in your boat, except after great rains, when you may fill at the mouth of the river.

The Island of Martinico.

From the north end of St. Lucia, called the Cape, to Point Salines, or the south end of Martinico, the course is N. about 9 leagues. This is the narrowest part of the channel that divides the two islands.

From Gros-islet bay to Diamond rock, the course is N. by W. about 9½ leagues.

Martinico is about 12 leagues in length, and lies N. W. by N. and S. E. by S.: its breadth is extremely unequal, and scarcely any where more than 4 or 5 leagues; and if you include the promontories, which project

in many places one or two leagues beyond the rest of the island, its circumference will include above 30 leagues. The land is very uneven, and every where intersected with large hummocks, in the form of sugar loaves. Three mountains rise above these innumerable hummocks, the highest of which has been a volcano; it appears like the crown of a hat, and may be plainly seen from any side of the island.

Port Royal, on the south side, and at the bottom of a deep bay, called the Cul de Sac Royal, is the chief town of Martinico. It is very advantageously situated, near an excellent harbour, and under cover of a peninsula, which is entirely occupied by a fort. That part of the Cul de Sac is called the Carenage. The town is situated to the N. N. W. and N. W. of the fort.

The harbour and the road are incumbered with several keys, or shoals, composed of hard gravel, limestones and coral; those keys, from their number, as well as from their situation, are very dangerous to strangers; but they may be considered as the safety of the road and harbour, since no large ship would attempt to sail among them without a thorough knowledge of the channel. The watering place is at River Monsieur, to the east of the fort.

Point Salines, or the south end of Martinico, is low land, and has three small rocks, or islands. When they bear W. from you, you may see between them and the point; within this point, to the westward the English ship Raisonable was lost, off Fort and point Garden; it must therefore be avoided.

The Diamond Rock, and the southernmost little island, (called Calrit island) at Point Salines, lie from each other W. 19° N. and E. 19° S. about 12 miles. This rock stands about a mile from the shore. There is no going within the rock, but on the S. side it is bold. From Diamond Rock to the entrance of the Cul de Sac, or Port-Royal bay, the course is N. N. W. distance 2 or 3 leagues. There are three small coves between, the southernmost of which is called Little Diamond cove, and the two others Les Ances d'Arlet. The N. side of the bay is bold, and so is the south side, till you get above Pigeon island, (*Islet a Ramiers*) which is a small green island on the south side of the bay, bearing from the fort about S. by E. In working into this bay, observe to keep your lead going; when standing to the southward, if you weather Pigeon island, you may anchor in what water you please.

There is a ground about the middle of the bay, the lower end of which lies a mile and a half below the fort; it runs a long way up the bay, above the fort; the least water on it is 3 fathoms, but there is from 10 to 20 fathoms on each side of it. Below that ground you may stand bold over from side to side.

If you are bound from Barbadoes to Martinico, the course is N. W. by N. allowing for a lee current, or N. W. about 29 leagues, will bring you from the N. end of Barbadoes to Point Salines; then you may shape your course along shore for the Diamond; there is no danger if bound for Port Royal. When past the Diamond 3 leagues, you will see a large bay open; haul up, and the fort will be in view. Turn up towards the fort, till you bring it N. or N. by E. then you will anchor in 8 fathoms, two miles distance. If desirous to go farther in, you will get off the bank, and come into 14 or 17 fathoms; that is the deepest and best ground. In upon the bank, the ground is corally, but no rocks. If you anchor in the bay against the town, bring the church to bear N. and steer right in, by reason of a bank off the fort, not above 6 feet water thereon. You may make bold

with a low point to the westward, called Point Negro, and all the shore on that side, but the foregoing. If bound to Pigeon's island bay, go round the N. E. point, and you will see open between the island and the main, a small channel for sloops, when very well acquainted; but go round the island, and borrow as near as you please and turn in. The south shore is steep too; bring the westernmost part of the island to bear N. W. by W. or N. N. W. and you will anchor in 7, 8 or 9 fathoms: the bay is clear ground, but do not anchor too near to the eastern shore, by reason of a bank that breaks, when a great swell.

In April, 1772, the variation of the needle was found at Port Royal, by repeated observations to be 3° 52′ east. Tides have been observed in the Cul de Sac Royal, as well as in other parts of the island; at the equinox, they rise about 16 inches, and at other times between 8 and 12 inches, French measure.

Pierre, (St. Peter,) the trading town of Martinico, lies about 4 leagues to the N. W. of Port Royal, in 14° 44′ N. latitude. It is built partly upon the rising grounds, at the foot of a ridge of hills and partly along the shore of a spacious, circular bay, which forms an open road to the southward and westward. The best anchoring place, called the Frigate's anchorage, lies in the southernmost part of the road, (where you see some steep cliffs and rocks,) in 7 fathoms, gravelly ground. If you bring the highest steeple of the town N. by E. somewhat northerly, and Point Carbet (on the south side of the road) south, you will have 7 fathoms, oozy ground.

If you intend to stay some time in this road, it is proper you should lie with one anchor close to the shore, to the S. E. or E. S. E. (or even on shore) and the other to the N. W.

In the hurricane months, that is, from the 15th July to the 15th October, ships cannot lie with safety in this road, and ought to leave it on the 15th July at farthest. If they are to remain for a longer time at Martinico, they must retire into Port Royal bay, where they lie secure against the hurricanes; they may also find shelter in Trinity bay, to the windward, and on the north side of the island. The whole circumference of Martinico, as we have observed already, is indented by large bays, at the bottom of which are fine sandy coves, and very good harbours, sheltered by long points, projecting into the sea, but all these are not safe in the winter season.

When you come from the eastward, if you intend to sail by the north side of Martinico, you are to take your departure from the Caraveta, a small rocky island that lies 2 miles north of the easternmost point of the island, in 14° 48′ north latitude; in running along which you will be exposed to sudden flurries, which are very frequent on account of the narrow openings of the mountains, and if the top-gallant sails are up, you must keep a lookout after the halyards.

Point Macouba, the northernmost of the island, is in 14° 55′ north latitude, is remarkable for a waterfall of the same name; it is a kind of torrent falling into the sea from the top of a high rocky coast.

About 5 miles further W. by S. you will see a round rock, detached from the land, called the Pearl, and to the southward of it are the little islands of the Precheur. Soon after Point Precheur presents itself, which ends in a flat hummock, with a plantation upon it; the town is more to the S. E. Beyond that point you discover two others in one line; the first, called Morne au Bœufs, (Oxen point,) terminates on the south side, the road of Fort St. Pierre, including the coats of Carbet; the second is Diamond point, already mentioned, to the S. E. of Port Royal.

Having doubled Point Precheur, you descry the ships, which lie at anchor in the road of Port St. Pierre; as they have every one of them awnings, on account of the intense heat of the sun, you would take them at first sight, for so many white houses whose roofs are built like a terrace; you cannot come to anchor close hauled; the winds which prevail always from the E. and E. N. E. oblige you to make several trips to come to it.

A TABLE

Of the Latitudes and Longitudes of the principal Places and Headlands of Martinico.

NAMES OF PLACES.	*N. lat.*			*W. long.*		*fr. London.*
Cape Ferre the easternmost of the island	14°	27—		60°	48′	—
The southernmost island of Point Salines (Isleta Cabrit)	14	23—		60	52	—
Diamond Rock	14	24—		61	06	—
Cape Solomon, or Grosse Point, beyond Pigeon island	14	30	45	61	07	—
Port Royal (observed on shore)	14	35	55	61	09	—
Morne au Bœufs	14	41	55	61	10	36
St. Pierre (observed on shore)	14	44—		61	10	41
Point Macouba, the northernmost of the island	14	56—				
Cul de sac Robert, on the north side	14	42—		60	50	

Bearings of Sundry Rocks, Points, &c. at Martinico.

Diamond Rock, and the southernmost island off Point Salines,	W. 19° N. and E. 19° S.	*True North.*
Diamond Point, and the point of Les Ances d'Alert	S. E. 3° E. and N. W. 3° W.	
Cape Solomon and Point Precheur, the westernmost of the island	S. 35° E. & N. 35° W.	
The Pearl Rock and Point Potiche	W. 31° S. and E. 31° N.	
Point Precheur, and the S. W. point of Dominico, called Cachacrou, or Scot's head,	S. 18° E. and N. 18° W.	

In coming out of Great Diamond cove, and having opened the north shore of Martinico, the westernmost part of Dominico just appears in sight, and bears by compass N. N. W.

The Island of Dominico.

From Pearl Rock near the N. W. end of Martinico, to Point Cachacrou, or Scot's head, in Dominico, the course is about N. N. W. 7 leagues. This island is about 9 leagues in length, and lies near N. N. W. and S. S. E. It is extremely mountainous, and appears rugged and broken. It bears in great plenty all the woods which are common in the West Indies, and produces abundance of what they call ground provisions. There are properly speaking, no harbours in Dominico; but there is good and safe anchorage along the west side, which is all bold: though ships lie exposed to strong westerly winds, as indeed in almost all the roads of the Carribee islands: but those winds prevail only in the winter months. The road of the town of Roseau is better than that of St. Pierre, in Martinico, the soundings being more gradual, and you can anchor in from 15 to 25 fathoms, good holding ground all over.

About 4 miles from the north end, lies a most noble bay, called Prince Rupert's, which, besides its safety, its magnitude, the depth of the water,

and the goodness of the anchorage, has the advantage of three fresh rivulets running into it.

On the north side is the high remarkable bluffs, called Prince Rupert's head, by which the bay is easily known. The south point (Rollo's head) is pretty low, but both points are bold too, so that in working in you may stand boldly over from side to side, which is near 3 miles over; the bay is about 1½ mile deep; you may anchor in what water you please, and moor W. N. W. and E. S. E.; the best anchoring is rather on the north side. There are three rivers running into the bay, where you may water, but the middle and north rivers are to be preferred. The best wooding place is on the north part of the bay.

If you are bound to Dominico from Barbadoes, you must steer N. N. W. till you pass Martinico; then a N. W. course will carry you to the northward of Dominico. Leaving Mariagalante on the starboard side, haul up close in with the north point of Dominico; you will see a round bluff, making like an island, if at some distance; go round that, and open Prince Rupert's bay; turn into the north part, and anchor in 7, 8, or 9 fathoms. You will see the mouth of a large river, which anchor to the northward of half a mile, and you will be opposite to a small river, which you water at, the best in the bay; the great river is brackish. There is another river to the southward, where you may anchor in 6 fathoms, clear ground; but in 10 fathoms you will have coral rocks.

The town of Rosea lies in 15° 18′ north latitude, and 61° 26′ west longitude.

The island of Guadaloupe, *and its Dependencies—viz.—The adjacent islands called* The Saints, Mariagalante, Deseada, *or* Desirade, *and* Petite Terre.

The island of Guadaloupe, one of the largest of the Carribees, is near 60 leagues in circumference; its form is very irregular; it is cut in two by an arm of the sea, called the Salt river, diminishing in width from 50 to 15 fathoms, whose soundings are in some places deep enough for a ship of 500 tons, whilst in others they have scarce water enough for a bark of 50. The length of this strait is about 2 leagues.

That part of the island on the west of Salt river, which gives its name to the whole colony, is divided into two by a ridge of very high mountains running north and south. Towards the south point rises in the middle region of the air, a mountain, called La Souffriere, (Sulphur hill,) like the volcano of St. Lucia, that exhales a thick and black smoke, mixed with sparks, which are visible in the night.

The chief place of Guadaloupe is the town of Basseterre, on the west side, near the south end of the island, in lat. 15° 59′ 30″ and long. west from London 61° 47′. The course from Prince Rupert's bay, in Dominico, to the road of Basseterre, is N. W. by N. 10 leagues.

The English ship the Temple, being at anchor in Basseterre road, the westernmost part of the Saints, and some part of the west side of Dominico were in one, bearing S. E. by S. by compass. Then Montserrat bore N. W. northerly, and the westernmost part of Basseterre bay N. W. by N. distance one mile.

The French frigate La Flora, being moored N. N. E. and S. S. W. in this road, in 7 fathoms, sandy ground, and the small anchor in 37 fathoms, same ground, had the following bearings by compass:

Old Point Fort to the S. E. 2° S. in one with the Westernmost Saint.	
The Fort to the S. W. of the town	S. E. by E.
The Church	N. N. E.
The N. W. end of the town	N. by W.
Point Irois	N. N. W.
The southernmost point of Dominico	S. E. by S.

THE SAINTS are 5 or 6 small islands, the two larger of which are known by the names of Terre d'en haut (or the upper land) which is the easternmost, and Terre d'en bas (Lower land) which is the westernmost. According to a very exact bearing, the S. W. point of the westernmost Saint lies S. 27° 30′ E. of the S. point of Guadaloupe, distance 8 miles; the least depth between them and the main island is 17 fathoms. But the best channel is on the south side, for in the former there is a sunken rock, which lies 1½ mile from the Saints. These islands are so happily arranged, that in the midst of them there is as fine a road for shipping as any in the neighbourhood. The Saints are all bold too, though they appear to be a parcel of rocky islands.

The island of Mariagalante, about 9 miles to the eastward of the Saints with a good channel between, is about the height of Barbadoes, and rises gradually towards the north. At the south end, and the east side, are dangerous rocks under water, and reefs which stretch about one league into the sea; but the west side is a good fair white shore, with good anchorage in several places.

From the north end of Mariagalante to Deseada, the course is N. N. E. about 5 leagues, and the channel good, keeping the middle; but there is a very small sandy island, called Petit-Terre, which lies right in the fair way; it is about 3 miles long from N. W. to S. E. and is divided in two by a channel, where small vessels may anchor. It is not safe to come within more than 2 miles of Petit-Terre. It lies E. S. E. from the east end of Grand Terre (Point Chateau) which is remarkable by a parcel of gray rocks, distance about 5 or 6 miles. There is no passage between Petit-Terre and the main island for any thing but small craft. There is pretty good anchoring by Petit-Terre, to the westward, 2 miles from shore, in 7 fathoms water; then the west end of Deseada will bear N. 27° E. and Point Chateau N. 80° W.

DESEADA, or the Desirade, one of the smallest of the Carribees, lies 5 miles to the N. E. of Point Chateau. It is a kind of rock without water, where they cultivate some cotton. This island lies E. N. E. and W. S. W. having no trees upon it, and is shaped like a galley, its E. N. E. end making like the head or prow, and the S. W. end like the tilt of the galley; but coming near, and passing by the north end of it, you will perceive white broken patches, like heaps of sand, with red streaks in them. On the north side there are some rocks under water. There is anchorage at the S. W. part of Deseada, distance 1½ miles from some houses that stand by the shore side. You may anchor in from 5 to 7 fathoms water, taking care to look out for a clear spot, to let your anchor go in, for the ground is rocky; and when at anchor, Petit-Terre will bear south-easterly, distance 7 miles, and Point Chateau south-west distance

4 or 5 miles. Point Chateau the easternmost part of Grand-Terre, is known by a hummock upon it, and between it and Deseada there are 22 or 23 fathoms water.

There are gradual soundings between Mariagalante, Grand-Terre, and Gaudaloupe, as far as Point Peter, (Point a Petre, near which stands the fort of Grand-Terre,) but if you are to the eastward of Deseada, and bound for Point Saline in Martinico, the best way is to keep up S. or S. by E. as there is most commonly a current that sets down between the island. From Deseada the distance is about 39 or 40 leagues. From the N. W. end of Barbadoes the course is N. N. W. distance 66 leagues to Deseada.

Bearings and Distances about Gaudaloupe, Mariagalante, the Saints, &c.

From the N. W. end of Barbadoes to the E. end of Mariagalante the course is N. 31° 34′ W. distance 59 leagues, and when Mariagalante bears between N. W. by W. and N. W. ½ N. the distance is 5 or 6 leagues.

The east end of Mariagalante, Petit-Terre, and Deseada, bear when in one, N. N. E. and S. S. W.; the distance between the east end of Mariagalante and Deseada is 5 leagues, and Petit-Terre is midway between both; when Petit-Terre bears between S. W. by W. and W. S. W. then the north part of Dominico bears S. W. by S.

Mariagalante is in length about 3 leagues; the west part of it, and the S. side of the Saints bear by compass W. ¾ S. distance 5 or 6 leagues, but the north side of Mariagalante and the south side of the Saints, bear W. S. W. ½ W. and E. N. E. ½ E. When the west part of the Saints, and the S. E. point of the Grand-Terre, or Point a Saint, are in one, they bear N. N. E. easterly. When the northernmost part of the Saints, and the southernmost part of Mariagalante come in one they bear E. When Point Royal (the south point of Gaudaloupe) and the south side of Mariagalante come in one they bear E. by S.

The big rock of the Saints, and the north side of the westernmost Saint lie E. 21° S. and W. 21° N.

A peak on the north part of St. Lucia, and the west point of Martinico, lie S. 17° E. and N. 17° W.

The north point of Dominico, and the end of the easternmost Saint, lie E. 41° S. and W. 41° N.

The south point of Gaudaloupe, and the easternmost land of the Saint lie N. 41° W. and S. 41° E.

The south point of Gaudaloupe, and the southernmost point in view of Dominico, lie N. 26° W. and S. 26° E.

Bearings about Deseada, Petite-Terre, and Mariagalante.

From the hummock of Point Chateau, the westernmost point of Petite-Terre, (called Sandy Point,) lies S. E. by S. 1° E. distance near 5½ miles.

The latitude of Sandy Point is 16° 7′ or 8′, and its longitude 61° 10′.

The Hummock called Cuve a Pierre-graize, on the north part of Mariagalante, lies from Point Chateau, S. by E. 5° 45′ E. distance 3 or 4 leagues. Its latitude is 16° 2′ N.

The Cove, called Anse du Galet which is the southernmost of Deseada, lies N. E. 4° 30′ E. from Point Chateau, distance near 4½ miles. Its latitude is 16° 17′ N. and its longitude W. 61° 10′.

From Basseterre road, in Guadaloupe, should you want to go to Antigua, the best way is to weigh at night, and sail at a proper distance from the shore, in order to keep the land winds, and they may carry you to the northern part of the island by morning, where you will come into the sea winds, to carry you across. If you should do otherwise, you might be catched by the baffling winds from under the high lands, which are here.

Off the N. W. part of Guadaloupe, there is a small island about a mile from the shore but there is no going within it. Two miles to the eastward of this island lies a small rock, 2½ miles from shore, which looks gray, and is very high; that rock is called the Englishman's head.

The course, in turning along the island to the Englishman's head, is N. W.—North, and N. N. E. about 10 leagues, and from the Englishman's head to Johnson's point, in Antigua, the course is N. by W. about 14 leagues.

From the north point of Grande-Terre, called Antigua point, to English harbour, the course is N. N. W. 11 leagues.

The Island of Antigua, *with* Barbuda.

This island is of a circular form, and about 22 leagues round, having a rocky shore, and being surrounded with many dangerous reefs. It has excellent harbours, particularly English harbour, on the south side, which is capable of receiving the largest ships. English harbour is at a small distance off the town and harbour of Falmouth. There are besides Willoughby bay, to the windward of English harbour; Nonsuch harbour on the east point; and the town and harbour of Parham on the north side, without speaking of a great number of creeks, and smaller bays. But the principal trade is carried on at the harbour of St. John on the west side, where the capital stands, and which has water sufficiently deep for merchant vessels.

Instructions for sailing into St. John's harbour, *coming from the* Southward.

As you come nigh the Antigua shore, you must give the west part of the island a good birth till you open Sandy Island; bring it north or N. by W. and keep your lead going: you may keep by it in 11 or 12 fathoms water, and continue so if you want to go between Sandy island and the main, or until you open the houses upon the little rising hill within Pelican point. This is the leading mark or the main side. As for Sandy island, it is pretty bold too, and the shoalings may be seen in the day time. The Ships's stern, is also bold too. In working into the road, you may stand so far to the northward, as to bring Ship's stern, S. S. E. then about. By these directions you may work into St. John's road, between the Wallington rock and Ship's stern. The rock shows itself by the water breaking upon it.

If you sail from the southward to St. John's road, within Sandy island, bring the westernmost of the Five Islands N. by E. ½ E. of you, when

you are off John's point, and keep those islands open on the starboard bow; that will carry you clear of a sunken rock and sand, off Fry's or Bermudian valley. Keep a mile distance from the westernmost of the Five islands, and you are in the channel, or keep Sandy island on your starboard bow till you open the Hawk's bill, and then luff.

To avoid the Nine feet bank, the south end of which lies about W. by N. from Sideserfe's mill, which bank is about two miles from the shore, and one mile in length, but very narrow; keep Will Knight's house open with Ship's stern, and in not less than 5 fathoms, for at 4 fathoms, you are immediately on it.

The vanes of Sideserfe's mill shutting in with the high land to the northward of the mill, then you are just on the south end of this bank.

If you are obliged to turn between Sandy island and the Nine feet bank, you may stand close to Sandy island; but put about when in 5 or 6 fathoms, off the bank.

From Ship's stern to the Wallington, ...	N. 1½ mile.
From the Wallington to the Diamond, ...	N. 3 do.

If coming from English harbour you are bound to St. John's harbour, observe that from the former to the eastward, the shore lies E. by N. and W. by S. Down abreast of Johnson's point, and two leagues to the eastward of it, is foul ground about two miles off shore. Give the island a birth of at least 3 or 4 miles, and when you come down as low as Johnson's point, haul towards the N. N. W. and keep your lead going; then steer for Sandy island, which will bear N. or N. by W. of you, and if the wind will allow you, you may run within Sandy island, where you will not have less than 7 fathoms: however, it is better for a stranger to go to leeward of Sandy island. Be sure you do not stand above 3 or 4 miles to the northward of the island, on account of the lee current that comes down to the north side of it, as well as of several shoals which lie to the N. E. of the same. But when you can fetch Ship's stern, you may stand boldly towards it, and anchor in what water you please, from 6 to 12 fathoms water. If you keep in 15 fathoms, that will run you without Sandy island, that is to the westward of it, in case night should come on. There is a bad shoal which lies N. N. E. and N. E. by N. from Ship's stern, distance about 1½ mile; when it blows, you may see the breakers on it; it is called the Wallington. The channel is on the south side of it, up to St. John's harbour.

If, in the day time, you are running down the south side of Antigua, you may haul in for Johnson's point till you bring the India creek land to be seen a good sail's breadth open with Old road bluff; run down with that mark on, till you bring the largest of the Five islands to bear N. E.½ E. then steer northward; that course will carry you clear of the Ten feet bank, which lies off the south side of the Five island's; likewise of the nine feet bank that lies off the north point of the Five island's harbour; and when you bring the Hawk's bill to bear east, you may haul up as nigh Ship's stern as you please, within Sandy island.

To anchor in St. John's road, bring the Ship's stern S. W. by W. and St. James' fort E. S. E. and the Wallington N. by W. and you have 7 fathoms water, good ground.

In 1772, the French Frigate La Flore being moored in this road, in 9 fathoms, fine sand, had the following bearings by compass.

Sandy island	W. by S.	3° 15′ W.
The Ship's stern	S. W.	1 30 W.
The Flag-staff of the Fort	S. E.	2 00 S.

The Point (probably Corbizan's point)	N. E.	1°	00′ N.
The Great Sister	N. E. by N.	1	15 E.
Willington, or Wallington Rock	N. by E.	0	30 N.
The North end of Montserrat	S. W.	3	00 S.
Redondo	S. W. by W.	1	45 W.

St. John's is a bar harbour, there being a sand which stretches off from the N. of the harbour S. W. home to the land on the south side. The deepest water is on the southernmost part of the bar, where you have 14 feet; on the north is but 12. In coming in, you must keep along the S. shore, as there is nothing to hurt you from Ship's stern, all along into the harbour; you may come so near Ship's stern as to cast a stone ashore, having 11½ fathoms close by it.

From the N. W. part of Guadaloupe, or Englishman's head, to English harbour, the course is N. distance 13 leagues. This is a very safe and fine harbour; it lies close under the W. end of the easternmost highland, but a little to the westward of that the land is much higher. It is sheltered from all winds, and ships commonly lie there in the hurricane months. You may anchor in the bay, without the harbour, in 5, 6, or 7 fathoms water, and warp in; for unless you can lie N. N. E. you cannot lie in it; besides, the wind is apt to flutter you. Give the low point on the starboard point a good birth, and keep mid-channel, if you can. The most water is 4½ fathoms, and the same in Freeman's bay; but there is at most times smooth water. However, it is not safe for a stranger to carry a ship in, on account of the bar, and the narrowness of the entrance.—When you come off the harbour, the master-attendant, or a pilot, comes on board.

Large ships lie at proper moorings, but small ones lie with one anchor to the E. S. E. the other made fast astern on shore. There are four moorings for ships in Freeman's bay, just within the harbour's mouth; the best bower to the westward, and the moorings on the shore to the eastward.

No wood or water there. You can get your water at Falmouth, about 1½ mile to the leeward; and is not very good, being very soft, muddy, and brackish. No tide. Variation 4° 50′ E.

To sail into Falmouth harbour, you must run in close to the west point, called Proctor's point. There is a ledge of rocks which covers the middle of the inlet; from thence it is shoal to the eastern, or Governor's black point. About 3 miles W. by S. lies Carlisle bay, or Old Road, where you can get the same water as at Falmouth harbour.

Three miles to the N. E. of English harbour lies Willoughby bay; the going into this bay is on the west side; for on the east side stretches off a reef within half a mile of Sandy island, and in the middle of the channel lies a spit with only 9 feet water upon it; between Sandy island and the spit there are 4 fathoms; between the spit and the west end of the reef there are 7 fathoms, and the channel wider. It is better, however, to sail in close on board Sandy island, and anchor in 4 fathoms.

Nonsuch harbour lies 3 or 4 miles farther up, at the east end of Antigua. On the south side is Green island; the best going in is between this island and the south part of the harbour, where you have 5 fathoms water, for the northward of this island is all rocky; this harbour must not be attempted by a stranger.

Sailing directions for the north side of Antigua.

When you make the land, give it a birth till you come a quarter down; then haul in till you come into 14 fathoms, and then you may run with safety, keeping that draught of water. If the water should shallow, haul off, but if deepen, haul in till you bring in Ship's stern to bear S. ½ E. Then haul up for the fort. There lies a bank off Great Bird island, bearing N. N. E. 1½ mile; white ground may be seen 1½ mile before you come to it. The best water on it is 3 fathoms. West-northerly from that 3 miles, and about the same distance north from Barnicle Fort point, lies Addison's shoal, where there are no more than 4 feet water, and 3 fathoms round it —N. by W. westerly, distance not a mile, there lie two other shoals, having 3 fathoms water at least. West from thence, distance a good half mile, lies the Horse-shoe, sometimes above water, and bearing north from Prickle pear or Beggar's point, distance 1½ mile. A little to the westward of the point, there is a wind-mill, and about one-third of a mile further to the S. W. there lies another, which are very good marks to come inside of the reef; steering between the two mills, it will make the course S. by W. the least water in coming in is 5 fathoms, and the inner part of the channel 9 fathoms. There lies a small shoal with 5 feet on it, distance from the Horse-shoe, S. W. by W. not quite 1½ mile, and about the same distance N. W. by W. from Prickle pear. There runs another small shoal from Prickle pear, about half a mile westerly, but it is to be seen. West from the last mentioned shoal the head of the reef begins, which bears from Boon's or Peyerson's point N. about one mile, and near the same distance from the small shoal. Bring Boon's point to bear S. by W. westerly, and you may steer in, then making that course good to come within the reef. The westernmost part of the reef bears N. from the Sisters, above 1½ mile.

There are so many shoals and spots without the reef, that it is dangerous to come too nigh: one in particular, which is called the Diamond, lies a mile to the west of the reef, and in the channel between, you have 6 and 5½ fathoms, which channel you are in whilst you keep the west side of the leewardmost Sister in a line with the fort's flag-staff. The Diamond is of a round form, being one mile in length and as much in breadth; the depth upon it from 1 foot to 9. To avoid it you must bring Ship's stern to bear S. by E. before you haul up with the fort, and then look out for Wallington rock; if the wind will serve, you may go close to the westward of the westernmost Sister, and then you will weather Wallington rock, which bears north from Ship's stern above one mile; the westernmost part shoals from the breakers a full cable's length, but to the eastward it is bold too.

On the north side of Antigua, and to the south of Barnicle fort point, lies Parham harbour, a place for small ships, but very difficult for a stranger to sail in.

Barbuda is a low flat island, about 3 or 4 leagues long, to the north of Antigua; off its S. W. and N. W. points, there are spits of sand, which extend a long way into the sea; and on the west side lies a good road, where you may ride in 9, 12, or 14 fathoms water.

The course from Ship's stern to the south side of Barbuda is N. N. E. about 10 leagues.

The Islands of Montserrat, Redondo, Nevis, *and* St. Kitts.

From St. John's road, in Antigua, to the N. W. end of Montserrat, the course is S. W. near 7 leagues.

From St. John's road to the south end of Nevis, W. near 12 leagues.

From the west point of Montserrat to the south end of Nevis, N. W. ¾ N. 8 leagues.

From the south point of Nevis to Horse-shoe point (the southernmost of St. Kitts) N. W. by W. 2 leagues.

Montserrat, so called by the Spaniards, from the resemblance it bears to the mountain of that name near Barcelona, is a little island, about 9 miles in length, and 7 or 8 in breadth, being nearly of a circular form; its northernmost point lies in lat. 16° 50′ N. The east side of Montserrat is very high land, and not cultivated; the west side declines gently towards the sea, and is covered with fruitful plantations; towards the middle of the west side is the town, with the road where large ships can anchor: but the shipping and landing of goods is attended with many difficulties; as well as in the two other roads of the island, which has no harbour.

To the N. W. by N. of Montserrat, distance about 2 leagues, lies Redondo; which is nothing but a high barren rock, without inhabitants; it appears like a hay-cock, and has its name from its round form; it can be seen at 9 or 10 leagues distance.

Nevis is a very small island, little more than 5 miles long, and 4 in breadth; it lies N. N. E. and S. S. W. to the E. S. E. of St. Kitts, from which it is separated by a channel called the Narrows, about 2 miles broad. The island is easily known, being low on both sides, and very high in the middle. The top of this middle high land, which makes like a saddle, when you come athwart of it S. and N. reaches far above the clouds, the sugar plantations lying on the sides of it, near the bottom. On the west part are two fresh-water brooks; they have three tolerable roads or bays, on the principal of which, near S. W. point, is Charlestown, the chief place of the island.

In sailing through the Narrows, the first land that comes in view is the top of St. Martin's making like three small hills joined together, the middlemost and highest bearing S. W. by W. When the middle of St. Bartholomew bears W. distance 4 or 5 leagues, the west end of St. Kitts bears S.W. by S.—St. Eustatia S.W. ½ W.—Nevis S. In lat. 17° 29′ N. St. Bartholomew bears N. N. W. ½ W.—Saba W. by N. ½ N.—St. Eustatia W.—St. Kitts (west end) W. by S. southerly. The going through the Narrows, S. by W. and Nevis (N. E. point) S. easterly. When Saba is in one with the middle of St. Eustatia, and both on the northernmost part of St. Kitts, and at the same time Redondo in one with the northernmost part of Nevis, then all will bear N. E. and S. W. and before you come to the Narrows, you will see a high rock (called Booby island) about midway the channel, between Nevis and St. Kitts; keep it on the larboard side or rather keep nigher St. Kitts' shore. But you must keep Nevis' south point open of the aforesaid rock to the westward, to avoid a reef of rocks that lie without the great one. This rock and the northernmost part of Nevis, when in one, bear S. E. by S. easterly; and Nevis' south point will then bear S. ½ E. But to the southward of the aforesaid rock, about one mile,

are two lesser rocks above water (called the cows): these you must also keep on the larboard side, and rather be nearer St. Kitts' side; there you will have 4½, 5, and 6 fathoms, with good ground to anchor, in case of necessity.

The island of St. Kitts is 13 or 14 leagues in circuit, the length about 5, and the breadth a league and a half, except towards the south where it is narrowed by an isthmus, which joins it with a headland, about a league long, and half a league broad. The centre of the island is taken up by a great number of high and barren mountains, intersected by rocky precipices, almost impassable, and in many of which issue hot springs. Mount Misery, which is an exhausted volcano, whose head is hid in the clouds, is the highest of all those mountains, its perpendicular height being 3711 feet. At a certain distance it bears some resemblance to a man who carries another on his back; and this appearance, true or false, engaged Columbus to give the island the name of St. Kitts, in memory of the legendary tale, which supposes this saint to have carried the child Jesus on his shoulder over an arm of the sea. The assemblage of those hills make St. Kitts appear to those who approach by sea, like one huge mountain covered with wood, but they find, as they come nearer, that the coast grows easier, as well as the ascent of the mountains, which rising one above another, are cultivated as high as possible. The S. E. part, when you sail along at 2 leagues distance, appears like a heap of detached islands, occasioned by there being low lands between the mountains. The N. W. part is the highest, but declines gradually to the sea.

There are two towns of some note in this island, the principal of which is Basseterre, towards the east end; the other called Sandy point, near the west end. There is no such thing as a harbour, or any thing that has the smallest appearance of it in this island: on the contrary, at the few landing places which are made use of, there is a continual surf beating on the shore, which is sandy, and prevents any quay or wharf being erected upon it, and also makes landing always inconvenient, sometimes dangerous.

In running from Nevis to Basseterre, you will cross a bank, on the shoalest part of which there are 5 fathoms, or quarter less 5. It is not quite a mile over, and its middle lies S. by W. westerly from the Nag's head, or the south end of St. Kitts, 2 miles.

To anchor in Basseterre road, bring Londonderry fort to bear N. distance about half a mile, and the west point of the bay W. by N. and then you will have 9 fathoms, good ground.

To anchor in Old road, 1½ league to the westward of Basseterre road, observe there is a black stone or rock close to the water side, about as large as a Moses boat bottom upwards; keep that stone a little open to the westward of the westernmost of the negroes' houses, which are on the south side of the hill, a little above the Black rock; for if you shut and bring it on with the negroes' houses, you will have no ground one-third of a mile from the shore; but bring it to bear N. N. E. and then it will be a little open, and you will have 9 or 10 fathoms, good ground.—Keep Nevis' point a little open with Fort point, which is the easternmost point of Old road bay, and the S. W. point of St. Kitts W. N. W. 2 miles—moor to the S. E.

Remarks made in Basseterre Road and Old Road.

In Basseterre, which is a large open bay, the marks of the anchorage are as follow:—The long point of Nevis, S. S. E. Nag's head, S. E. Bluff point, W. ½ N.—the town of Basseterre, N.—distance off shore, half a mile—depth of water 7 fathoms—wood purchased—water better, and easier got, at Old road, about 1½ league from hence. Tides, none.

In Old road, the following are the marks of the anchorage, viz.—the Long point of Nevis, S. E. southerly—Stony fort, E. S. E.—the westernmost point of Old road, N. W. by N.—Stony point, S. E. ½ E. Depth of water, where the anchor lay, 10½ fathoms; one-third of a cable out—wind off the land—13 fathoms under the stern—west distance off shore two-thirds of a mile. You land your casks, roll them about 100 yards, and fill them at a running gullet; then float them off to the boat—a great surf and a rocky shore.

The Islands of St. Eustatia *and* Saba.

St. Eustatia lies 8 miles W. N. W. from Sandy point, the westernmost head-land of St. Kitts; in the channel, above 1½ mile from the point, and with the aforesaid bearing, lies a danger called the Sheep. St. Eustatia is a steep rock rising out of the sea, to a great height, about three miles in length, and two in breadth. At a distance it appears in the manner of a sugar-loaf, ascending up in a round hill; but coming near, it alters its shape, and seems somewhat long. This rock is composed of two mountains, whose middle land is pretty even. The south mountain is a great deal higher than that to the N. W. it is hollow in the middle, and the excavation appears to have been the crater of the exhausted volcano which constitutes the island; the bottom is pretty near on a level with the town.

The anchorage in the road of St. Eustatia, is none of the best; there is a swell when the wind blows from the S. E. quarter; besides the landing is very difficult on account of the great and continual breaking of the waves against the shore. If you intend to anchor in this road, you must bring the tower of the church N. E. by E. and the west end of the bay, called Interloper's cape, N. W. by N. Then you will have 9 or 10 fathoms, sandy ground, distance less than a quarter of a league from the shore; you may even anchor farther in the offing, in 14 or 15 fathoms, same ground. This road is much frequented, and you will see ships there, even in the hurricane months; but in this season they must be very attentive to the wind, and on the smallest appearance of a squall from the south put immediately to sea.

The isle of St. Eustatia is pretty clear all round, except to the S. E. of the bay, where there is a shoal which stretches about 150 fathoms into the sea.

The island of Saba, still smaller than St. Eustatia, lies 4 leagues to the N. W. of it. It is another steep rock of a round form, which is accessible only on the south side, and you must climb almost to the top, through a very crabbed artificial path, to find any earth: it is inhabited by about 50 European families and 2 or 300 slaves. You may see the bottom round

this island, but you need not fear, for there is no danger but what is visible. Also round about it, makes as it were certain heaps of white sand, and by the sides thereof, it shows like a ship under sail. On the N. W. side lies a rock, about a musket shot from the shore, which afar off seems like a sail. South and north about 2 leagues off in the sea, is not above 10 fathoms water, clear sand ground.

The islands of St. Bartholomew, St. Martin, *and* Anguila, *with* Dog Island *and* Prickly Pear Island.

ST. BARTHOLOMEW's S. W. end bears from Sandy point, in St. Christopher's N. ½ E. distance 10 leagues. It lies E. and W. and is 5 or 6 leagues long. The middle part is very high land; its shores are extremely dangerous, chiefly on the north part, where there are many rocks above and under water, and the approaching them requires an experienced pilot. But it enjoys the advantage of having a very good harbour, of an excellent hold, in which ships of any size are perfectly sheltered from all winds. The island of St. Bartholomew appears at first almost round, and can be seen 9 or 10 leagues off. E. ½ N. 14 leagues distant from the island, lies a large bed of rocks, about 20 yards square. On the west side of it is a swell. The rock is sharp pointed, and sometimes covered; when the sea falls it is about 4 feet dry. Its lat. is 18° 2′ N.

St. Martin's, an island about as long as St. Bartholomew, but wider, is separated from it by a channel 5 leagues broad; in the middle of the W. entrance of this channel, 4 miles W. N. W. from the north point of St. Bartholomew, lies a large rock surrounded with many others above water. This island contains a great number of mountains, or rather huge rocks covered with heath, which can be seen above 10 leagues off. The west side is pretty low along the seashore for about 2 leagues. The sea is rarely disturbed, and the anchorage safe every where about the island, especially with a N. E. wind.

On the south side lies the Dutch town, whose harbour has 8, 9, or 10 fathoms good sandy ground. Near it are three salt ponds, where they make a great quantity of salt. You may range the westernmost point of St. Martin's within 2 miles, and nearer, and have from 30 to 55 fathoms, rocky and corally ground.

The French town lies on the west side, above 3 leagues east from the Dutch town, on a bay called L'Ause au Flamands.

Anguila lies E. by N. ½ N. and W. by S. ½ S. above two leagues to the north of St. Martin's; it is a low, flat, and withered island, without any mountains, so that it cannot be seen farther off than 4 or 5 leagues. The anchoring ground is good on the south side, because the current there has no force, on account of a long ledge which stretches off S. E. from the east point. On the south part of the west point there lies, about 1 mile from the shore, a small island not above 100 fathoms in length.

To the N. W. by W. of the west point of Anguila, distance about 4 leagues, lie several small islands, the principal of which are Dog and Prickly Pear islands, between which is a good channel. The first is the easternmost; the second which is the largest of all, lies farther than any of them to the west, save a little rock that is almost joined with it on the west side; it is about one mile in length and has a few inhabitants; all

these islands are very low, and cannot be seen farther off than 4 or 5 leagues.

Bearings taken and remarks made in sailing between the above-mentioned islands by an experienced Navigator.

"When we came to sail so far out, I found that the highest top of St. Eustatia came even with the top of Brimstone hill, and that the two southernmost points of St. Kitt's and St. Eustatia were in one, and bore N. W. by N. At the same time, Fort Tison bore N. E. easterly, when Sandy point, and Tumble-down-dick, or the northernmost part of St. Eustatia, came in one, and bears W. N. W.

"The direct course from the west end of St. Kitt's is N. N. W. to St. Martin's west end, and so through between the Dog and Prickly Pear.—For when you are within half a mile of the west end of St. Martin's the southernmost land of St. Bartholomew comes in one with the southernmost land in sight of St. Martin's, and they bear S. E. by E. and then Saba will bear S. by W. westerly. By the aforesaid bearings of St. Bartholomew and Saba, if you see either of them, you may by them know how to direct your course for the west part of St. Martin's.

"The west part of St. Martin's and the west end of Anguila bear N. N. W. northerly. When the N. E. part of Anguila, the north side of Prickly Pear, and the middle of Dog island, bear all in one, it is E. and W.—Three miles N. of Dog island, I observed at noon, and found the lat. 18° 26′ N.; and the variation 2° 30′ E. At the same time St. Martin's showed itself beyond Anguila from E. S. E. to S. by W."

The Little Island and the Bank of Avis.

This solitary island lies west 42 leagues from Prince Rupert's Bay, in Dominico, and S. by W. 38 leagues from Saba; its latitude being 15° 48′ N. and its longitude about 63° 41′ W.

This island is no more than 2 or 3 leagues in circumference; to the west and the N. W. there are two islands, at the distance of 6 or 700 paces, which appear only barren rocks, and are the resort of birds. These rocks may be a quarter of a league round; they are joined with the islands by shoals and breakers which are seen at low water. This island is a great deal longer than it is broad, and appears at a distance like a sand bank even with the water's edge. The middle part rises more than 16 yards above the level of the sea. There are some reefs to the east and N. E. which extend a great way into the sea. You may anchor on the S. W. half a pistol shot from the shore, in 3½ fathoms, white sand. There is neither pond nor spring of fresh water on this island.

From the island of Avis, to the isle of Saba, there lies a sand bank, to the N. by E. or N. N. E. whose length is about 37 leagues, and the breadth not more than 2, the depth varying upon it from 10 to 20 fathoms.

The Virgin Islands.

Under that name are included all the small islands and keys which lie between the Carribee islands and Portorico. They take up a space from

east to west about 30 leagues long, quite to the eastern side of Portorico, with a breadth of about 20. They are composed of 35 or 40 small islands, whose rocky shore, surrounded with dangers, are famous for shipwrecks, and particularly of several galleons. Happily for the trade and navigation of those islands, nature has placed in the middle of them a large basin 3 or 4 leagues broad, and 6 or 7 long, the finest that can be imagined, and wherein ships may lie at anchor landlocked, and sheltered from all winds. The Buccaneers called it the Virgin's Gangway; but its true name is Sir Francis Drake's bay.

Most of the larger islands are pretty high land, and seem as if they were all joined together, but there are several deep channels between them, through which those who are well acquainted may sail with safety: in all these channels there is great plenty of fish.

The Islands of Santa Cruz, St. John, St. Thomas, Bieque, &c.

SANTA CRUZ, or St. Croix, is the southernmost of the Virgin islands; it lies W. by N. from Sandy point, in St. Kitts, distance 33 leagues. The island is not very high, but full of hummocks, two of which (on the east side) are higher than all the rest. It is of a triangular form, its length being about 7 leagues, and the greatest breadth 2 leagues. On the S. E. end is a flat, stretching a great way into the sea; the whole south side is bordered with reefs and shoals, which make it dangerous to come near.

Santa Cruz is badly watered. The chief town, called Christianstæd, is situated at the bottom of a bay on the north coast, under the cannons of a fortress which defends the principal harbour. The other town, named Fridrichstæd, lies on the west side.

From the town of Christianstæd, to the S. W. point of St. John's island, the course is N. by E. about 10 leagues. In the channel about 6 miles S. by W. of this point, lies a remarkable round rock, called Bird key, which is about one quarter as large as Redondo near Monserrat.

St. John's is 2 leagues broad, and 4 in length; it is the best watered among the Virgin's, and its harbour on the east side of the island, passes for the best to the leeward of Antigua.

The east point of this harbour is called Moor's point, and is of a moderate size; but the walls of the fortress, which are all white, may be seen 7 or 8 leagues off. You have regular soundings from a little without the Moor's point quite into the harbour, from 10 to 5 fathoms water. The mouth of the harbour is not quite half a mile broad, and off the lee or west side there is a key, with a reef from the inside of it, that runs to the southward. As the entrance of the harbour lies, with the wind any thing to the northward of east, you may lie in it; but if the wind is any thing to the southward of E. S. E. you must anchor without the point and warp in. The Governor's house, and part of the town, are not above half a mile within the point on the east side; but there is a large harbour with lagoons, &c. You anchor within a ¼ of a mile of the weather shore, in 5 fathoms water, good ground, and run a stream anchor to the S. W. by reason of the land breeze, which is at most times between the S. S. E. south, and S. S. W.—you moor N. E. and S. W. When you are here the harbour is wide and large, but there is not above 5 fathoms within. The fortress is very strong; there is besides a small fort upon the reef that runs in

from the key before mentioned. The harbour is full of lagoons and rivulets, and runs a long way to the northward.

Observe, in coming in, to leave one-third of the channel to windward from the Moor's point, and two-thirds to leeward towards the key, and you will not have less than 5 fathoms water.

There is a small bank which does not show itself, and lies right off from the gate, a cable's length from shore, with only 10 feet water on it.

The watering place is at the south side of the town, just without the south gate, but the water is brackish.

If you are bound to Portorico, from the eastward, night coming on, and you off the E. N. E. part of St. John's, you will take notice of the easternmost high land; it is inland a little from the east end of the island, which is low. You may run to the westward till you bring that high land to bear S. by E. and then bring to till morning. But take great care that this high land does not deceive you, for it lies a long way in the country, and it is all low land by the water side. In the morning make sail; you may see the walls and works all white about Moor's point.

From the south point of St. John's island, called Ram's head, to the entrance of St. Thomas' harbour, the course is about W. 5½ leagues; and from the N. side of Santa Cruz, N. N. W. ½ N. 10 leagues. The latitude of St. Thomas' town, is 18° 22′ N.

The island of St. Thomas is about the length of St. John's, but narrower. Its soil is sandy and badly watered. The principal advantage of St. Thomas' island consists in a very good harbour, on the south side, where 50 ships may lie very secure.

In running down from St. John's to St. Thomas' harbour, you leave Bird key to the southward of you, and you continue your W. N. W. course till you come down to Buck keys; they are much lower and longer than Bird key, before mentioned, and there is a small opening of no consequence between them. You leave these keys to the southward of you* about one mile, and then steer N. W. when you bring them S. E. and continue that N. W. course about 2 or 3 miles till you bring the harbour open; then haul in for the town N. by W. or N. N. W. giving the east shore all along a good birth, and run within ½ a mile of the fort which is white and plainly seen at the east of the town. You anchor in 5 fathoms water, fine clear ground; it is a fine harbour, where you are land-locked from all winds, but from the S. by W. to S. E. by S. which part lies open to the sea; but the wind seldom blows in unless it is in the hurricane months. There is a rock above water in the harbour's mouth (called Prince Rupert's cliff,) which you leave to the eastward of you; you may make bold with the west side of it, but there is no passage within.

From St. Thomas' harbour, if bound to Portorico, being in the offing, steer W. by N. till you come down the length of the west end of the island, which is about 3 leagues from the harbour. You will see a small island called Little passage, about 4 or 5 miles to the westward of the west end of Little St. Thomas. Little St. Thomas is a small island that almost joins with the west end of the Great island; there is a small opening between them, but of no note. There is likewise a channel of small importance between Little passage and Little St. Thomas; but there are two other

* The channel between the main island and Buck island is but 1½ mile broad, and at the entrance, in the fair way, lies a sunken rock, about ¾ mile north from the north end of Buck island, with only 5 feet water on it. The way to clear it is to keep Buck island close on board.

islands before you come down to the west end of that island. The easternmost, just to leeward of the harbour is called Water island, and almost joins with the main land; about 2 or 3 miles to leeward of that, is a rocky island, about half a mile round, which lies a mile from the shore, and is called Little Saba; it is foul all round, and must have a good birth, all the shore along these islands must be left on your starboard hand. In running down till you pass Little passage, you have soundings all the way, but deep in some places.

W. S. W. ½ S. from the mouth of St. Thomas' harbour, above 4 leagues, and S. W. by S. 7 miles from the west point of the island, lies a remarkable rock in the middle of the channel. It is round, rugged, and double-pointed, as high as Beachy-head, and may be seen 5 or 6 leagues off, being all white; it appears at some distance like a sail, whence it has been called St. Thomas' carvel, or St. Thomas' hoy. This rock is bold too all round.

Two leagues and a half from the carvel is Great passage island, bearing west from the west end of St. Thomas about 4 leagues. Several keys and rocks lie round this island, and chiefly to the westward of it; they are called the Tropic keys, from the great number of tropic birds breeding there. Great passage island must have a large birth; the channel between the two passage islands is near 3 leagues broad; keep nighest the little one to the eastward, leaving all the others to the southward.

The island of Portorico is high land, and may be seen from off St. Thomas. Little passage island is 2 miles in length, and about as high as Barbadoes; Great passage island is about the same height, and three times as long as the former; there are two or three small islands a little to the northward of Little passage island.

The course through the passage islands is N. W. or, if you have but little wind keep N. N. W. for fear of a calm, and lee current, the west side being foul, and dangerous without wind. You must keep that N. W. course till you bring the E. N. E. point of Portorico, which is a low point, to bear W. by S. or W. S. W. and then you may steer west, which course will carry you to St. Juan, the chief town of Portorico. From the west end of Little passage island to Spill staff's keys, which lie 2 leagues from the N. E. end of Portorico, the course is W. N. W. 9 leagues; and the shoalest water 5 fathoms.

S. W. of St. Thomas' harbour, 7 or 8 leagues, and 3 or 4 south of Great passage island, lies the island of Bieque, called also Crab island, from the great quantity of crabs that are found there. It is about as high as Mariagalante, with a rich soil, and full of trees almost all over. The west end on the N. E. part, is low and smooth land, like sandy ground; but towards the S. W. there are hills, and from those hills to the west, low broken hummocks; then to the S. W. higher hills and hummocks. From the west end of Little passage island to the east end of Crab island, the course is S. ½ W. 5 leagues; 5½ fathoms 1 mile from the shore. In going to Crab island, be sure to run down the south side of it, for the north part is foul. You may sail within 2 or 3 miles of the shore all the way down, till you come to the west end, and then you will see a low sandy point; anchor on the south side of that point; you will not have above 3½ or 4 fathoms 2 miles off. You may run in till you bring that low sandy point to bear N. by E. ½ E. and the south point of the bay S. E. then you will be 1½ mile from the shore, in 4 fathoms water. Here is plenty of fish to be caught with a seine, on the north side of the low sandy point, in the morning, and good wood of different kinds; water is to be

had about half a mile to the southward of the low sandy point, a little way from the west side.

Crab island lies about 5 leagues from Portorico, being 5 or 6 leagues long, and 2 broad. It is uninhabited; the English, who have attempted twice to settle there, have been driven away by the Spaniards.*

Mayagua Bay (*Porto Rico.*)

To Anchor. Bring the island of Zacheo to bear W. N. W. then steer E. S. E. which will bring you in sight of the town. Going in you will see a reef on your starboard hand; when abreast, you will have soundings in 13, 12, and 10 fathoms; you may run into 7 fathoms and anchor; the extreme points of the Bay will bear from S. by W. to N. W.; the east part of the reef about N. W. 2½ miles; there is a good river for watering.

Aquada Bay (*Porto Rico.*)

To Anchor. Bring Point Aquada N. N. W. 2 or 3 miles; the church tower E. N.E.; the island of Zacheo, W. by S. when you will be in 10 fathoms water, about 3 cable's length from the shore; there is a good river of fresh water; the sea in general smooth with usual trade wind; but should the wind incline to the northward, avoid anchoring, or weigh as soon as it sets in.

The islands of Tortola, Virgin Gorda, Anegada, &c.

TORTOLA, a few miles to the N. E. of St. John's, is the principal of the English Virgin islands; it is near 5 leagues long, and 2 broad, but badly watered, and has the name of being unhealthy; the cotton which they cultivate there is very much esteemed by the manufacturers; the entrance is wide with plenty of water.

The town is situated on the south side to the bottom of a bay, 2 miles deep, with a pretty good road at the entrance, with 12 fathoms water, good ground.

Virgin Gorda (that is, the Great Virgin) or Peniston, and by a corruption generally adopted Spanish town, lies 2 leagues to the east of Tortola; its form is very irregular; it is very high land, about 6 leagues long from east to west, still worse watered than Tortola, and having fewer inhabitants, who cultivate tobacco, indigo, cotton, and pease; their common is fish and potatoes, they drink rain water, which they keep in wooden casks. It is asserted that the mountain which rises in the middle of the

* Vessels coming to an anchor at St. Thomas for the purpose of obtaining information, on going away, will pay one dollar per every ten tons.

American vessels that unload or load, on going away, to pay instead of 16 cents, 6 cents per every ten tons.

European vessels that load or unload, on going away, to pay instead of 64 cents, 32 cents per every two tons.

island contains a silver mine. Virgin Gorda has two good harbours: the largest, called East bay, lies on the north side, and you may anchor very safe at the bottom of it, in 5 fathoms; the other is on the west side, where the town is situated in 18° 30′ N. lat.

The course from Saba to Virgin Gorda is N. W. by W. northerly, above 26 leagues. When Virgin Gorda bears from you N. W. by N. 7 leagues off, the Virgins appear like three islands, with a great many small ones about them; the middlemost is the longest, and when you come within 3 leagues, they seem as if they were joined together.

To the S. of the W. end of Virgin Gorda, lies the Fallen city, or Old Jerusalem, a parcel of little broken islands and rocks, just above water, stretching about 3 leagues from N. to S. At their S. end is a remarkable rocky island, called Round rock; the next island is called Ginger island; between which and the Round rock is the eastern passage into the Virgin's gangway, called the King's channel; there is no ground in the passage with the hand lines

To the W. of Ginger island lie several small islands, called Cooper's salt, Peter's, Normand's, and Witch islands. They bound the Virgin's gangway on the S. as the islands of St. John's, Tortola, Beef, with Dog islands, and Virgin Gorda, terminate it towards the W. and N. The depth in the Virgin's gangway is from 10 to 25 fathoms. It is about 8 leagues long, and from 2 to 4 broad. The N. entrance lies between Dog island, to the E. of Tortola, and the N. W. point of Virgin Gorda, being about half a league broad; the S. entrance, whose breadth is above one league, is between St. John's and Witch island; there is another entrance to the N. of St. John's, scarce a mile over, which is the western passage of the King's channel before mentioned.

Three or four leagues to the north of Virgin Gorda, lies Anegada, or the Drowned island, about as big as the first. This island is very low, and almost covered by the sea at the highest tides. You may discern over it two high hills on Virgin Gorda, which appear like a great hummock. As Anegada projects out of the cluster of the Virgin's, the rocks and shoals with which it is surrounded become so much more dangerous to ships in the offing. The Buccaneers have given the name of Treasure Point to a headland on the south side, that has been often dug to discover the gold and silver which they supposed the Spaniards had buried there after the shipwreck of one of their galleons. From the E. side of Anegada, a very dangerous reef, with only 6 feet, and in some parts 2 feet water on it, extends in a curve towards the S. E. above 4 leagues. The course between the reef and Virgin Gorda, is N. W. and W. by N. or W. but you must take care of a sunken rock, which lies almost in the middle of the entrance of the narrows, between that island and Anegada.

The Island of Sombrero.

Between the Virgin islands, and that of Anguila, lies a small rocky island about 2 miles in length; it consists of a very flat eminence, without any hummock upon it, covered with birds from the southward. You cannot descry this island farther off than 5 or 6 leagues at most.

This wretched island is rugged, steep, and barren; a little camphor and grass are the only vegetable production that appear on its surface; what little water lodges in the cavities of rocks during rains soon evaporates

You may anchor on the west side of it. The cliffs are steep too, and are from 40 to 15 feet high. In 1792 an American brig run against it, and her crew crept from her yard arm to the cliff top. The brig disengaged herself and drifted down to Virgin Gorda, where the hull and cargo became a prize to the wreckers.

The latitude of Sombrero, is 18° 38′ N. and its longitude is 63° 30′ W. Two leagues off Sombrero, when it bears from E. N. E. to E. by S. is found from 35 to 22 fathoms, uneven ground and rocky bottom. It lies about 14 leagues E. by S. from the island of Anegada, and 12 leagues due East from the reef lying off the S. E. end of it. In going between the two you have 5, 6, 7, 8, and 10 fathoms water. The course from Saba to Sombrero is N. W. by N. ½ N. distant 20 leagues.

The passage to leeward or windward of Sombrero, is very clear and safe; there is no swell; the winds are generally favourable for going out; and when once you are past Sombrero, all obstacles are at an end.

Porto Rico.

The west end of the island of Porto Rico is low as well as the south side. On the south west side is a bank, over which, 7 or 8 miles from the shore, may be carried 7 fathoms. This point of the island is very low, and appears like a separate island when it bears E. by S. of you; vessels doubling it should keep their lead going.

Directions for sailing along the south side of Porto Rico.

If you are bound down the south side of Porto Rico, observe you will see the S. E. point of that island, when lying at anchor at Crab island; it bears from thence S. W. by W. ½ W. or W. S. W. about 4½ leagues, and is called Cape Mala Pasqua. You may run down till you come abreast of that cape within 3 or 4 miles of it, and then steer W. and by the time you have run 3 or 4 leagues down past the cape, and it bears N. E. you will see a large breach 2 or 3 miles long which lies along the shore, and about 3 or 4 miles off the same. Take care to keep a mile or two without the breach; and in running down aback of it, you will descry a small building by the water side, which is a guard house. Be sure to run down as before-mentioned till you bring that guard house to bear N. or a little to the eastward; then you may haul in N. or N. by E. for the guard house, and anchor in 4 fathoms water, the guard house bearing N. or N. ½ E. or N. by E. distance 1 mile; and the W. end of the breach S. by E. You may run a small anchor to the N. W. for the land breeze; you have no shelter from the sea breeze but the breach: this place, which they call Guyama or Yama bay, is much frequented by traders. In going in, although you give the W. end of the breach a good birth, you must keep your lead going; the soundings are irregular, from 5 to 7 or 8 fathoms water, and then it shoals gradually as you go in shore. The land is low by the water side; in the country it is high and uneven, and has nothing remarkable.

In going out of Guyama bay you run S. S. W. or S. W. The next trading place is called Salinas, and lies about 6 or 7 leagues to the west-

ward of the former. After you are out of Guyama bay, about 2 or 3 leagues off, you may steer W. as before, passing several keys to the northward of you, which lie pretty nigh the shore; and when you have run about 6 leagues down, you will see one of those keys lying a little further off shore than the rest; haul in for its W. end, and about a mile or a mile and a half off that W. end, there is a breach, which is a key just under water, no part of it to be seen. Leave that breach to the westward of you, and stroke the weathermost key, on board, within a cable's length; it is bold too, but shoaler to leeward, towards the breach. The guard house is about 3 or 4 miles from this key, and may be seen before you come within; you may run in boldly 2 miles towards the guard house, and anchor within a mile of the same, in 4 or 5 fathoms water, good ground, and moor to the N. W. When at anchor, the guard house bearing N. ½ E. there is a good watering place close to the water side, a kind of lagoon, which is about N. by W. from the ship, and half a mile to the westward of the guard house; you will see the water white near a league without the key, and have soundings from 12 to 7 fathoms, very gradual, but no danger of any kind. There are several keys which lie within the before-mentioned key, but little to the eastward of it. In running in, you will see (3 or 4 leagues to the westward) two small keys at a little distance from each other; one of them looking double, the other single; you may go to the leeward of them. Salinas is a good trading place, as well as a place of safety to lie in; it is about 6 leagues to windward of the Dead Chest, which at most times may be seen very plain from Salinas, and is a good director for it.

In leaving Salinas, run out the same way you came in. After you get without the key, steer S. S. W. till you bring the Dead Chest to bear W. and then run down boldly, giving it a mile birth; there is a small key on the S. W. part of the Dead Chest, about a cable's length off, but there is no going between them, as the interval is almost dry: you must give the W. point of that key a mile and a half birth, then haul in, and you may anchor under the lee of the Dead Chest in what water you please, from 7 to 12 fathoms water; the W. point of the small key bearing S. by E. ½ E. distance 1½ mile, and the N. point of the Dead Chest N. E. ½ E. distance from the shore 1 mile; then you have 10 fathoms water. There is a small trading place called Boca Chica, to the northward of the north end of the Dead Chest, with the guard house, which you cannot see when you lie at anchor at the Dead Chest; but you may reach over from the Dead Chest boldly, it is about 7 or 8 miles; keep your lead going; you will have from 7 to 4 fathoms, and it shoals gradually as you come nigher the Porto Rico side. There is another small trading place, called Yamma Grande, 2 or 3 leagues to windward of this.

The Dead Chest,* or Deadman's Chest, lies 16 or 17 leagues from Cape Malapasqua, the E. end of the island, and about the same distance from Cape Roxo (or Red cape) which is the S. W. end. In running down, as before mentioned, do not come within 2½ leagues of the shore. After you get a little without the Dead Chest, a W. course will keep you

* The Dead Chest is a small island, distance from Porto Rico about two leagues, near the middle of its south side. It is 1¼ leagues in length, and 1000 or 1200 paces in breadth. It is said, that when you see it from a certain point, it appears like a corpse lying on a table. The shores of this island towards Porto Rico are flat and sandy; on the south side they are high and stony. There is no fresh water, nor trees of any kind, but for fuel.

clear of all; keep that course till you bring Cape Roxo (which is low and appears gray, and like two keys) to bear N. E. then steer N. W. till you bring the island Zacheo N. by W. from you. You may then steer N. W. by W. for the island, till you come within 3, 4, or 5 leagues of it, when you may haul up a little and go between Zacheo N. by W. and St. Francillo point, the W. N. W. end of Porto Rico. It is a very good channel, about 4 leagues broad; with the before-mentioned courses you will be about 2½ leagues from the W. end of Porto Rico, and will not have less than 12 fathoms water. The island Zacheo is about twice as large as Redondo, and may be seen 12 leagues off.

Observe, that in sailing along the south side of Porto Rico, you are exposed to sudden calms, the island intercepting all the breezes between the north and the east.

On the W. side of Porto Rico, is Aguada Bay, one of the finest roads for shipping in all the West Indies, being sheltered from the trade winds by the island. Here the galleons and flota generally anchored when they came from Spain; and the Barlovento fleet, after they had been at Cumanagote, came here for fresh water and provision, before they returned to Vera Cruz. You may anchor in this road in 23, 18, 14, and down to 8 fathoms, good ground. When in 23 fathoms, soft oozy ground, the northernmost point bears from you N. N. W. 3 miles, and the other S. by E. about two leagues, and a small village amongst the trees, is distant about 1 mile. In coming into this road from the northward, you may sail within a mile of the shore to the southward of the N. point, there being 10, 12, and 15 fathoms water; and after you are about that point, you will have 25 and 30, soft oozy ground; some part along the road is flat and rocky, but you may sail all around it within half a mile of the shore. In the channel between Porto Rico and the Virgin Islands the variation is about 4° East.

To enter Mayagues (Porto Rico.)

Bring the island of Zacheo to bear W. N. W. and steer E. S. E.; you may approach the island within 50 fathoms. There is a reef, which begins about 1½ mile from Zacheo, and extends to Cape Roxo, forming a chain with only 10 feet water, and not to be attempted but by small vessels. In steering E. S. E. you will perceive a gulley running from the mountain, made by frequent rains, without a tree or bush on it.

Extract from the Journal of an experienced Navigator, along the south side of Porto Rico, *and in the channel between* Porto Rico *and* St. Domingo, *&c.*

"MAY 19th.—At 5 o'clock, P. M. we thought we descried to N. W. and N. W. by N. the little island of Boriquem (Crab island) situated near the S. E. end of Porto Rico. At 11, we saw the land on the larboard hand; I supposed it to be the east point of Porto Rico, which bore from us N. W. and N. W. by N. distance about 3 leagues; I steered west to run along its south side.

"MAY 20th.—At half past 5, A. M. we saw Porto Rico, and the Dead Chest, which is a small island detached from the main one, and having the form of a coffin. It lies very near the middle of the south coast, and I have been assured, that there is a passage for the largest ships between it and the main land.

"I ran along the land, with an offing of 3 or 4 leagues, to fetch Cape Roxo, the westernmost of the south coast of Porto Rico, and which forms, with the S. E. point of St. Domingo and Saona island, a channel from 15 to 20 leagues broad.

"About 10 A. M. we saw the water discoloured: we were upon a shoal, called the White grounds, which encompasses Cape Roxo, and extends 3 or 4 leagues to the S. W. and 2 or 3 leagues to the eastward and westward of this cape. You have there 10, 12, and 15 fathoms. The sand at the bottom is of such a shining white, that it pierces through the water. We caught plenty of fish with the line.

"At 11, we distinguished a cape which lies a little to the eastward of Cape Roxo; it is terminated to the south by four little islands, which seem to be one league distant from it. To the east of this cape is a small bay, called in Van Keulan's chart by the name of Porto Guonica.—The West India sloops can moor there: we saw two of them at anchor. This cape is low, and appeared at first as a detached land, but we soon discovered the low land by which it is connected with the main island. Cape Roxo, which you soon descry to the westward of this, and which is the westernmost point of the island, is still lower than the former. Between the two you distinguish a flat and very white sandy shore; it consists of the same sand that composes the White grounds, through which you may sail, but you must not come nearer the coast than 2 leagues.

"In the western part of the channel, between Porto Rico and St. Domingo, and near mid-channel, are two small islands: the easternmost, which is likewise the southernmost, is called Mona; the second to the N. W. of the former, distance about 2½ leagues, is called Monica. You must pass, if possible, to the windward, that is to the east of those two islands, in order to double with more facility Cape Enganno, that forms the going out of the channel, to the west, on the side of St. Domingo. When you have doubled Cape Roxo, you descry to the northward of Zacheo, a little island lying 8 or 9 leagues to the N. E. by N. of Mona. You leave Zacheo to windward, to pass between it and the small island of Mona, very near mid-channel; there is no danger but what you can see. When the wind comes from the E. S. E. or only from the east, you are not obliged to tack, you cross the channel with a quarter wind. It is sufficient to steer N. W. by N. to fetch Cape Raphael, which is the N. E. point of St. Domingo, or even Cape Samana, that lies about 8 leagues to the N. W. of the former. Samana island, whence this cape takes its name, extends from east to west, 12 leagues; it is so near St. Domingo that it appears to be joined with it.

"At noon, Cape Roxo bore N. by W. distance 3½ leagues. It was not possible, on account of the cloudy weather, to take the meridian altitude of the sun. We steered N. W. by N. to enter the channel.

"At half an hour after 12, I could see Zacheo very plainly: I continued the same course to run along it, at one or two leagues distance. This island appears to be 800 or 1000 yards long; it is nothing more than a green mountain, on several parts of which you see some woods. I was too much to windward to see the islands of Mona and Monica, from the deck, but they could be perceived from the mast head. The wind kept to the S. E. till 4 o'clock. It is very seldom, that in sailing through the channel of Porto Rico you go before the wind as I did."

Of the North Coast of Porto Rico.

The north coast of Porto Rico, which extends, like the south coast, east and west, is very little known. It is rugged and uneven, having many rocks and small islands, where the sea beats sometimes with violence. Fifty miles north from Porto Rico, Capt. Baxter, in brig Robert, struck on a rock and remained several hours. On that coast, about 12 leagues from the N. E. point, is the town of St. Juan, the capital of the island. It is the see of a bishop; large, and well built, and defended by several strong forts. They have no water, except rain, which they preserve in cisterns. This place is better inhabited than most Spanish cities in the West Indies, being the centre of the contraband trade carried on by the English and French with the subjects of Spain, notwithstanding the severity of the laws, and the extraordinary precautions taken to prevent it. The harbour of St. Juan is very capacious, and the largest ships may lie there with the utmost safety, in 5, 6, and 7 fathoms water. The entrance is along the eastern island (called Rigo or Rigoa) near which you must sail

by reason of a shoal that stretches on the opposite side. On the point of the said island stands the Morro Castle ; and on the west side, upon a rock off the Sandy point stands a little square fort called el Canuelo ; you must run to the eastward of the city, to lie out of the wash of the sea, for the trade wind blows right in. Off the N. E. point of the island lie several islands, the largest whereof is called Cagada. The next to the westward is Canoba, the river within retaining the same name. To the westward of this lies Point Loquilla, which receives its name from the mountain Loquilla; then river Loquilla, right before which lie two rocks above water. Then follows a creek called Bequiario, and the island Rigo, which lies before the harbour of Porto Rico. Westward of the harbour called la Caleca, and just in its entrance, is a river and island called Passays, which reaches with a flat from the west point.

The Silver Key *and* Triangles.

These shoals have more extent than the Square Handkerchief; the southern point is in the lat. of 20° 13′ and the northern part (which include the Triangles that are dangerous) in lat. 20° 48′. It is a very white ground in many places, especially in the north part, and very brown in the S. and S. E. parts.

The N. and N. N. W. parts have some keys, with no more than 8 or 9 feet water, and perhaps less ; but it appears that these keys are not exactly on the edge. The master of a schooner, drawing 9 feet water, found himself ashore on the Silver Keys, coming down, after he had run near a mile S. W. on very white grounds. The E. or rather the N. E. edge is very dangerous. In this part there are 3 keys, within a cable's length of the edge, which have not more than 10 or 12 feet water.

The west side is safe, and there is a great depth of water ; but about 1½ league on the east side the bottom decreases, and you see shoals in the N. E. which are rising very near the surface.

Ships ought never to venture within any part of the white grounds, where you will often fall from 14 fathoms to 10 feet ; if by accident they find themselves in the middle of them, the best way is to tack, and go out the same way they came in, ranging along the grounds.

Should you by any circumstances be forced to go from Cape Francois through the passage between the Square Handkerchief and the Silver Keys, you must at the departure make your course good N. E. by E. and E. N. E. If the winds suffer you to steer that course, you would pass in the mid channel ; but if you are forced to turn, and you would not get sight of the St. Domingo shore after you have once got into the longitude of 70° 15′ W. from London, you must not pass the lat. of 20° 25′ without frequently heaving the lead. If you come as far as 20° 48′ without getting ground, you have nothing to fear from the Silver Keys, and must only look out for the Square Handkerchief, which is not dangerous on the south, the bottom giving you notice in 10 and 15 fathoms. You must continue to get to the eastward, and when you come in the lat. of 21° 20′ you are entirely out of the passage.

The Silver key is 11 leagues long, E. and W. and 7 leagues broad, N. and S. in the greatest dimension. The westernmost part lies N. and S. from Old Cape Francois.

The Square Handkerchief, and the Silver keys, bear from each other S. E. and N. W. The channel between the two is very safe, and 14 leagues in breadth.

You experience on the edges of the shoals weak currents, which generally follow the directions of those edges. On the Square Handkerchief they are scarcely felt; on the S. E. part of the Silver keys you find them setting to the W. and N. W. but a short league from the ground, their effect is not perceivable.

In general, you ought not to mind, in your reckoning, the weak currents which exist in these passages, they being no where to be feared.

Directions for Turks Island Passage.

This passage is the nearest, shortest, and least dangerous of any, for ships going from Hispaniola; but in general the winds will not allow to make it even from Cape Francois, or Port Dauphin, although they are the nearest ports; the winds being commonly easterly, it is difficult to fetch Sand key (the southernmost of the Turks islands) and which you must make, that you may be sure of the Passage; for, without seeing it, you run a great risk of getting upon the reefs and shoals of the Caycos bank, which are not thoroughly known.

When you take your departure from Cape Francois, if the wind will permit you, make a N. E. course about 30 leagues; you will then be in lat. 21° 02′, and in sight of the Turks islands.

The Endymion rock lies S. W. by S. from the body of Sand key, distance 8 or 9 miles. The danger of this shoal is but of small extent. It consists of 7 or 8 heads of rocks, one of which has only 8½ feet water on it; this is the rock where the English ship Endymion was wrecked on the 28th of August, 1790, and till then undiscovered. Some of the other rocks have 2, 3, and 4 fathoms on them, and between them 7, 8, and 9 fathoms water. The exact soundings between the key and the shoal, could not be ascertained by reason of the blowing weather and for want of time. There are four rocks which lie off to the eastward of the south end of Sand key, two of them show themselves above the water, and the two others are even with it. The reef from the north end of the key stretches to the northward 1½ or 2 miles, and has some rocks out of the water.—The channel between the shoal and the key appears to be clear and spacious.

Sand key makes the entrance of this passage from the south, and it is very necessary to make it, and to get within a league or two of it; you may pass by it at that distance, and you will then make the second of those islands, called Little salt key (Little Turk) a N. N. E. course will carry you along it, at the same distance you passed the other; it is about 4½ miles long. Continuing the same course, you will see Great salt key, (Grand Turk,) which is scarce 3 leagues from the little one. This is the last island in the passage, and you may keep about the same distance from this as you did from the others. When you have brought its northernmost point to bear S. E. 2 leagues, you are clear of every thing, even of the bank of rocks which lie off the N. E. point of the Great Cayco, as also of the rocks which are off the north point of the Great salt key. When bound to the southward through Caycos passage, you should not attempt

it in the night, unless well acquainted with your situation. The Caycoses are connected by a reef of coral rocks, and there is no danger of them in the day, but in the night should be avoided, as fully explained under "The Caycos," page 393.

The Caycos Passage.

This is the only Passage you ought to take, coming out of Cape Francois, when the winds are not steady from the E. S. E. You will always go with a large wind, which is a great advantage, and will avoid all the white grounds to the S. E. of the Caycos which it is customary to make, and which shows itself. This method of coming into the white grounds is very bad, and very dangerous, whereas there is no risk in making the land some leagues to leeward of the Little Cayco.

In leaving the Cape you must steer a N. by W. course, and after having run 35 leagues you will find yourself 2½ leagues S. W. of the Little Cayco; then you may haul your wind, first, as high as north only, on account of the reefs of Sandy island, which lie to the north of the Little Cayco; after which you may steer N. by E. 5 or 6 leagues, when you may haul up N. E. or may continue to steer north without any fear. After having run 10 or 12 leagues on that course, you are out of the Passage.

If, when you are two leagues S. W. of the Little Cayco, the winds do not permit you to steer N. by E. or to make a good north course; after having run 13 leagues without getting sight of Mogane island (Mayaguana) the best way, if night comes on, is to tack and stand S. E. 3 or 4 leagues, then tack again to the north, and you will weather, by 3 or 4 leagues, the breakers off the east point of Mayaguana. If, when you are to the S. W. of the Little Cayco, 2 or 3 leagues, the wind will not suffer you to lay north, you must not attempt to go to the windward of Mayaguana, but go to fetch the channel between it and the Isles Plates, or Flat islands. You must steer for it N. W. 5° N. Having run 18 leagues, you are in sight of the west point of Mayaguana, which ought to be north of you, about two leagues distant, you do not run any risk in approaching this point, which is safe; a small white shoal runs off from it, with three fathoms water almost close to the shore. When you have doubled Mayaguana West Point, so as to bring it to bear east, you may, if the wind permits, steer north. In that case you will pass 3 or 4 leagues to the windward of Samana island; but if your course is not better than N. by W. after having run on 12 or 13 leagues, and the night comes on before you can see Samana, tack and stand on for 5 or 6 leagues; then make good a N. by W. course on the other tack, and you will weather the eastern breakers or Atwood's key, or Samana island, at 3 leagues. Should you be two leagues from the west point of Mayaguana, and the wind will permit you to make only a N. N. W. course, after having run six leagues on that course, you will see the Flat islands, bearing W. N. W. 2 leagues; then you may pass to windward or leeward of them, as the wind may admit; when you are come 1½ or two leagues north, or N. E. of the Great flat island, you may steer N. N. W and N. W. ¼ N. without any fear, and after running 12 or 18 leagues, you are out of the Passage. You must not go in the least to the northward of this course, on account of Samana, whose breakers off the West point bear N. N. W. from the westernmost of the Flat islands

The Flat Islands are very low, they bear from the S. W. point of Mayaguana N. W. $\frac{1}{4}$ W. $8\frac{3}{4}$ leagues. You may go pretty close on the east, north, and south sides; the white bottom which encloses them being pretty steep. On the N. W. of the large island, the reef running out some little way, it is necessary to give it a good birth. You may anchor on the S. W. part of the white bottom, but very close to the shore; there is a small lagoon of fresh water, supplied entirely by the rain.

Little Heneaga lies to the leeward of the Little Cayco, and is seldom seen by navigators, whose wish is always to cross this Archipelago as quick as possible: nevertheless, as you may have a N. E. wind in the mid-channel between the Caycos and St. Domingo, it is requisite you should know the east side of the Great and Little Heneaga.

Little Heneaga bears W. 8° S. from the Little Cayco, 9 leagues; it is rather low, and, very much like the islands above described, it leaves a very deep channel of $1\frac{1}{2}$ league between it and the north part of Great Heneaga; the two sides are steep within a cable's length of the shore; at the same length from the shore you may go within a mile of any part of Little Heneaga. There is a small reef which does not run a mile, off the S. E. part; and on the south side a white bottom bordered with a reef, at the foot of which you will have 40 fathoms. If you should be drove by the winds near Little Heneaga, and should find yourself to the N. E. of the East point, one or two leagues off, you ought then to steer N. N. W. 15 leagues, to come two leagues south of the West point of Mayaguana, from whence you are to proceed as already said.

The East coast of the Great Heneaga is bordered with a reef; it runs in a N. N. E. and S. S. W. direction, 6 leagues; then W. by S. 9 leagues, and joins the point called Pointe des Pailleeneuls, off which a reef extends 2 miles into the sea.

"At the east end of Great Heneaga," says the author, "is a remarkable rock. When it bore N. W. $\frac{1}{2}$ W. (6 miles distant) I saw the bottom having no more than $3\frac{1}{2}$ fathoms: I then hauled up S. S. E. and had regular soundings $3\frac{1}{2}$, 4, $4\frac{1}{2}$, 7, 8, and 10 fathoms, and afterwards no bottom. The sea broke very heavily on it, and I am disposed to think that on some parts of it there is not more than 3 or 4 feet water.

"The reef and white water round appeared to extend about 5 miles from the shore of Great Heneaga in an E. S. E. direction, and seemed of very considerable breadth."

Leaving Cape Francois, you generally find the wind at S. E. or E. S. E. and near the shore the current runs to windward; these are two powerful inducements to engage you to steer N. E. or N. N. E. for the Turks Island Passage: but about 10 or 11 o'clock the wind generally turns round to the north, and sometimes as far as N. E. Being then 5 or 6 leagues from the coast, and the current no longer felt, you must necessarily make the White Grounds to the southward of the Caycos. So many ships are lost there, by the greediness of getting 20 leagues to windward, which are scarce an object, and when the risk is evident, that this consideration should induce navigators, when they set sail from Cape Francois, to steer at once for the Little Cayco, as before observed.

The Caycos.

The Caycos are an assemblage of several islands and islets, which inclose a white shoal, some part of which are very shallow, and others to-

lerably deep; there are four principal islands—viz. the Great Cayco, the North Cayco, the N. W. Cayco, or Providence island, and the Little Cayco; they form a semi-circle from the E. to the W. coming by the N.; and are terminated on the S. part by a great bank, on which you will find from 3 to 15 feet water.

The north part of these islands is bordered with a white shoal, on which is a reef extending only half a league from shore; in the N. E. part of the white shoal, runs out in a point, a whole league, and at its extremity is a reef called Basse St. Phillipie, (St. Philip's shoal) on which the sea breaks with violence: at a cable's length to the north, and the east of this shoal, you will not have less than 7 fathoms. South of it the white bottom runs to the south, and approaches insensibly towards the shore; you find 4 or 6 fathoms between it and the shore, which in an urgent case, leaves a sure passage.

The east coast of the Great Cayco, and the west coast of the Little, are safe and bold to within half a league of the shore.

The northern part of the Great Cayco is almost all bounded by a reef, in which, however, there are some openings, particularly one at the town of St. George and those in watering bay. Any person shaping a course from off the Booby rocks, to weather the N. W. point of the Caycos, by any English chart heretofore published, will infallibly find himself entangled among the reefs on the west side of watering bay; this was the case with the United States' sloop of war Chippewa, the English ship Aimwell, Capt. Hawkins, and brig Messenger, Capt. Knubley, the wrecks of which now lie on the reefs. When a vessel once gets embayed among them, it must be next to impossible to beat out, as the reefs extending out from the land to the eastward hook suddenly round, at their outer extremity, to the southward. Thus a vessel may be in blue and deep water while the hook of the reef is outside her. Avoid this passage in the night.

From the beginning of the south point of the Little Cayco, a chain of breakers extends to the east 3 leagues, after which they decrease, and run towards the south, to join a sandy islet, called French key. This is low, with some bushes on it, and bears from the south point of Little Cayco E. S. E. 5 leagues. The reef from the French key stretches to the south 7½ leagues to join another sandy islet, which has not more than 20 paces extent, and is entirely drowned at high water: all this part of the reef is bold, and as the water breaks pretty strong upon it, you easily see it in time; but south of the sandy islet there are no breakers, and you have notice of the edge of the bank by the whiteness of the water.

From this sandy islet the bank runs a short league to the south, then to the S. E. 8 leagues, when it trenches to the N. E. and afterwards runs S. S. E. two leagues, till abreast of the southern islets, which are situated a league within the white water. These islets are within 21° 10′ N. lat.

From the sandy islets as far as abreast of the southern ones, the bank is very dangerous, you cannot see any land, and come suddenly from a sea without bottom into 2 or 3 fathoms. The colour of the water is the only thing that can warn you of the danger, and this is by no means certain, for navigators accustomed to see on the surface of the water the shadow of clouds, which sometimes has the appearance of shoals, are often lulled into a fatal security. No motive then ought to induce you to approach this part of the bank, and you must keep at a good distance.

If after having been turning to windward several days in this neighbourhood, you have not seen the land, the safest way is never to cross

the latitude of 21° in the night, but to wait for daylight; then should you perceive any change in the water, which indicates white grounds, without seeing neither land nor breakers, you may be sure you are on the west side; then you may steer N. W. and N. W. ¼ W. to fetch the Little Cayco, and go through the passage to leeward of these islands. Should you see the Southern islets bearing about N. or N. W. you may stand on upon the white water in from 7 to 12 fathoms; then make a tack or two to get to windward, and go through the Turks island passage, which is to windward of the Caycos.

As soon as you see the Southern islets the bank is no longer dangerous, and you may go on it as far as 1 or 1½ leagues; S. and S. W. of these islands you will not have less than 7 fathoms, and generally from 9 to 11.

From the westernmost of the southern islet, which is a league within the bank to the easternmost, the bank runs first south 3 leagues, then east 7, afterwards north 2 leagues, and then rounds in, to join a large island to the northwestward, 3 leagues.

The channel between the Caycos and Turks islands is 6 leagues across in the narrowest part; it is a good passage, and without any danger; you may come within half a league of the Caycos, and on the east side of the islets without fear. Through this passage you may turn with great safety, and not feel the current if you do not come within 1½ league of the shore.

You will find an anchorage on the white shoals, near the south point of the Great Cayco, which may shelter ships that do not draw more than 15 or 16 feet; west of this point there is a fresh water lagoon.

The best anchorage for small vessels is to the west of the north Cayco, near the small island of Pines, in the inlet, which that island makes with Providence island. Within the reefs that border that part of the coast, lies L'Ance a L'Eau (Water cove) where you anchor in 3 fathoms, upon a white bottom; there is good water and it is the watering place of the Providenciers. You will discover the entrance of the bay, by coasting along the reef, from the rounding in of the coast, after passing the west point of the three Maries, or Booby rocks. When you perceive a great extent of white water within the reef, you must send your boat to find the channel, and moor her in it, making use of your lead; and if you want to get in, be not afraid of coming near the reef. When you are once within the reef, you may let go your anchor in 3 fathoms: you may go farther in by towing or turning with caution; the entrance is not more than half a league or two miles from the shore.

W. by S. of Booby rocks point, is the N. W. point of Providence key: and the reef terminates at this point, which you range on the west part within ¼ of a league. You may anchor off this coast in 8 or 10 fathoms, but you must range the shore pretty close, to be on the White Shoals, bringing a steep hummock, seen ¼ league inland, to bear S. W. then you will see the shoals recede a little from the shore, and afford a large space for the turning of the ship. Four miles south of the N. W. point begins a reef, which comes from the coast, running S. W. ¼ W. 2¼ leagues; this reef is terminated by a small sandy islet, almost under water, bearing S. W. from the New point of Providence key, distant 3 leagues.

From this sandy islet the reef runs into the eastward, and afterward trenches out to join the north part, or the Little Cayco, which is surrounded with white shoals.

S. W. ½ S. by compass will barely carry a vessel clear of the reefs off the N. N. W. point of the Caycos from the N. W. point, that is, if she has passed pretty close round the N. W. point which is tolerably bold, to

where it bears S. S. E. as you are then past the reefs which extend off it to the northward and eastward, say about E. N. E. 3 or 4 miles. When rounding the point (N. W.) you may, from the mast-head, see three distinct reefs inside the point, one end of each joining the shore, and the other end stretching in a hooked form into the bay, (watering bay) like barbs on a fish-hook. A vessel pretty much embayed at night in this bay can have little chance of escape if she attempts working out on the western side of it, as there is deep water close to the reefs. In day-light the reefs may be seen from the mast-head. I am satisfied the depth of this bay (N. N. W. and S. S. E.) cannot be less than 4½ or 5 leagues, and its width E. and W. full 7 leagues. After you round the N. W. point when bound to the southward (by many Charts) S. S. W. ought to carry you clear of the reefs off the N. N. W. point but as I have before-mentioned, S. W. ½ S. will barely clear you.

N. B. The reefs to the eastward of the N. W. point from their peculiar shape, seem more dangerous than any others I ever saw, and the shoal and reefs between the N. W. and N. N. W. points appear also formidable.

There is deep and blue water within a cables' length of the reefs, and the water inside the reefs appears also dark coloured and deep.

The Little Caycos bears S. W. ¼ S. from the N. W. point of Providence key, which is of a middling height, and of a white colour. You may range along the N. W. part, close to the edge of the white grounds; the west part is very bold to the south point, where you may anchor in from 5 to 7 fathoms, on the white bottom.

Mouchoir Quarre, *or the* Square Handkerchief.

This shoal is very dangerous, and has much more extent than the charts generally give it. It bears S. E. ¼ E. true north of Sand key, one of the Turk's islands, distance 7 leagues. Upon the edge of the white ground to the W. S. W. of the Square Handkerchief, as far as the S. W. you will have from 11 to 14 fathoms. On the N. W. edge there is a key, on which you find but 8 or 10 feet. From this shoal the bottom runs E. by N. 7 leagues to a rocky spot, where the water breaks with great violence. It is natural to suppose that all this interval is full of sunken keys, which renders its approach very dangerous; on the S. and S. W. parts the grounds give warning, and you will find from 10 to 15 fathoms; however, the best way is to bear up, and pass to leeward, unless being on the eastern edge, you perceive the end of the white grounds, and can weather them the next tack.

A ship entered, on the 3d of June, 1785, at 6 o'clock in the morning, the white grounds of the Square Handkerchief, on the S. W. edge, and found from 11 to 14 fathoms smooth coral bottom. Stood to the N. N. E. at 50 minutes after 7; sounded in 14 fathoms, saw ahead, and a little to windward, a bottom which appeared nearer the surface; she then bore up, but too late, for she was stranded on a key, in 9 feet water. This may show how dangerous it would be to run on these grounds. Close to the N. W. edge of this key, she could not get bottom in 40 fathoms. This key lies as follows, viz.

N. E.	Point,	lat. 21°	20′	N.	long.	70°	23′	W.
S. E.	do.	— 20	56	—	—	70	28	—
S. W.	do.	— 20	53	—	—	70	56	—

Crooked Island Passage,

Is the longest, but it is far the most convenient for ships coming out of the Bay of Gonaheeves, or from the southern part of St. Domingo, and for those which are bound to New-England. You commonly take your departure from Cape St. Nicholas, and being 2 leagues from the Cape, in the offing, you must steer N. by W. 23 leagues, to make the S. W. point of Great Heneaga; then sailing N. by W. 25 leagues, it will bring you two leagues to the westward of the point. There is a regular tide in this passage, the tide of flood setting to the eastward, between the islands and the ebb to the westward. The flood runs to the eastward on full and change days until 8 o'clock, and the run of the tide 2½ miles per hour.

Directions for anchoring in the Crooked Island Passage.

In case of meeting with the wind from the northward or as far as west (which frequently happens in winter) provided the vessel does not draw more than 10 feet, but in case of a heavier draught she may be perfectly sheltered from the W. N. W. wind, by anchoring under the point of Fortune Island, giving that a birth of 1½ cable's length, and anchor with the point bearing about W. by N. if 12 or 14 feet draught of water, if only 10 feet, you may run in farther, and bring a long bushy key to bear S. E. and a cotton mill on the island N. W.; the bottom is perfectly clear and pretty good holding ground. I have (says an experienced commander) anchored there frequently, when I have been obliged by northerly winds to slip my cable from the salt-pans to the northward of the island.

Great Heneaga, (before described) like all the islands which bound the passages, is very low, with small hummocks, which at a distance appear like detached islets. You will in clear weather, see it at the distance of 5 or 6 leagues, but you need not fear coming within half a league on the west side. There is a fine bay, which is left on your starboard side, going through the Passage; there you anchor on the white bottom, choosing your ground by your eye, as in many parts of these white bottoms, you meet with stones, which sometimes rise to a considerable height above the level of the sand. You may get fresh water with little trouble, and in sufficient quantity for several ships.

When you are opposite the west point of Great Heneaga, two leagues off, you must steer N. N. W. 2 or 3° W. for 25 leagues, when you will make L'Islot au Chateau, (Castle Island,) which you may approach within 2 miles, or nearer without fear. If you should depart from Heneaga, in the evening, it would be better to steer N. W. ¼ N. for 17 leagues, to avoid the Hogsties; then to haul up, and make a good N. by W. course; when having run 8 leagues, you would be one league to the westward of Castle island.

The Hogsties are two small sandy islets, very low, and encompassed on the east side with a white shoal, which is surrounded with a reef extending 1½ league. The west side of them is clear of dangers, and you might anchor off it in 7 and 5 fathoms, sand, having one of the islets bearing N. N. E. and the other E. They bear N. by W. true north, 13 leagues from the west point of Heneaga.

West of Castle island, 3½ leagues distance, lies the Mira-por vos: it is a shoal not unlike the Hogsties; on the west side, which is clear, is an indifferent anchorage: the east side is bold, and on the south-east side, at a mile distance, you will have from 20 to 25 fathoms, coral and rocky ground. As this shoal is to leeward, you do not often see it in ranging along Castle island; however, if it was necessary to turn, you might approach it within half a league; all the dangerous parts break, and the white ground will give you notice of it in good time. You may if you choose, pass to leeward of the shoal; its extent east and west is about 2 miles, and north and south about 2 leagues.

When you are east and west of Castle island, you must steer N. or N. by W. 7½ leagues, to make the west end of Fortune island, within a league of which you come in with this course and distance; you will continue in the same direction to make the western extreme of Crooked island, off which is a small island, called Passage islet (Bird key;) having run 6 leagues, you will be 1½ league west of this islet, so that the direct course from Castle island to the end of the passage is N. 5° W. 14 leagues.

When you are come to this place, you suppose yourself out of the passage; nevertheless, should the wind happen to be to the N. E. or E. N. E. you have to fear Watland's island, which bears from Bird island N. 4° W. true north, 23 leagues; therefore to avoid it, you ought, in leaving the Passage, to keep as much to the eastward as the wind will permit; should the wind be at S. E. and you steer at N. E. you would make Samana island (Atwood's key,) so that keeping the wind when you are out, you must observe not to steer higher to the eastward than N. E. nor more to leeward than N. by E. 5° N.

Watland's island is low, and covered with a reef on the E. and S. sides. The S. E. point has a shoal without a reef, near half a league out; the W. side is safe and offers an anchorage on the white grounds, but always very close in, and not more than half a cable's length off. The N. W. part is covered by 2 or 3 white islets, encompassed with white shoals and reefs, which extend to the W. half a league and on the other side till they join the N. E. point. On the reef from the S. E. of this island, the British frigate Southampton and U. S. brig Vixen were lost, in 1814. It is one of the most dangerous reefs of the Bahamas, extending about 7 miles, having several rocks or heads which cannot be perceived by the colour of the water before you are close to them, and which have 5, 4, 7, 9 and 10 fathoms water between them, and a current setting W. and W. S. W. into Exuma sound.

The islands of Acklin, of Fortune, and Crooked, are united together by a white ground, which surrounds them entirely. This ground does not extend in the W. side more than half a league, and forms in the bay W. of Acklin, an anchorage where the water is very smooth.

Fortune island does not offer any anchorage, and its N. W. side is covered by a reef, on which are some rocks under water, outside the white ground, which renders it very dangerous to approach.

Crooked island has an anchorage tolerably good, near the Bird key, on the W. side. This island, with Fortune island, forms a deep bay, 4 leagues in depth, at the bottom of which is anchorage, near Five islets, which are at the extremity of a low point, belonging to Crooked island, and join the N. E. end of Fortune island; you let go your anchor in from 10 to 3 fathoms, W. N. W. of these islands, and nearer Crooked than Fortune island; the bottom is tolerably good. East of the low point of Crooked island is a watering place.

These islands are bordered by a reef on the N. and E. sides; they are low with some hillocks, and a few trees and shrubs, which at a distance appear like groves and plantations. Their prospect is very agreeable at 3 or 4 leagues distance, but when you come near, you see nothing but prickly or creeping plants, to which this rocky and corally ground can scarcely afford nourishment. However, Crooked island is less barren than the rest, and produces a few shrubs.

The E. point of Crooked island has a reef which stretches out half a league to the eastward; and the point of Acklin Island, which is only about 2 miles from the other point, has likewise a reef running the same length to the N. E.—observe that all the S. E. part of the island is bold and iron bound.

The island of Samana, or Atwood's key, is long from E. to W. and very narrow, from S. to N.; the E. point lies much more to the northward than the W. point; it is entirely surrounded with a white shoal, bordered by a reef; off the W. point the reef runs out one league, and under this point, in the extent of another league along the shore, there is no reef; here vessels might anchor in the white ground in 7 or 8 fathoms, but very close to the shore; off the edge of the white ground no soundings are to be had. To the E. true N. of the island, are two small islets 1½ league from the shore, and surrounded with reefs and white shoals. The island is low, and offers the same appearance as the others do in this passage.

You have no occasion to fear the currents in this Passage, if you have a fresh breeze, they being then scarcely perceptible; but in calms and light winds, they may set you to the westward, but slowly and so feebly, that in a passage so short you ought not to mind them, especially as you generally make it with a large wind. Nevertheless, in the months of June, July, and August, when calms or light westerly winds are common, you experience currents setting to the W. strong enough to alter your course. This effect, which is only felt in this Passage, is occasioned by the vicinity of the extensive shoals forming the Channel of Bahama and those of Providence island. In this season it will be proper, if you have not wind sufficient to make you go more than two knots an hour, to allow a quarter of a mile an hour for the current setting to the westward; if you go three knots and upwards, this allowance will be unnecessary.

Description of the Islands of Bonair *and* Curassoa.

If you come from the main, and are bound to Curassoa, I would advise you to endeavour to make the island of Bonair, and then run down to Curassoa; but be sure not to come within 4 or 5 miles of the south side of the island, by reason of the rocks and foul ground, unless you are acquainted. There is a road on the west side of the island, which lies within a small islet, but it is a little difficult for strangers. Bonair has a governor; some few people from Curassoa live there, and a great many Indians; there are likewise several warehouses, where the Curassoa sloops load the cocoa, hides, tobacco, &c. that are fetched from the main; these goods are lodged here until they have a good market for them at Curassoa. The island of Bonair yields nothing but wood and salt, and has no fresh water; the west part is pretty high, and very rugged uneven land. From the west end of it you may see the island of Curassoa, in fair weather, which bears W. S. W. distant 15 leagues.

When bound to Curassoa you are to run down so as to come along the south side of it; if in the night, come not nearer the island than 3 leagues, on account of Little Curassoa; it is a low sandy island, very little above water, one-fourth of a mile in length, with nothing but prickly bushes on it, so that you cannot possibly see it in the night; it lies S. E. from the east point of Curassoa, distant 2 leagues, and is steep too on every side.

Curassoa is a low island; the east side having no high land, except a mountain in the N. E. part, and another of great height, which makes like a table land in the S. E. part; on the west side there are some high hills; but all the rest of the island is lower than Barbadoes. The table land on the S. E. part bears W. N. W. from Little Curassoa distant 7 or 8 miles. You must give the east point of Curassoa a birth of half a mile, and then you may keep as nigh the island as you please, for it is steep too all along the south side.

The haven or harbour, called also Amsterdam, or St. Ann, is on the S. W. part of the island; there is a white buoy on a ledge that lies on the starboard, or south side of the harbour's mouth; that buoy you must leave on your starboard hand in going in, and haul close round it into the harbour, whose entrance is very narrow, and steep too on both sides. You must not let go an anchor in going in, but you are to have a hawser in your boat, ready to run to the south shore, or to some of the ships; for although the harbour's entrance is not broader than the length of a 70 gun ship, yet there are 60 fathoms water; but if the wind is large it is better to run up above the town, and above the shipping, then you may let go your anchor; it is there something broader, and clear of craft.

The town lies on the south side, and is called Amsterdam; but there are a great many buildings on the north side, as well as all over the island, which is populous. This is a very good harbour to heave down in, as there is neither sea nor swell. All manner of provisions are prodigiously scarce and dear here; for the island itself produces very little of any kind of necessaries. On the N. W. and N. sides, the island is foul a little way off, so that it is best to be on the south side, for this is all bold and clear. There is a fine cove about 5 or 6 miles to the southward of the harbour, called by the Dutch, Spanish cove, but in the Charts St. Barber, and a large fort stands at the entrance of it.

The N. end of Curassoa lies in 12° 24′ N. lat. and long. 60° 13′ W. and the west end of Bonair in lat. 12° 21′ north. If you are bound to windward, I would advise you to beat up the south side of the island, and work up under the west end of Bonair before you reach over, for you have at most times a counter current, which runs to windward, and the west end of Bonair is clear and bold too; there is a small sandy bay on the W. N. W. part of the island, where you may anchor within half a mile of the shore; but don't come within two leagues of the south side of the island, for there low sandy keys lie a long way off, as well as some rocky reefs.

Tonnage Duty in Curassoa.

Foreign vessels, four rials per ton every voyage.
Island vessels, four rials per ton per annum.
Dutch vessels from Holland, *free*.
Pilotage on foreign vessels, double.

Directions for vessels bound to Trinidad, *Currents, &c.*

In the rainy season, that commences commonly in the end of June, or beginning of July, a strong current sets out of the Bocca's del Drago, or Dragon's mouths, occasioned by the rivers and branches of the river Oronoco, that empty themselves into the Gulf of Paria. This, with a strong lee current, and southerly wind that generally prevails the same season, occasions many vessels to fall very unexpectedly to leeward, an accident irretrievable by the fastest sailing vessel, particularly in light winds. It is therefore adviseable for vessels bound in that season to Trinidad, from the United States, to go to windward of Barbadoes, and make Trinidad. From thence steer S. S. W. or as high as the wind will permit, to get hold of the land of Trinidad, distant 6 or 7 leagues. The course along the north shore of Trinidad is W. S. W. 15 leagues from the point of Gallera, or N. E. point of the island to the Bocca's.

If you have a moderate breeze you may enter the second Bocca's (being the safest, except the Grand Bocca's farther to the leeward) keeping the lee or westward shore on board, by which means you will carry in the breeze, and leave an eddy current when the stream is running out in the middle and on the eastward. If the wind is light, and the tide on ebb, we would advise the Great Bocca's, or Dragon's mouth, where you may come to, in good holding ground, with a light kedge, till the breeze or current favours.

When you are within the Boccas and Gulf of Paria, a short distance, you will open St. David's tower, above the town of Port of Spain clear of the south part of Gaspar Grande, about E. by N. distant 4 or 5 leagues. St. David's tower, or citadel, is of white stone, a conspicuous mark, in the interior of the fortifications, built by governor Picton, on Abercrombie heights. In sailing up, you will see the forts on Gaspar Grande and Point de Guard, for protection of the Carrenage and Chagaramus; and farther up, the shipping off the town.

From the Boccas del Drago, or Great Dragon's mouth, to Cape Three Points, the land is high and hilly, and the coast remarkably clean; so that a ship may run along it, at the distance of half a mile. At a mile from the shore, the depths are from 20 to 40 fathoms, muddy sand.

Upon all the coast of Venezuela, eastward of the Gulf of Maracaybo, the Spanish officers say, that there is little other than the regular breeze, or trade-wind. Nothing to fear on it either from hurricanes or hard norths; the first being absolutely unknown; and the second, if they do at any time occur, never exceed the strength of the ordinary breeze. In the rainy season, which is from May to November, southerly winds sometimes occur, and are very strong: but they are to be considered as only squalls of short duration, and which are not likely to do much harm, as they blow off shore. With all this we may look upon the coast as one continued port, for the climate renders it equal to that; and no more is necessary to keep clear from the dangers than to consult the description of the coast, for the loss of a vessel upon it is very rarely the effect of storm.

From the island Trinidad, where the easterly variation is about 4°, that variation is found to increase to the eastward. By observations in 1816, at Cape Vela, and thence to Chagre, from 6° to 6½° E.; in the Bay of Honduras, 8° E.; at Vera Cruz, about 9° E.; and at Tampico, 8½° East.

Cape Codera *and Ports of* Venezuela.

The principal establishments for commerce on this coast, and towards which vessels from Europe, in general, direct their course, are Cumana, Barcelona, La Guayra, and Porto Cabello—Maracaybo, Santa Martha, and Carthagena—Pampatar in the island Margarita, and St. Anna in Curazoa. It is a general rule on the coast, to make the land to windward of the port of destination, in order to prevent falling too far to leeward. Having once entered the sea of Colon, it will be proper to make the land about Cape Three Points, or Cape Malapasqua, if bound to Cumana or Barcelona; and those bound to La Guayra will make Cape Codera, &c.

There is excellent anchorage in Chuspa bay, at 11 leagues to the eastward or windward, of La Guayra, and the coast thence is generally clear; so that a ship may anchor on any part of it, at half a mile from shore, or even at the distance of a musket shot. The anchorage is exposed, affording no shelter from northerly winds.

The Island of Barbadoes.

The south point of Barbadoes lies in 13° 01′ N. lat. the middle in 13° 11′ and the north end, called High point, 13° 22′. The east side of the island is reckoned 59° 24′ W. long. In the latitude of Barbadoes, about 70 or 80 leagues to the eastward, you will find the water discoloured and prodigiously thick, as if there were soundings, but there are none, and you may depend on being at the distance aforesaid of that island. Endeavour to keep in lat. 12° 50′, or betwixt that and 13° which will make you sure of the island: observe also there is near half a point east variation.

The island of Barbadoes, which lies out of the line, and to the windward of the Carribee islands, is of a moderate height and pretty level, save a few hills here and there, of an easy ascent; though originally quite overspread with wood, there is little now remaining, being mostly cut down to make room for sugar and other plantations. The island may be seen in clear weather, 10 or 11 leagues off, and at other times only 8 or 9 leagues. The east end is much lower than the other parts; but when coming from the eastward, and the north end of the island is bearing W. by N. and W. N. W. about 5 leagues from you, and the S. W. point bears W. S. W. then the easternmost point of Barbadoes appears to be the highest land; from this east point to the southward, the land is even and declines towards the sea, but between the east and the north points it is uneven, rugged, and broken.

Always endeavour to be on the south side of the island, along which you may run within three miles of the shore, till you come to Needham's point, giving that point a quarter of a mile birth, and haul in for Carlisle bay; run into the bay till you bring Charles fort (on Needham's point) to bear S. E. by E. and the Steeple N. N. E. ½ E. you will have 14 fathoms water.

At the bottom of this bay, (where there are very commodious wharves for the shipping and landing of goods,) stands Bridgetown, the principal town of Barbadoes.

The S. E. part of the island, from South point to Kitridge's point, is surrounded by a ledge of rocks, which are called by some Cobbler's rocks from one of the most remarkable among them ; they extend about a mile from the shore, and you must be careful not to fall in with them in the night. At South point, (called sometimes Oistin's point) about 6 miles to windward of Needham's point, where the rocks end, is a flat spit, which must have a birth as it runs off W. S. W. and E. N. E. above one mile ; in the day time you may see how far it stretches by the white water ; when you are over that spit, haul up N. E. if you can, and at the head of the bay you will see a mill close by the water side ; bring that mill either E. by N. or E. N. E. and anchor in 7, 8, 9, or 10 fathoms water ; you will have tolerable good ground, but the bay is all over rocky, and this spot is the clearest part.

If you come into the leeward of the island, there are some few rocks, which lie N. N. W. of Carlisle bay, some three quarters of a mile off, called Pelican shoals, and some half a mile from shore, called the Half Acre shoal. Just above the north point of Carlisle bay, about 9 miles to the north of that point, on the west coast, is Speight's town, a small place, before which vessels ride occasionally.

Like the other islands, this is subject to tornadoes and hurricanes, in the summer months, which are very terrible and dangerous to the shipping ; for they have no harbours to shelter themselves in, but only bays where they lie at anchor ; and in the principal one (Carlisle bay) there is no good anchoring ground, it being foul and apt to cut the cables.

The Island of Tobago.

From Barbadoes to the north point of Tobago, the distance is 36 leagues ; the course by compass is S. 35 leagues, which will bring you about 5 leagues to windward of the island. It is common with most pilots to steer S. ½ E. but with that course they are exposed, when in the latitude of Tobago, to be at least ten leagues to the eastward of it. As the land is pretty high, it may be seen at the distance of 15 leagues, or more, in clear weather, and you must always endeavour to get on the north side of the island ; that side is bold and clear, till you get down about 9 miles from St. Giles' rocks, where there are several rocks above water, called The Sisters. They lie two miles from the shore, and are bold too. When abreast of these rocks you may see the west end of the island, which is low and sandy, and to the westward of them you may heave as near the shore as you please.

Tobago, like Barbadoes, lies out of the line, and to the windward of the Carribee islands. The latitude of the N. E. end is 11° 29′ N. the longitude is 60° 17′ W. It is not exposed to those dreadful hurricanes which are so destructive in the other islands.

If you make Tobago towards the evening, and are afraid of running in with it, you must not by any means lay to, but stand to the southward, under an easy sail ; otherwise the current, which always sets to the N. W. or N. E. will probably occasion your losing sight of the island ; and if it should set to the N. W. would perhaps carry you so far to leeward, that you could not be able to fetch it again.

Though Tobago does not possess any harbours, properly so called, it

has several good bays, which considering that from their southern latitude, they are never exposed to dangerous gales of winds, are equally convenient and secure to shipping.

In going to any of the bays to the leeward of the island, you may run as near to St. Giles' rocks, (on the north point,) as you choose, and, if going into Man of War bay, may borrow as near the north point of that bay as you please. Vessels sailing from the eastward for the south side of the island, must keep well to the southward, otherwise the current round Little Tobago, (which runs always to the N. W.) will sweep them all away to the northward. To the S. W. there is nothing to fear till you come to Courland bay, but what shows itself, except Chesterfield rock. This is a sunken rock, with 9 feet upon it, at low water. It lies above half a mile from the shore, near the east point of Minister bay.

The currents near Tobago are very strong and uncertain, especially between that island and Trinidad. The north-east trade wind blows all the year round. At the full and change of the moon the sea rises four feet perpendicular.

Description of the several Bays *of* Tobago.

MAN OF WAR BAY, on the north side, lies about 3 miles from St. Giles' rocks. You have no soundings till you are close up in the bay, and then from 40 to 10 fathoms, except a small spot towards the west, called the Cardinal, which is an exceeding good place for fishing. When bound to that bay you go to leeward of St. Giles' rocks: haul in for the bluff, or North point, and you will see the bay; open the key as near the bluff as you can, but take care the wind does not take you aback, for it is very fluttering under the high land. Turn into the bay which is all bold, even to the rocks; anchor as far to windward as you can. After you are shot in, you will see a little bay called Pyrat's bay; get as nigh that bay as you can, in 12, 14, 16, or 17 fathoms, all clear ground; if you cannot turn in, you may anchor in 35 or 40 fathoms, and warp up. In Pyrat's bay is the watering place, in the rainy season. On the south shore of Man of War bay you may anchor in 16 or 18 fathoms a quarter of a mile from the shore, and have good water, at all times, half a mile from the anchorage; but there is a great surf, which makes the watering hazardous.

About 6 leagues from Man of War bay, and 4 leagues S. W. from the Sisters, lies Guana point, or the north point of Courland bay. If you arrive in the night, and do not care to push for the bay, there is very good anchorage to windward of the bluff, from 6 to 20 fathoms, regular soundings; in the day there is no danger but the Beef-barrel, which breaks at low water, and is so near the shore that no prudent seaman will come nigh it. You come to an anchor, in the middle of the bay, between Guana point, and the rocky point, called the Hawk's bill, at the west part of the bay. You may anchor in 6 fathoms, but in 9 or 10 there is good fishing, either with the seine or with the hook and line. It is clear ground, only a few stumps of trees close up to the mouth of the river. If the wind hangs to the southward of the east, you will ride very rough, and if at N. E. you will roll very much. In this bay you have the common trade wind all day, and an off-shore breeze all night.

To the southward of Great Courland bay is Little Courland bay, that

has very good anchorage within the windward point, which is very bold; there you may ride safe, and smoother than in the former.

Between Man of War bay and Courland bay, are the bays called Bloody bay, Paletuvier's bay, Englishman's bay, and Castara bay, which have safe anchorage for vessels of 150 tons.

At the south-west end of Tobago, is Sandy point bay; if you weigh from Great Courland bay, be sure of a breeze to carry you without the reef, called Bucco, for if it is calm, the current will set you down on this reef, whose northern end, which breaks and dries at low water, is about two miles from the shore; keep about two cable's length from the breakers, and it is perfectly safe.

To enter Sandy point bay, haul close round the reef, and having passed the point, anchor at the bottom, in six fathoms.

Between Little Tobago and the great island, 4 miles from St. Giles' rocks, is Tyrrel's bay for ships of 150 tons.

Three miles and a half from this, and on the south side of the island, lies King's bay, with good anchorage any where, within the windward point from 6 to 20 fathoms. In the day time, the high land on this point intercepts the trade wind, and the swell from the eastward is apt to set a vessel down to the leeward point, which projects farther to the southward; therefore the best time to sail out is early in the morning, about day-break, when the wind blows fresh off the land to the northward.

Queen's bay, adjoining to King's bay, on the west side, has very safe anchorage, within about 1½ cable's length from the shore. Give the island off the point a good birth to windward, but if you can procure a pilot, it will be proper to have one.

Halifax bay, about one league to leeward, is a very safe snug bay for vessels of 250 tons; but there is a shoal in the middle of the entrance, that makes a pilot nescessary.

Barbadoes bay lies 5 miles S. W. of Halifax bay. In running down the south side, to avoid Great river shoal, keep the east end of Little Tobago open with Smith's island, until the latter bears N. W. when you may luff up for the bay, but you must be careful to avoid a reef of coral rocks which runs out from Granby point, about a cable's length. When you are within the reef you have very good anchorage in from 12 to 7 fathoms, and the best mark for it, is to bring the Silk Cotton tree on the beach, in one with the flag staff on the hill.

Rocky bay 5½ miles W. from Barbadoes bay, is a safe deep bay, where a vessel may anchor from 15 to 7 fathoms water, and no danger in standing in boldly. In running down this bay, care must be taken of Chesterfield rock, mentioned in page 404.

Heavy laden vessels, not calculated for beating, we would advise to run down in lat. 10° 10′ N. make the S. E. point of the island, run down the south side, and enter the Gulf of Paria by the Serpent's mouth. There are no dangers in running down this channel, and you will have from 12 to 5 fathoms through, keeping the land of Trinidad nearest on board. In entering the Gulf, keep as close as possible to Point de los Gallo, or Cock's point, to avoid the Soldier Keys. When in, luff up. Port of Spain town lies N. E. distant 12 leagues. In running for the S. E. point and south side, you will have soundings before you make the land.—Should night come on you may anchor in the channel.

On the N. side of the island of Trinidad is a narrow ridge of high mountains, running the whole length from E. to W. the other parts are moderately low, except on the south side, where there are several hills.

Remarks on D'Espagne Bay, *or* Spanish Bay, Gulf *of* Paria.

Lately given by a Commander.

P. M. Light winds and cloudy: half past 2 came to with the best bower in 9 fathoms, veered to $\frac{1}{3}$ of a cable, latitude 10 deg. 39 min. N. longitude per middle set (mean 3) lunar observations 61 deg. 54 min. W. when the ship's head was N. E. by N. which was the way the nearest land bore, a long mile off. The Fortified Island, forming the west side of the bay, bore W. by N. $\frac{1}{4}$ N. A white half-moon battery, just above the town on the brow of the hill, which is a good mark for this bay, as it may be seen a long way off it, bore E. N. E. about 5 or 6 miles. This battery, by large ships when working in, should never be brought to the northward of N. N. E. and the best anchoring is in the N. W. bight of the bay, perhaps, to have anchorage, this is the most spacious safe bay in the world: for here is a superficial space, I am sure I speak within bounds, when I say of 72 miles, where ships may anchor; and, if the wind blows from any point into the bay so as to embay them (which is a rare thing) and only happens in the hurricane season; but hurricanes are not known here; if ships drive from their anchors, which are in good holding ground, they go on shore in soft mud, and are got off without damage. The depth of water throughout this spacious bay, is from 12 to 5 fathoms in the last depth we lay, and only one mile off shore.

Currents of the Caribbean Sea, *and Inset into that of* Mexico.

"On the Columbian coast from Trinidad to Cape de la Vela, the current sweeps the frontier islands, inclining something to the south, according to the Straits which it comes from, and running about a mile and a half an hour, with little difference. Between the islands and the coast, and particularly in the proximity of the latter, it has been remarked that, the current, at times, runs to the West, and at others, to the East. From Cape de la Vela, the principal part of the current runs W. N. W.; and, as it spreads, its velocity diminishes: there is, however, a branch, which runs with the velocity of about a mile an hour, directing itself towards the coast about Cartagena: from this point, and in the space of sea comprehended between 14 degrees of latitude and the coast, it has, however, been observed, that, in the dry season, the current runs to the westward, and in the season of the rains to the eastward.

"On the Mosquito Shore, and in the Bay of Honduras, no rule can be given for the alterations of the current. All that can be said is, at a good distance from land, it generally sets towards the N. W.

"In crossing from the coast, or from Cartagena, to the islands, it has been observed, that, from La Guayra, to the eastern part of St. Domingo, on a voyage made in December, a difference of 106 miles to the westward was found during the seven days the voyage lasted."*

* The Baron Alexander de Humboldt, in describing his passage from Cumana, westward, to Guayra, has said, "The general motion of the waters between the tropics toward the west, is felt strongly on the coast during two-thirds of the year only. In the months of September, October, and November, the current often flows towards the *East*, for fifteen or twenty days in succession. Vessels on their way from Guayra to Porto-Ca-

Between the Island of Jamaica and the Spanish Main, westerly currents are most frequent, yet they do not always prevail; for ships have been known to be driven by the current from 50 to 60 miles to the *eastward*, in four or five days. From the beginning of May till November, (*the rainy season*,) the sea-breeze seldom or never blows home to the main: and ships going there should never go to the southward of the latitude of 11°, until they are, at least, 40 or 50 miles to the westward of their intended port; after which they may make a south course, as the land-breeze, which is generally from the S. W., and the strong easterly current, will set you to the eastward of your intended port, if great care be not taken. When to the eastward, if light winds prevail, you must stand to the northward until you meet the sea-breeze, which will be between the latitudes of 10 and 11 degrees, and then run to the westward.

Between Chagre and Porto-Bello, during the rainy season, there is generally a northerly current, at the rate of from one and a half to two and a half miles an hour. After the end of the rainy season the current sets to the southward and westward, and strong southerly and easterly winds prevail here. From November until May, (the *dry season*,) the southerly and westerly are very light winds, except in squalls, which end with heavy rain. In sudden squalls, you will often have the winds from all points of the compass.

If at Chagre, at any time during the rainy season, (May till November,) and bound to the eastward, endeavour to get four or five leagues from the land, so soon as you can; for the winds are, in general, very light, and the current very strong. The latter sets from Chagre directly on the rocks of Porto-Bello, and thence along the land from E. by N., E.N.E., E.S.E., and according as the land lies: its general rate being from one and a half to two and a half miles in an hour. Great care should be taken when near the land, if a heavy squall and rain appear to be coming on. During this you will have the wind from all points of the compass, and often so strong that all sail must be taken in.

In crossing the Gulf of Darien, little or no current will be found; whenever there is any, it sets about South, S. by W. or S. by E., up the Gulf.

Near Cartagena the current generally goes with the wind; but off the Islands of Rosarito it sets to the N.W. and N.N.W., from one to two miles an hour.

Between Cartagena and the Magdalena, in the rainy season, you cannot put any dependence on the winds or currents; but, from November to May, the trade-wind blows home.

I should recommend, if turning to windward, with strong trade-winds, to keep the shore close-to: whereas, by going off from the land, you will not only have a heavy sea, but also a strong N. W. current. If you have light variable winds, approach no nearer to the land than 4 or 5 leagues, as you may be certain of an easterly current.

An experienced navigator says, "During five weeks in which I remained at Cartagena, in June and July, 1817, the current in-shore set con-

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bello have been known to be unable to stem the current that runs from West to East, although they had the wind astern. The cause of these anomilies is not yet discovered. The pilots think that they are the effect of some gales of wind from the N. W. in the Gulf of Mexico. Yet these gales are much more violent in spring than in autumn. It is also remarkable that the current to the East precedes the change of the wind. It begins to be felt, at first during a calm; and, after some days, the wind itself follows the current, and becomes fixed in the West."

stantly and strongly to the northward, at a rate, I am convinced, of not less than a mile and a half an hour, or nearly as strong as the Mississippi at New Orleans. I have seen the Esk, sloop of war, current-rode against a very fresh sea-breeze, when at anchor, nearly west from the city, distant about a mile."

Captain Capes says, "Between Jamaica and Bonacca the current generally sets to the northward and westward. Here, in May 1816, I was set 60 miles to the westward by the current, and found that it set rather northerly, from one quarter to half a mile an hour. Between Jamaica and Bonacca are the islands called the Swan Islands, in latitude 17° 22′ long. 83° 36′. I would not advise any one bound to the Bay to make these islands, for it cannot be of service, and the current is so very irregular about them, that the attempt serves only to bewilder the navigator; and by falling in with them in a dark night, a ship would be in danger of running on shore, as the land is very low."

About the Southern Four Keys the currents are very uncertain. I have known three ships to be lost on these Keys by lying-to for the night, after they have made them; for at all times, the current sets strongly on them; and, in two of the cases the ships wore every two hours, with an intention to keep their station. In one voyage I took my departure from Bonacca at four P. M. with a strong breeze from the East, which continued till midnight; it then died away, (no uncommon circumstance in this part,) so that I did not lift the Southern Four Keys before 4 P.M. the next day, from the fore-yard. I then made all snug, and plied to windward, under single-reefed topsails and topgallant sails over them; tacked ship every three hours, during night, and, to my surprise, in the morning, we were not more than one or two miles to windward of them; so, if I had hove the ship to, I have no doubt but she would have been driven on shore by the current.

If a ship be lying-to, under Rattan, it will not be amiss to try the current. It is my opinion that the current about Bonacca takes two different directions; one part setting to the N. W., and the other part branching to the S.S.W. I have found it so on several trials, which is the reason that I prefer taking a departure (for the Bay) from the middle or East end of Rattan; for, if a ship take her departure from the West end, her course will be N.N.W.; but it very frequently happens that ships get down on those reefs when they take their departure from the West end. The reason is this: a ship steering N. W. from the West end has more of the current on her beam, which sweeps round the West end of Rattan, very strong at times; consequently, ships that take their departure from the East or middle part do not feel so much of the current.

Captain Burnett, in his directions for sailing from the Bay of Honduras, says, "When the trade-wind prevails, a current, often very strong, sets down between Mauger Key and the Northern Triangle; there, dividing itself, it sets to the southward, between Turneff and the Main Reef, and to the northward between the Triangle Reef and Ambergris Key. It is most adviseable, with the wind from East to E.S.E., to sail to leeward of the Triangle, as you will have a strong current in your favour so soon as you bring it to the eastward of you.

In the channel, between the island Cosumel and the shore, the current along shore runs at the rate of nearly 2½ miles an hour, till lost in the Mexican Sea.

It is, we believe, a well-established, although a controverted fact, that there is a constant indraught on the western side of the Channel of

Yucatan, into the Mexican Sea; and that there is commonly a reflow on the eastern side of the same channel, around Cape Antonio, &c.

With the former in its favour, his Majesty's ship Resistance, Captain Adam, off the Bank of Yucatan, made a course W. N. W. ½ W. nearly 80 leagues in the 24 hours, December 16 and 17, 1806;* and we have no doubt that many instances may be found to prove the same effect; on the Cuba side only, it appears that vessels have been set to the southward; and Captain Manderson has stated that, when a strong easterly wind has been blowing between Cuba and Florida, vessels heaving-to off the South side of Cape Antonio, at about two leagues from shore, have, in the course of one night, been carried against a strong sea-breeze, nearly as high as Cape Corientes, being a distance of 10 leagues. A ship once lying-to for the night off Cape Antonio, was driven by morning off Cape Corientes.

A considerable current sets, *at times*, from Cape Antonio to the E. S. E., past the Isle of Pines. Captain Livingston has informed us that, in March 1818, he found the current between the Great Cayman and Isle of Pines to set in that direction, at the rate of fully two miles and a half an hour, or 60 miles in the 24 hours. In August 1817, he found the set nearly the same, but the current not half so strong. The Spanish Directory says, 'From Cape de Cruz, on the South side of Cuba, it is noticed that there is a *constant current to the westward*, with some inclination to the southward or northward, and which has been known sometimes to set 20 miles in a single day.' In opposition to this, the exact words of Captain Livingston are, "I have twice experienced a strong current setting about E. S. E., between the Caymans and Isle of Pines; and, on the latter of these occasions, both my mate and myself separately calculated it to set about 60 miles per day, or 2½ per hour. This, however, I incline to think a very particular case, such as may but seldom occur. The winds at this time were light and westerly. On the other occasion, so far as I recollect, it set about 12 or 14 miles per day only. All my papers on these subjects have been lost; but the first instance was too remarkable to be forgotten."

On the northern coast of St. Domingo, and in the Windward Passages, there does not appear to be any general current. On the North side of Cuba the case is nearly the same; but in the channel here is a regular tide throughout the year, subject, however, to certain variations.

The currents of the Caribbean Sea are probably varied by the influence of the moon, and combine, in some degree with the tides; especially about Cuba, Jamaica, and St. Domingo.

In an old book, (Kelly's Navigation, Vol. I. 1733,) is an abstract from a journal, which contains the following passage:—"Between the West end of Hispaniola and the island of Jamaica, if I took my departure upon a full or change of the moon, I found that I made many leagues more than I did at the quarters of the moon. At the full and change, I was looking out for the land long before I saw it; and, at the quarters, I was down upon it long before I looked for it. The reasons as I found afterwards, were, that the full and change made a strong windward current, and the contrary on the quarters. This has been exemplified in many instances."

On this subject Captain Livingston says, "It is a prevailing opinion with many, that the moon governs entirely the currents among the West-India

* The northernmost part of the track extended to 24° 50′ N., in longitude 90° 39′

Islands. No doubt the moon has some effect on them, but I am of opinion that the winds have still a more powerful influence.

It is rarely, indeed, on the North side of the island of Jamaica that there is a westerly current when the North and N. W. winds prevail; the current then always, or almost always, setting to the eastward.

On the South side of Cuba, when the wind is westerly, which it often is, you are always certain of a re-flowing current round Cape Antonio. This is easily accounted for; as, when the fresh trade-wind ceases, and the westerly winds set in, the barrier is, in some degree, removed which confined the waters in the Gulf of Mexico, and they seek to regain their level as well by the Channel of Yucatan as by the Strait of Florida."

In the Windward Channel of Jamaica the current generally sets with the wind, to leeward or S. W.; yet, both here and at Jamaica, it is variable. Some have affirmed that, when a current runs to leeward, on the South side of Jamaica, there is frequently one setting eastward on the North side; and, at other times, no current is to be perceived; also that, when a lee current runs on the North shore, the same circumstances may be perceived on the South shore as were before observed on the North.

But between the Mona Passage and the Caymans, South of the islands, the tendency of the currents toward shore is most commonly found to be to north-westward.

In the Bahama Passages the currents are devious; both weather and lee-currents having been found. These, also, appear to be influenced by the tidal causes.

The FOLLOWING is an additional DETAIL of the best information we have been able to collect, of the Currents in the Caribbean and Mexican Seas, from the *Derrotero de las Antillas*, &c.

In the Channel between Trinidad and Grenada the current has been found to set nearly West; on the South side half a point southerly, and on the north side half a point northerly. Its velocity from a mile to a mile and a half per hour.

Between Grenada and St. Vincent's, among the Granadines, the currents are devious; but the general inset appears to be W. by N.

Between St. Vincent's and St Lucia the current, from the eastward, sets in more northerly; and within, on the West, it has been found setting to the N. W. Between these islands it seems to be as strong as in any other part of the range.

Between St. Lucia and Martinique it has been found nearly North. Very variable on the western side of the latter.

The current sets nearly in the same manner *between Martinique and Dominica*; but, to the north-westward of the latter, it has been found nearly S. W. $\frac{3}{4}$ of a mile hourly. *Northward of Guadaloupe* it sets W. $\frac{1}{2}$ S., and *between Montserrat and Antigua* N. W.

Between Redonda and Nevis it has been found W. S. W. half a mile hourly.

Without Barbuda and the northern isles, it has set about W. by N., and to the northward of the Virgin Isles and Porto-Rico about W. S. W.

At the distance of about one degree, *within the range of the Caribbee Islands*, and to the Virgin Islands, the current has been found setting, in general, to the W. N. W. from one mile to one mile and a half an hour.*

* On the leeward side of the Virgin Isles, devious currents are found, frequently to the south-eastward. The same have been observed on the western side of St. Christopher's, &c.

From Trinidad westward, and off the North side of the Spanish Leeward Isles, the current has been found setting West and S. W. to the Gulf of Maracaybo ; thence S. W. also to Cartagena : but it varies, as already described in pages 406 to 409.

From Cartagena towards the *Channel of Yucatan*, it has been found N. N. W., and N. W., W. N. W., and N. W. by N., from 1 to nearly 2 miles, and then decreasing to 1½ mile per hour. It has also been found setting to the eastward, as shown in the preceding pages.

At about 40 miles *northward of Cape Catoche*, the current has been found N. W. by W. ; changing thence to S. S. W. off the N. W. point of Yucatan, nearly at the same distance from the coast. Rate something less than half a mile an hour. Between this and Vera Cruz the current ceases.

Three degrees to the N. N. E. of Vera Cruz, the current has been found setting to the N. E. one mile an hour. Thence N. N. E. and N. by E., and again N. E. nearly to the parallel of 25½°, longitude 91½°. Here it changed more to the East, and became, in latitude 26° E. by S. changing southward to S. E. by S. in the direction of the River Mississippi, and latitude 25° 30′ N. Hence it sets, with some variations, towards the western end of Cuba.

Directions for entering the River Oronoko.

POINT COCAL.—Eastward.—From the River Poueneron the coast of Guayana continues without varying any thing from the former, (to the southward) until Point Cocale, which is known by forming a Bay to the southward, and having to the west some tall Cocoa trees, which are the only ones on the whole coast, the rest being covered with mangroves.—From the said point you must steer N. W. and N. N. W. with the precaution to keep in five or six fathoms, to avoid a bank of mud, which is about two leagues and a half to the N. N. W. of it, and continuing these courses about 12 leagues, you will discover the mouth of the River Guayana, in 8° 25′ N. lat.—The making the mouth of this River, the only one on the coast, is very important to those who want to enter the Great Mouth of the Orinoco, there not being any other distinguishing mark that can be depended on with security ; and its configuration is unequivocal, not only from its entrance or appearance, but also from three little hills or hummocks which will be seen about S. W. in the interior, if the day is clear To the N. E. of these mouths, and at the distance of about 3 leagues, there is a shoal of fine sand, on which there are 2½ fathoms, and to avoid it great care ought to be taken not to come in less than five fathoms water, muddy bottom.

POINT MOCOMOCO.—From the mouth of the Guyana the coast is low, woody, and equal, extending 8 leagues to the N. W. where Point Mocomoco is situated :-to this succeeds the coast called Sabanita, which tends W. about 4 leagues, also woody, equal and lower, and less easy to sound than the former—The point of Sabanita is in lat. 8° 44′ 30″, surrounded with a shoal of loose mud and small shells.

ISLAND CONGREJO.—The island Congrejo, whose N. E. point is in N. lat. 8° 36′ has a shoal of hard sand the colour of ground coffee, which extends 6 leagues on the east side or part, and about 2 on the north side,

which makes the entrance to the river dangerous; between it and the coast of Sabanita, the Bar of the Great Mouth of the Oronoko being formed, whose depth at low water is 15 feet, and at high water 16 feet, loose mud. The bar from N. to S. is three leagues, and something less than E. to W.

POINT BARMA.—From Point Sabanita the coast continues woody, but something higher than the former; in the direction to the S. W. about 3 leagues, it terminates in forming Point Barma, from which there is formed a great Bay or Inlet, by which you enter the river.

Coast to the N. W. of the Great Mouth.

The coast which continues to leeward of the Island Congrejo, is very different from the former, being flat and broken, forming several mouths by which the Oronoko disembogues, and which are navigable only for small vessels that have good pilots on board, being full of dangerous shoals of sand.

The making the Mouth.

With a knowledge of the foregoing, the mouth of the River Guayana being observed, you will run down the coast at the distance of 5 or 6 leagues, maintaining not less than 4 or 5 fathoms water, muddy bottom, until Cape Barma bears S. S. W. $\frac{3}{4}$ W. when you must steer for it in search of the Bar, without omitting to sound to preserve the muddy bottom, even if you should shoal your water, being preferable to ground in mud than to expose yourself to fall on the shoal of hard sand on the Island Congrejo.—If you have this sort of ground (hard sand) you will immediately steer to the S. until you recover the muddy bottom, continuing in this course, nearing Cape Barma, and when within about 2 leagues of it you will see a large woody island to leeward, which is the Island Congrejo; and you will begin to deepen the water, having crossed the bar, until you have 5 fathoms; in this situation you will steer from S.W. $\frac{1}{4}$ S. to S.W. $\frac{1}{4}$ W. to keep in the mid channel; if you should have less than five fathoms muddy bottom, the vessel has been drawn towards the Continent, and you must steer a westerly course to recover the mid channel; but, should you have less than 5 fathoms, sandy bottom, the vessel has been drawn towards the shoal or Congrejo Island, and you must steer to the southward to regain the mid channel, by which, and the qualities of the bottom aforesaid, you will run in until the S. Easternmost point of Congrejo Island will shut in some small woody islets, which there are in the N. Easternmost part of the Island, which you may approach and anchor in 5 or 6 fathoms, muddy bottom, in which situation any vessel will ride secure and sheltered—and it is absolutely necessary to wait for a pilot to conduct the vessel up the river, as without one you would inevitably expose your vessel to danger: any little vessel of the country can supply a pilot.

Point Corroband, lat. 6° 48′ N. long. from Cadiz . .	51° 44′
Mouth of the Guayana River	8° 25′.
Point Sabanita	8° 44′.
Cape Barma	8° 41′.
N. E. Point of Congrejo or Crab Island, ...	8° 36′
Great Mouth of the Orinoko	8° 41′

Remarks for sailing into the River Demerari.

At the entrance of the River Demerari, an E. N. E. and W. S W. moon make full sea, and the water at the highest spring tide does not rise more than 8 or 9 feet perpendicular. From each point of the river runs off a flat mud bank, at least 3 leagues into the sea, on many parts of which there are not more than from 8 to 12 feet water, at high water. Between these banks lie the entrance and bar of the river, on which at the highest spring tides, there are not more than 20 feet water, but all very soft ground. If the wind should cast out, be very cautious, and not stand too near the west bank, as the flood tide sets on it in an oblique direction, and the ground in some parts is hard sand ; but you may borrow on the east bank at pleasure, being all soft mud, and you receive no hurt by touching the ground.

About six miles up on the W. side of the river, stands a remarkable lofty tree by itself, the branches of which appear to be withered, and 3 or 4 miles above that, there is a tuft of trees or bush, which is very remarkable.

In running into the river, the leading mark is to keep the withered tree on the westernmost part of the tuft or bush, which will carry you in the best water and about mid-channel, steering at the same time S. by W. by compass. The breadth of the channel going in, is about two miles ; shoaling gradually on each side. The best anchoring ground is within the east point, in 4 fathoms at low water, soft mud, keeping the eastern shore on board, the western side being flat and shoal ; it is necessary to weigh the anchors once every 10 days, or they will bury so much as to be supposed to be lost.

N. B. The thwart mark to know when you are without the bar is when Point Spirit comes open to the northward of Corrobana Point, and you have 4 fathoms water.

Vessels bound for Cayenne, or Surinam, in the summer season, should always run down 10 or 15 miles to the southward of the port, owing to the currents running much stronger to leeward at this season of the year, which is caused by the overflowing of the Amazon. During the fall and winter seasons, I would recommend, in running for Cayenne, to make the Constables, which are two islands about 40 miles to windward of Cayenne, and about the same latitude. The northernmost island is a round lump, and the other quite low. Inside of these islands are others called the Father and Son, and Mother and Daughter. Go to the southward of all these and you will soon see the flag-staff ; run the land along, keeping the lead going, until the river opens S. S. E. when you may haul in for the shipping, and anchor abreast of the town. Going from Cayenne, and the wind scant, so that you cannot weather the Devil's island, you may go inside of them, there being 4 and 5 fathoms water.

To windward and leeward of Surinam for a long distance, the land runs east and west nearly, which induces many to anchor and send their boat on shore to know their situation.

The most remarkable thing to windward are some gaps in the land, caused by clearing the trees away, and just to windward of the Mother bank is a large white house.

Vessels should run down this coast in 3 and 4 fathoms water, and anchor by night, unless they know where they are, and have distance to run. When you approach the Mother bank you have to haul away to

the N. W. to go round the north part of it, and be sure to haul close round it, for you have to haul up S. E. by S. when you will open the river. Bram's point is the east entrance and has some houses on it, but in foggy weather cannot be seen a great distance. It may be remarked generally on this coast, when you get hard bottom, danger is near.

Observations and Remarks on the Coast *of* Guyana.

Ships bound from the Leeward or Carribee Islands, to the coast of Guyana, should steer as far to the eastward as S. E. if the wind will permit, on account of a strong indraught or current, setting all times of the year to the westward, through the Gulf of Paria. The moment you come on the eastward edge of the ground, you will perceive the colour of the water change to a light green, and will have from 35 to 45 fathoms. If in that depth you should be so far to the southward as 7° 25′ or 7° 30′ N. latitude, you may steer in S. W. and make the land; but if more to the northward, keep your wind till you attain that latitude. You will have very gradual soundings quite to shore, but very shallow; you will be in 9 fathoms when you first get sight of the land about Demerari; but you may run in without fear in 4 fathoms, being attentive to your lead. As it is the general opinion, that there are many unexplored sand-banks on this coast, a great attention to the lead, and quality of the ground, will be necessary, as by that only you will be apprized of the danger, for on most parts of this coast to the eastward of the river Oronoko, the bottom is very soft mud: if on a sudden you find hard sandy ground, be assured some danger is near, and immediately haul off, till you again find soft ground as before.

The making of the land all the way from Oronoko, as far to the eastward as Cayenne is very low and woody, and therefore appears in all parts so much alike, that the most experienced pilots are frequently deceived; your chief dependence, therefore, is in a true altitude: if that, by reason of thick weather, cannot be obtained, it will be adviseable to anchor in about six fathoms, which you may do with great safety, having good ground, and in general moderate gales and smooth water.

The making of the land about Demerari, is the most remarkable of any part of the coast; the woods in many places being burnt down and cleared for cultivation, makes the land appear in large gaps, where the houses, &c. are plainly to be seen, and if there are any ships lying at the lower part of the river, their mast-heads may be plainly seen above the trees at some distance at sea.

If bound into Demerari, you must run to the westward till you bring the entrance of the river S. S. W. or S. by W. and either lay too or anchor for the tide, in four fathoms water: but be very cautious not to be hauled further to the westward than these bearings, for the flood runs very strong into the river Essequibo; at the mouth of which, and at a great distance from the land, lie many very dangerous sand banks, on some of which there is not more than 9 or 10 feet water, and the flood tide sets right on them.

On many parts of this coast, particularly off Point Spirit to the eastward of Demerari, the flood tide sets right on the shore, and the ebb right off

to the N. E. It will be adviseable, when calm and near the land, to anchor there. About 4 leagues to the eastward of Demerari river, a beacon is erected by which your position may be known when running down for Berbice; to the westward of which, about two leagues, is a handsome grove of cocoa trees, which makes this part of the coast remarkable, and distinguishes it from others.

In the month of December there is, at times, particularly in shoal water, on the coming in of the flood, a great sea, called the *Rollers*, and by the Indians *Paroroca*. It is often fatal to vessels at anchor. The early navigators have been puzzled to assign a cause for this phenomenon, which is occasioned by the northern winds blowing on the shoal water.

The coast of Guayana is, generally, very low, and soundings reach out to a great distance. Those soundings are the chief guidance in making the coast, which cannot be seen at the distance of 5 leagues: a nearer approach than 2 leagues is dangerous, the water being shoal, with extensive banks of sand and mud. The harbours are the mouths of rivers only, and each is obstructed by a bar of the same quality. Hence practical knowledge is necessary to all who attempt to enter.

If it be required to beat to windward on this coast, or to proceed from the Oronoko, Essequibo, or Surinam, to Cayenne, it is necessary to work along the coast with the ebb tide, in from 3½ to 4 fathoms water, outward to 8 or 9 fathoms; for, though you may be shouldered away by the current to the N. E. you will gain very well on the tack to the S. E. or E. S. E.: but, with the flood tide, you must anchor; for, then, both wind and current being against you, you would inevitably be driven ashore.

Directions for sailing up the Surinam River *to* Paramaribo.

It is adviseable for ships coming from the eastward, or long voyages, to get into lat. 5° 55′ N. long. 50° W. (except they have a time-keeper or lunar observation that may be depended upon) as by that means they will have an opportunity, from observation to observation, of ascertaining the current, which almost constantly, off the Maroni, runs to the N. W. and you are also to observe that during the rainy season, you cannot depend always on a meridional observation.

When you have got ground in the above latitude (and be sure to sound in time) 60 to 40 fathoms fine sand, you are about 30 leagues to eastward of the Maroni shoals, and you must not, *in the night*, approach nearer to them than 10 fathoms, when the soundings will be gradually coarser: in hauling to the northward, you will have deeper water and finer sand: and in 10 fathoms water, heaving to, with your head to the northward, you will drive clear enough of the shoals to the N. W. You will always know whether you are to the eastward, and consequently to the windward, by those soundings; for the ground six leagues to leeward of the Maroni, all the way to Bram's Point, is soft mud. In order more readily to distinguish Bram's point, a beacon, 70 feet high, is erected about one mile to windward of the point, exhibiting a broad tin vane, painted white. When the vane is first distinguished from any vessel advancing from the

eastward, she may be considered as on the edge of the mud-bank. The body or frame of the beacon is boarded around and painted white. Your best land-fall will be between Port Orange and the Maroni, indeed it is absolutely necessary you should make the land thereabouts. The Maroni is known by the only high land near this coast, and appears, when you make it, a great distance inland, and bringing it to bear south of you, are clear of its shoals, you had better then stand in until you are in 8 fathoms water.

In making Port Orange, which has been often mistaken for Bram's Point, and which error has occasioned the loss of many ships, observe there are many large white houses, which are barracks; and in the middle of them, appears a large tree, which, when bearing south of you, makes like a ship with top-gallant steering sails set; and the flag staff also appears among the trees, and those trees show to be near the houses, whereas Bram's Point has only two large houses, and the trees are on the other side of the river.

You will then keep on the edge of the Mud Bank in from 3 to 2½ fathoms, or as near as your draught of water will permit; and you need be under no apprehension in steering along the coast, as, if you touch, the mud is very soft, and on the Mud Bank, the moment you haul to the northward, you deepen your water; for on the whole of this bank it deepens gradually from 2 to 3½ fathoms, and then you are on the outward edge of it.

The next mark you have (for you must be very attentive in keeping a good look out) is a break in the land, which has been cleared for a plantation, with two houses; the trees on each side having been burnt, appear very brown, and in making it in 3 fathoms water, 4 leagues off, you are from 3 to 4 leagues to the eastward of Bram's Point, which forms the eastern entrance of the Surinam River. If it be evening, or ebb tide, you had better haul to the northward, and must anchor when you have 4 fathoms water, as the current would, during the night, drift you (should you lay to) as far to the westward as the Saramaca, and many ships have been three to four weeks beating back to Bram's Point, although the distance is only 7 leagues. Nay, heavy sailers, after beating many weeks, have bore up for Berbice, finding it impossible to contend against wind and current.

In approaching Bram's Point, which is easily known from any other port on the coast, (as it is the only point after the Maroni,) and is known by the beacon and two flag-staffs. Observe, the eastern staff is for signals, and the western the colours are hoisted, and at a distance appear to be almost in the water. You will on the flood, when it bears S. S. E. haul in, keeping the point open on the larboard bow: steering thus, you will clear the shoal that runs out to the northward of it, and you are in the fair channel way, and may go within hail, when there is good anchorage in 4 fathoms water, observing the best anchorage is within the point, half a mile; (the course up the river from its entrance to Fort Amsterdam, is S. E.;) on getting within the point, keep the eastern shore on board, as then, all the way up, until you reach Paramaribo, is the deepest water. About 3 miles within the point, you have only 2 fathoms at low water, and from thence to within 2 miles of the entrance of the Camawina, may not be improperly termed the lower bar; it extends about 3 miles.

In approaching close to Bram's Point, from the sea, you may naturally, if a stranger, apprehend danger from several wrecks that lie on the point,

but these are old vessels that have been brought from Paramaribo, and placed there as break waters, as at some seasons the sea breaks upon the point. In war time, and if an armed ship, you must anchor at the point, as a pass is necessary from the governor at Paramaribo.

Having reached near to the entrance of the Camawina, which branches from the Surinam, you must be very particular in guarding against the flood, which sets strong into the Camawina, which, without great precaution, would set you on a spit of sand which runs from Fort Amsterdam, almost across the Camawina. On the other hand, you must guard against some sunken wrecks, which lie a little below the Fort Amsterdam, on the W. shore, so as to keep between the two. Having passed the flag-staff, you will have 18 feet at low water, and from thence to the edge of the bar, the deepest water in the river. It is here ships complete their lading, who draw too much water to come over the bar. At Tyger's Hole there are 6 fathoms water, which is just above governor Frederica's Plantation, called Voorburg; you will then have a leading wind up, and by keeping three quarters over to the eastern shore, you will have the deepest water, 11 feet at low water, and 18 at high water; you will anchor abreast of Paramaribo, 4 fathoms, observing the deepest water is close to the town.

I shall conclude by these general descriptions: that you will be near, and to windward of the Maroni, with coarse ground; that hauling to the northward, ground will gradually become finer, and the water deeper; and to leeward of the shoals, a sandy coast and ooze; that it is necessary to keep on the edge of the bank in from 2½ to 3 fathoms, and in the rainy season, rather anchor too soon: or if you are the least doubtful, or should you sail a few leagues to leeward even in a fast sailing vessel, you would have much difficulty and length of time in turning back: and that in observing these precautions you cannot fail to make the land properly.

It is high water at full and change, at Bram's Point, at six o'clock: the flood sets to the westward; ebb to the eastward.

River Amazon.

You get soundings, coming in from sea, 30 or 40 leagues from land, from 30 to 60 fathoms water; if you are opposite the mouth of the river or to the westward of it, you will have mud and the water much discoloured, particularly in the months of July, August, and September. If you have fine sand, or sand and shells, or coarse sand, you may depend you are to the eastward of the mouth of the river, and the water, though much discoloured, has a different appearance. If you find your soundings mud, haul up to the eastward as much as you can. Opposite the Bay of Salinas, where you take a pilot, the soundings are coarse sand and shells. In running along the coast, when to the eastward of the entrance of the river, at 3 or 4 leagues distance, you have various soundings; from the Baxo de St. Joao (which is about 50 leagues south eastward of Salinas) to the Baxo de Gurnpi, you will have from 20 to 6 fathoms, but in general 7, 8, and 9 fathoms; from the Baxo de Gurnpi, to Salinas, 10, 11, and 12 fathoms; all these soundings sand of different kinds, sometimes fine white and yellow, sometimes the same kind

of sand, with small black specks, sometimes coarse sand like bran. The course from the Baxo de St. Joao to the Baxo de Gurnpi, is about N. W. by W.; if you run in the night, come no nearer than 8 fathoms. From the Baxo de Gurnpi to Salinas, the course is W. N. W. to carry you clear. The Bay of Salinas, where you take a pilot for Para, lies in lat. 00° 36′ S. You must not anchor in less than 6 fathoms at low water; bring the village of Salinas to bear S. E. by S. 3 leagues distant; high water full and change about 8 o'clock 30 minutes. The village of Salinas is situated on the west side of the East point, which forms the bay, and in coming along shore from the eastward, you do not get sight of it till it bears about S. by E.; there is no other village in any of the bays in the neighbourhood; it is good holding ground, but a heavy swell from sea-ward. In the middle of the village is a building which appears like a church, on which, if they hoist the colours in the day, or make two fires at night, you may be certain the pilot is there; when they make but one fire, there is a pilot, but he has no boat to bring him off; when they make no fire and hoist no colours, there is no pilot there; both of them (for there are but two) are absent at Para. The tide rises at the Springs about 3½ or 4 fathoms.

General Observations on the Winds, Tides, *and* Currents, *and on the* Different Passages, *over the Atlantic Ocean.*

WINDS IN GENERAL.—As the earth, by its diurnal rotation on its axis, presents, in succession, every part of its circumference to the sun, the heat of that luminary, by rarefying the air, is found to be the chief cause of winds. For, as the air is a fluid, subjected to the same laws of gravitation as other fluids, it has a constant tendency to preserve an equilibrium in every part: so that if, by any means, it be rendered lighter in any one place than another, the weightier air will rush in from every side, until as much be accumulated as makes it of an equal weight with the rest of the atmosphere. These currents of air are called WINDS.

The Winds are divided into PERENNIAL, PERIODICAL, and VARIABLE. They are also divided into General and Particular. PERENNIAL, or Constant, Winds are those which always blow the same way; such is that easterly wind, between the tropics, commonly called the TRADE-WIND. PERIODICAL WINDS are those which constantly return at certain times: such are land and sea-breezes, blowing alternately from land to sea and from sea to land. VARIABLE, or Erratic Winds, are such as blow now this way, now that, and are now up, now hushed, without regularity either as to time or place: such are the winds prevalent in England, &c.

Winds are generally found to vary according to the situation of land. For the temperature of the land, according to the degree to which it is heated by the sun, always affects the disposition and strength of the wind. Thus, it is found, that, the heated land of Africa, by rarefying the atmosphere, produces a breeze from the sea; and from this circumstance it arises, that lands, which would otherwise be parched up or burnt, are rendered habitable. It is observed, generally, that the continental coasts, between the tropics, are almost always blown upon *obliquely*, from seaward, by winds whose course is affected by the winds which prevail in the extensive seas that surround them.

PERENNIAL or TRADE-WIND.—But, over extensive tracts of ocean, *remote from land*, and in the lower latitudes, or toward the equator, Perennial or Trade-Winds are found to prevail, which follow the course of the sun: thus, on the Atlantic Ocean, at about 100 leagues from the African shore, between the latitudes of 10 and 26 degrees, a constant breeze prevails from the north-eastward. Upon approaching the American side, this N. E. wind becomes more

easterly, or seldom blows more than one point of the compass from the East, either to the northward or southward. This appears to be caused by the heated lands to the westward rarefying the air, and causing an indraught that way, as a contrary wind is induced on the African Coast.

The Perennial or Trade-Wind, on the American side of the Atlantic, extends, at times, to 30 degrees of latitude, which is about 4 degrees farther to the northward than on the African side. Likewise on the south of the equator, the Perennial Wind, which is here from the south-east, extends 3 or 4 degrees farther towards the Coast of Brazil than on the opposite side of the ocean.

The general cause of this wind is the motion of the earth, in its diurnal rotation, which thus presents, in succession, every part of its circumference to the sun; and the atmosphere becoming successively heated, a constant stream is thus produced. This is sufficient to show, that, in the regions near the equinoctial line, a constant rarefaction is produced by the sun, and a current of air consequently follows that luminary in his progress from East to West.

Heat increases evaporation, and renders the atmosphere capable of supporting a greater quantity of moisture than it would do in a cooler state: this is a powerful agent in the causes which produce a diversity of winds and weather, especially to the northward and southward of the tropics; for, by this addition of moisture, the air is more fully expanded, and becomes specifically lighter, than it would be in the same degree of heat in a drier state.

Were the atmosphere of one continued warmth, and its motion uniform, there would be no rain; for it would not imbibe more moisture in exhalation than it could support; therefore, in a perennial wind, notwithstanding the great evaporation, there is seldom any rain; but, from accidental causes, these winds are alternately stronger and weaker, with frequent clouds, and sometimes light showers.

These circumstances are assumed as prevailing at a considerable distance from the land, and from the limits of the perennial wind; for, every where near the land, when the sun has great influence, it occasions land and sea-breezes near the shores; and, in particular situations, heavy gusts and squalls of wind. The Trade-Winds are more steady and uniform in the Pacific Ocean, from its greater extent, and also in the Ethiopic, than in the Atlantic Ocean, where Cape Verde and the broad part of Africa extend so much to the westward, and the northern part of Brazil, in America, to the East.

Small islands, lying at a great distance from the main land, operate very little upon the Trade-Wind. If elevated, these islands are more subject to rain than if low; this may be occasioned, principally, by the ascent given to the wind, or atmosphere, in rising over the tops of the hills; when, being cooled, it condenses into small drizzly rain. This is an effect peculiar to all mountains, even in the middle of continents, when the atmosphere is sufficiently charged with moisture. For the sun's rays, by heating the atmosphere, according to its density, renders it much warmer at the bottom than at the top of hills. Upon a mountain, sloping from the sea towards the top, and about 700 yards in height, a pleasant breeze has been observed inshore, and fine clear weather; the air in ascending, (being condensed by cold,) at about half-way up, had the appearance of fog, or thin light flying clouds; but at the top was a misling rain; and this may frequently be seen in any mountainous country.

The clouds, in the higher regions of the air, are frequently seen to move in a direction contrary to the wind below. The reason of this variation is, that the cool dense air below forces the warm and rarefied air upwards, in a continual stream, where it spreads so as to preserve the equilibrium; and hence the upper course, or current, appears in a contrary direction. Thus circulating, the N. E. Trade-wind has frequently a S. W. wind above it; and a S. E. wind often prevails beneath one whose direction is N. W. It is consequently found, that, just without the limits of the Trade-wind, the wind generally blows from the opposite quarter. The counter-current of air, above, is often seen in a fresh Trade-wind; for the great power of the sun between the tropics so rarefies the atmosphere under his meridian, that it has not so much influence in the upper region where the atmosphere is light: hence the motion of the upper part takes it direction contrary to the Trade-wind.

The space from latitude 25° to 28° or 29°, between the Variable and Trade-winds, is remarkable for a continual change of winds, with sudden gusts and calms, rain, thunder, and lightning. This space has been called the *Horse Latitudes*, because it has often been found necessary here to throw overboard the horses which were to be transported to the West Indies, &c. To the northward of these latitudes, upon the American Coast, and more than one-third over the Atlantic, westerly winds prevail nearly nine months in the year.

In the latitudes above the trade-winds, the wind from the W. S. W.ward being replete with moisture, from the great exhalation between the tropics, as it approaches the cold and higher latitudes, becomes condensed into showers of hail, rain, or snow. For instance, in the 50th degree of North latitude, the wind from the S. W. generally will prevail till the atmosphere is more condensed than in the lower latitudes; the wind from the colder regions then ensues, and blows till the equilibrium of the atmosphere is restored, when a short calm generally succeeds before the wind shifts into another quarter.

There is often an interval of calm between the trade-winds and the opposite winds in high latitudes. This is not, however, always the case; for, if the trade-wind in its borders be much to the eastward, it frequently changes gradually round without an interval of calm. There is generally, also, a calm in a certain space between two prevailing winds blowing in opposite directions, as between the trade-wind and the westerly wind on the African Coast. In the limits of the trade-wind, a dead calm is generally the prelude to a storm, and it ought always to be considered as a prognostic thereof; for it is known that the conflux of the trade-wind and the variable winds is the cause of calms and storms in the tropical regions.

When the sun is at its greatest declination, North of the equator, the S. E. wind, particularly between Brazil and Africa, varying towards the course of the sun, changes a quarter or half a point more to the southward, and the N. E. trade-wind veers more to the eastward. The contrary happens when the sun is near the southern tropic; for then the S. E. wind, South of the line, gets more to the East, and the N. E. wind, on the Atlantic, veers more to the north. In June, July, August, and September, while the sun is returning from the northern tropic to the equator, the action of its rays upon the land and sea, in the northern part of the globe, renders the wind less constant by altering the state of the atmosphere.

On the African side, the winds are nearest to the South, and on the American side, nearest to the East. In these seas Dr. Halley observed, that, when the wind was eastward, the weather was gloomy, dark, and rainy, with hard gales of wind; but, when the wind veered to the southward, the weather generally became serene, with gentle breezes, next to a calm.

The Equatorial Limits of the N. E. Perennial or Trade-wind between the meridians of 18 and 26 degrees West, have been found, upon the comparison of nearly 400 journals, to vary considerably, even in the same months of the year.

In this Table the columns of *Extremes* show the uncertain termination of the Trade-winds, as experienced in different ships. The annexed columns show the *Probable* Mean: and the last column exhibits the mean breadth of the interval between the N. E. and S. E. winds.

Thus, the Table shows, that, in the month of January, the N. E. trade has been found sometimes to cease in the parallel of 10°, and sometimes in that of 3° N. That the probable mean of its limit is about 5° N.—That the S. E. trade, at the same time, has been found to cease sometimes at only half a degree North of the line, and sometimes at 4 degrees. That the probable mean of its limit is, therefore, two degrees and a quarter. And, that the interval between the assumed means of the N. E. and S. E. trade-winds is equal to 2¼ degrees: and so of the rest.

TABLE *showing the Equinoctial Limits of the N.E. and S. E. Trade-Winds, between the Meridians of* 18 *and* 26 *Degrees West.*

N.E. TRADE-WIND.			S.E. TRADE-WIND.		INTERVAL BETWEEN.
CEASES,	General Extremes.	Probable Mean.	General Extremes.	Probable Mean.	Mean Breadth.
In January at	3° to 10° N.	5° N.	0½° to 4° N.	2¾° N.	2¼ degrees.
February,..	2 to 10 —	4⅝ —	0½ to 3 —	1¼ —	3¼
March.....	2 to 8 —	4¾ —	0½ to 2½ —	1¼ —	3½
April.....	2½ to 9 —	5 —	0 to 2½ —	1¼ —	3¾
May.....	4 to 10 —	6½ —	0 to 4 —	2½ —	4
June.....	6½ to 13 —	8½ —	0 to 5 —	3 —	5½
July.....	8½ to 14 —	11 —	1 to 6 —	3½ —	7½
August.....	11 to 15 —	13 —	1 to 5 —	3¼ —	9¾
September..	9 to 14 —	11½ —	1 to 5 —	3 —	8½
October.....	7½ to 14 —	10 —	1 to 5 —	3 —	7
November..	6 to 11 —	8 —	1 to 5 —	3 —	4¼
December...	3 to 7 —	5½ —	1 to 4½ —	3¼ —	2¼

In the space of variable winds between the trades, exhibited in the last column, it has been found, that southerly winds prevail more than any other; more particularly when the sun has great northern declination. Homeward-bound East-India ships are therefore enabled at this season, to cross the space more quickly than those outward-bound; which they do, in some degree, at all other times. Yet calms and variable winds are experienced in every month of the year, within this space; but the former, which are more generally in the vicinity of the N.E. trade, seldom continue long. These calms are frequently succeeded by sudden squalls: against which every precaution should be taken; as many ships have lost their topmasts, and have been otherwise damaged by them. Whirlwinds have sometimes accompanied these squalls in their first effort against the resisting atmosphere.

It has been stated as probable, that a gale of wind, or storm, never happens hereabout far from land, or near the equator in the open ocean, on any part of the globe; although, in its vicinity, sudden gusts of wind and whirlwinds are sometimes experienced. S.W. and W.S.W. winds, with much rain, are frequent in July, August, and sometimes in June and September.

The heated land of Africa within Cape Verde, with the Cape Verde Islands, produce in the vicinity the variable winds, and occasional calms which counteract the trade-wind to a considerable distance from the coast. Hence it happens, that ships, which approach too near the coast or islands, lose the trade-wind sooner than those which keep at a greater distance. To guard against this, it has been recommended to commanders, to keep well to the westward when the N.E. Trade fails; but some, in observing this precept, have crossed the line too far to the west; for, meeting with the S.E. trade, hanging far from the southward, with strong westerly currents, they have made the coast of Brazil, and been obliged, in consequence, to tack to the eastward.

It has been stated, and generally understood, that, at the eastern end of the interval, between the N.E. and S.E. trade-winds, there is a continual succession of calms, terrible thunder, lightning, water-spouts, and such frequent rains, that this portion of the ocean has been denominated THE RAINS. Ships have here, it is said, been detained for months, in passing between the latitudes of 10 and 4 degrees. The cause appearing to be, that the westerly winds, setting for the coast, and the easterly winds, here balance each other, and produce the calms; while the vapours, meeting and condensing, produce the almost ceaseless rains.

The words of *M. la Pérouse*, on his crossing the line, after passing Cape Verde, &c. are, in this place, worthy of particular notice. He says, "Nothing particular occurred during our passage to the line. The trade-wind left us in 14° North, and the wind then constantly blew between W. and W.S.W. till we reached the line, and obliged me to run down the Coast of Africa, which I did at the distance of 60 leagues.

"We crossed the line on the 29th September, 1785, in 18° West longitude (15° 40′ W. of Greenwich.) I could have wished, as my instructions were, to have passed it more to the westward; but, fortunately, the wind drove us always to the eastward, otherwise it would have been impossible to have made Trinidad*, the wind being S. E. at the line, and continuing so until we reached latitude 20° 25′ S.

"The dread, which some navigators entertain, of being, at this season, becalmed under the line, is founded on error. We were not a day without wind, and once only had rain; when, indeed, it was so abundant as to fill twenty-five casks.

"The fear of being driven too much to the eastward into the Gulf of Guinea is equally chimerical. The S.E. wind is soon met with, and even drives ships too rapidly to the westward; so that, had I been better acquainted with this navigation, I should have steered away more large with the S.W. wind, which constantly prevailed to the north of the line; and I should then have crossed it in the longitude of 10 degrees (7° 40′ W. of Greenwich.) This would have permitted me to run, with a free wind, on the parallel of Trinidad. A few days after our departure from Teneriffe, we left the serene skies of the temperate zones; instead of which, a dull whiteness, between fog and cloud, always prevailed. The horizon was contracted: but, after sun-set, the vapour was dissipated, and the nights were constantly fine."

PERIODICAL WINDS, &c.—Among the Canary Islands, northerly or N.E. winds mostly prevail; yet, being in the vicinity of the continent, westerly and southerly have been found to prevail there, sometimes for eight days successively.

During the months of November, December, January, February, and March, the winds from the East and N.E. are prevalent, in the country, between Cape Blanco and the entrance of the River Gambia. In this time, the nights are cool; but scarcely has the sun risen above the horizon, when the air becomes dry and parching. Nevertheless, these five months are the winter in this part of Africa, and this is the most healthy season. Between the Gambia and Cape Palmas, the inland winds, during the same season, are variable.

In June, July, August, September, and October, the country situated between Cape Verga and Cape Mount is much exposed to hurricanes, or tornadoes. These, however, do not occur in any part of the coast northward of Cape Verga.

From the 20th degree of north latitude to the environs of the line, the months of July, August, September, and October, are those of the rainy season, when the atmosphere emits its waters to the earth; the only difference is, twenty days sooner or later in the arrival of these torrents. During the other eight months in the year there does not fall a single drop of water.

WINDS on the ATLANTIC ISLES.—The winds upon and near the different islands in the Atlantic Ocean, are very variable and uncertain, especially where the land is high and irregular. In general, regular sea and land-breezes alternately prevail; the sea-breeze by day, and the land-breeze by night, as the land is alternately heated and cooled: but the direction of these breezes is varied by the quality and figure of the land, and other local circumstances. If the land be very high, it generally intercepts the prevailing wind, and so affects the air as to produce, on the lee-side, either a calm, a gentle breeze in an opposite direction, or a kind of eddy, which is sometimes very troublesome to shipping. Such is the case under the western part of Madeira, and to leeward of the Canary Islands. The Grand Canary being so high as to stop the current of the N. E. wind, which prevails there; and on the eastern side there is a calm, or a gentle breeze from S. W.

The calms and eddy winds, occasioned by the figure and height of the Canaries, extend from 10 to 80 leagues beyond them to the S. W., according to the height of the respective islands. The boundary of the calms may be seen; for, within them, the water is smooth; without them is the regular undulation of the sea, caused by the general wind; and, at the edge of them, the winds, by

* The little Isle of Trinidad, lying in 20° 31¾′ S. and 29° 10′ W.

setting in opposite directions, produce a breaking of the waves, with a foam, like the billows on a rocky shoal, just beneath the surface of the ocean.

From a consideration of the particulars now described, the cause of those copious dews which fall in the night, on the islands, &c. situated within the tropics, will be apparent. For, as the great power of the sun by day causes an extraordinary evaporation of the ocean, so, in the night, the exhalation ceasing to retain the same degree of levity acquired from the heat of the sun, becomes, by the absence of the power which produced it, so dense and heavy, as again to fall back to the earth. The air, at the same time, cooling, by the same cause, is also affected by the descending moisture, and thus acquires an additional tendency to increase the land-breeze.

At JAMAICA, the air is, in most places, hot and unfavourable to European constitutions; but the cool sea-breezes, which set in every morning, render the air more tolerable; and that upon the high grounds is temperate, pure and cooling. It lightens almost every night, but without much thunder; nevertheless, when the latter happens, it is very terrible, and roars tremendously.

On the southern side of the island the sea-breeze from the south-eastward comes on in the morning, and gradually increases until noon, when it is strongest: at two or three in the afternoon its force diminishes; and, in general, it entirely ceases by five o'clock. About eight in the evening the land-breeze begins: this breeze extends to the distance of 4 leagues to the southward from the island. It increases until midnight, and ceases at about four in the morning.

The sea and land breezes are more regular than otherwise from the latter part of January until May. In the middle of May, the sea-breeze generally prevails for several days and nights, especially about the time of full and change of the moon; and thus they continue throughout June and part of July; from that time the sea-breeze diminishes, varies, and veers round to S. by W. or S. S. W., with frequent calms. August, September, and October, are the hurricane months, in which there generally are strong gales of wind, with much rain.

In December, January, and February, when the north winds predominate, their force checks the sea-breeze. The southern coast is that which, of course, is least exposed to these winds, being sheltered, in a great measure, by the mountains. When combined with the land-breeze, they render the air very cold and unhealthy.

During the months of July and August, the sea-breeze about the island generally blows impetuously, and in frequent squalls. At this season, vessels bound hence to Europe would have the most advantageous passage through the Strait and Stream of Florida; but, in October, northerly winds frequently extend over all the Bahamas, Cuba, and for some time, on the north side of Jamaica: but the current of air is forced upwards by the mountains of the latter, and its strength is spent in the heights. In seasons when it is more impetuous, it rushes through the windings and defiles of the mountains upon the southern coast, particularly in the neighbourhood of Kingston, and has been known to continue for some days.

During the winter, the land-breeze is more general off the shores than in summer; it sometimes continues throughout the day as well as night, and westerly winds prevail over all the space between Jamaica and Cuba, and even to the Island of St. Domingo. They have been experienced from Port Royal, through the Windward Channel; but this is not generally the case.

In November, southerly winds prevail on the south side of the island, and have been known to extend from the Mosquito shore, whence vessels have arrived in five or six days, that might, at other times, have been as many weeks, when beating against the sea-breeze. The southerly winds are generally faint; nor do they come upon the land, until it be heated by the sun, and are often expelled by a fresh land-breeze soon after mid-day, which abates in a few hours.

The return of the sea-breeze, falling sooner or later in autumn, is gradual; first approaching the east end, then advancing a little; and, in some years, it reaches Morant Point fourteen or twenty days before it is felt above Kingston. It also blows for a week or two later on the east end of the island than at Kingston; and has been known, in some years, to prevail there in the day-time during the whole time it was unfelt at the former place.

WINDS THROUGHOUT THE WEST-INDIES.—The following description of winds prevailing over these regions, in the different seasons, has been extracted from Captain Livingston's translation of the '*Derrotero de las Antillas*,' or Spanish Directory for the West-Indies.

"On the Eastern Coasts of America, and among its islands, the course of the general easterly or trade wind is uninterrupted, though subject to some modifications in direction and force. At a short distance from the land, the sea-breeze calms at night, and is replaced by the land-breeze: this variation happens every day, unless a strong wind prevails from the northward or southward; the first of these being experienced from October to May, and the second in July, August, and September.

"The general easterly wind, of the tropical regions, is felt on the coast of Guyana and on the coasts of the Caribbean and Mexican Seas, but with variations which may be denominated *diurnal* and *annual*. The diurnal period is that which the *sea-breeze* causes, and which strikes the coast usually at an angle of two points, less or more, according to the locality and other circumstances; and then the *land-wind*, which, coming from the interior, always blows off shore. The sea-breeze comes on at about nine or ten in the forenoon, and continues while the sun is above the horizon, increasing its force as that luminary augments its altitude, and diminishing, in a similar proportion, as the sun's altitude decreases. Thus, when the sun is on the meridian, the sea-breeze is at the maximum of its strength; and at the time that the sun reaches the horizon, this breeze has, perceptibly, ceased. The land breeze commences before midnight, and continues until the rising of the sun; sometimes longer. A space of some hours intervenes between the land-breeze's ceasing and the sea-breeze's coming on, during which there is a perfect calm.

"The *annual period* of the trade-wind here is produced by the proximity or distance of the sun, which occassions the only two seasons known in the tropics; the *rainy* and the *dry* seasons. The first is when the sun is in the tropic of Cancer, and heavy rains with loud thunder are prevalent. In this season the wind is generally to the southward of East, but interrupted by frequent calms, yet it occasionally blows with force and obscures the atmosphere.

"When the sun removes to the tropic of Capricorn, the dry season commences, and then the trade wind, which is steady at N.E., is cool and agreeable. At this season, North and N.W. winds are sometimes found, blowing with much force; and, indeed, in some degree, they regularly alternate with the general wind, as they are more frequent in November and December, than in February and March.

"In the change of the seasons there is a remarkable difference; for, in April and May, no change is experienced in the atmosphere, and the weather is, in general, beautifully fine; but, in August, September, and October, there are usually calms, or very light winds: and dreadful hurricances, in these months, sometimes render the navigation perilous. From these perils however, are exempted the Island Trinidad, the coasts of Columbia, (late Terra Firma,) the Gulfs or Bays of Darien and Honduras, and the Bight of Vera Cruz, to which the hurricanes do not reach. In the space of sea between the Greater Antillas* and the coast of Columbia, the general N. E. or trade wind regularly prevails; but, near the shore, the following peculiarities are found:

"At the Greater Antillas the sea-breeze constantly prevails by day, and the land-breeze by night. These land-breezes are the freshest which are known, and assist vessels much in getting to the eastward or remounting to windward, which, without them, would be almost impossible. At the lesser Antillas, as Dominica, Martinique, and St. Lucia, &c., there are no land-breezes.

"On the Coasts of Guyana there are no land-breezes, nor more wind than is generally experienced between the tropics. In January, February, and March, the winds here blow from North to E. N. E., and the weather is clear. In April, May, and June, the winds are from East to S. E. In July, August, and September, there are calms, with tornadoes from South and S. W.; and, in October, November, and December, there are continual rains, while the sky is, in

* Cuba, Jamaica, St. Domingo, and Porto-Rico.

general, obscured by clouds. In the dry season, which is from January to June, the heat is very great; and, in the wet season, rains and thunder are constant and violent.

"On the Coasts of Cumana and Caraccas, to Cape de la Vela, the breeze follows the regular course; but from that cape to Cape San Blas the general wind alters its direction; for it blows from N. E. or N. N. E., excepting in the months of March, April, May, and June, when it comes to E. N. E., and then is so uncommonly strong as to render it necessary for vessels to lie to. These gales, which are well known to mariners, extend from about mid-channel to within two or three leagues of the coast; where they become weak, especially at night. On this coast, about the Gulf of Nicaragua, are westerly winds, which the pilots of that country call *Vendavales*, (rainy winds,) in the months from July to December; but these winds never pass the parallel of 13° N., nor do they blow constantly, but alternate with the sea-breeze.

"Upon the Mosquito Shore, Honduras, and Eastern Coast of Yucatan, the general winds or breezes prevail in February, March, April, and May; but, during the first two of these months, they are occasionally interrupted by *norths*. In June, July, and August, the winds here are from the eastward and westward of South, with tornadoes and calms. In September, October, November, December, and January, they are from the northward or southward of west, with frequent gales from W. S. W., W. N. W., and North.

"On the Northern and Western Coasts of Yucatan, between Cape Catoche and Point Piedras or Desconocida, and thence to Campeche, there is no other than the N.E. or general wind, interrupted by hard norths in the season of them; and, about the end of April, tornadoes commence from N. E. to S. E. These tornadoes generally form in the afternoon, continue about an hour; and, by nightfall, the serenity of the atmosphere is re-established. The season of the tornadoes continues until September, and in all the time there are sea-breezes upon the coast, which blow from N. N. W. to N. E. It has been remarked that, as the sea-breeze is the more fresh, the more fierce is the tornado, especially from June to September. The sea-breezes come on at about eleven of the day; and at night the wind gets round to East. E. S. E., or S. E., so that it may be, in some degree, considered as a land-breeze.

"On the Coast of the Mexican Sea, from Vera Cruz to Tampico, the breeze from E. S. E. and East prevails in April, May, June, and July; and, at night, the land-breeze comes off from South to S. W.: but, if the land-breeze is from the N. W. with rain, the wind, on the day following, will be from North, N. N. E., or N. E., particularly in August and September: these winds are denominated, in the country, '*Vientos de Cabeza o Vendavales*,' (head-winds or rainy winds); they are not strong, nor do they raise the sea; with them, therefore, a vessel may take an anchorage as well as with the general breeze, but they impede getting out, for which the land-breeze is required. The *Vientos de Cabeza*, or head-winds, reach to about 20 or 30 leagues from the coast, at which distance are found those at East and E. S. E.

"From the middle of September until the months of March, caution is necessary in making Vera Cruz, for the norths are then very heavy. The narrowness of this harbour, the obstruction formed by the shoals at its entrance, and the slender shelter it affords from the norths, render an attempt to make it, during one of them, extremely dangerous, for it will be impossible to take the anchorage. The following description of the winds here has been written by Don Bernardo de Orta, a captain in the Spanish navy, who has been captain of the Port, and who surveyed it.

"Although in the Gulf of Mexico we cannot say that there is any other constant wind than the general breeze of this region, notwithstanding that, from September to March, the north winds interrupt the general course, and, in some degree, divide the year into two seasons, *wet* and *dry*, or of the *Breezes* and *Norths*: the first, in which the breezes are settled, is from March to September; and the second, in which the norths blow, is from September to March. For greater clearness we shall explain each separately.

"The first of the norths is regularly felt in the month of September; but, in this month and the following one, October, the norths do not blow with much force. Sometimes it happens that they do not appear, but, in that case, the

breeze is interrupted by heavy rains and tornadoes. In November the Norths are established, blow with much strength, and continue a length of time during December, January, and February. In these months, after they begin, they increase fast; and in four hours, or a little more, attain their utmost strength, with which they continue blowing for forty-eight hours; but afterwards, though they do not cease for some days, they are moderate. In these months the Norths are obscure and north-westerly, and they come on so frequently, that there is, in general, not more than four or six days between them. In March and April they are neither so frequent, nor last so long, and are clearer, but yet they are more fierce for the first twenty-four hours, and have less north-westing. In the interval before November, in which, as we have said, the *Norths* are established, the weather is beautiful, and the general breeze blows with great regularity by day; the land-breeze as regularly by night.

"There are various signs by which the coming on of a *North* may be foreseen: such are, the wind steady at South; the moisture of the walls, and of the pavements of the houses and streets; seeing clearly the Peak of Orizaba and the Mountains of Perote and Villa-Rica, with the cloud on those of St. Martin, having folds like a white sheet; the increase of heat and of dew; and a thick fog, or low scud, flying with velocity to the southward: but the most certain of all is the barometer; for this instrument, in the time of the Norths at Vera-Cruz, does not vary more, between its highest and lowest range, than 8-10; that is to say, it does not rise higher than 30 inches 6-10, nor fall lower than 29 inches 8-10. The descent of the mercury predicts the Norths; but they do not begin to blow the moment it sinks, which it always does a short time before the north comes on: at these times lightnings appear on the horizon, especially from N. W. to N. E.; the sea sparkles; cobwebs are seen on the rigging, if by day: with such warnings trust not to the weather, for a North will infallibly come on.

"This wind generally moderates at the setting of the sun; that is, it does not retain the same strength which it had from nine in the morning to three in the afternoon, unless it commence in the evening or at night, for then it may increase otherwise. Sometimes it happens that, after dark, or a little before midnight, it is found to be the land-wind, from the northward and westward; in which case, should it get round to the southward of west, the north will be at an end, and the general breeze will, to a certainty, come on at its regular hour: but, if that does not happen at the rising of the sun, or afterwards, and at the turn of the tide, it will return to blow from the north, with the same violence as on the day before, and then it is called a *Norte de Marea*, or *Tide-North*.

"The Norths also sometimes conclude by taking to the northward and eastward, which is more certain; for, if the wind in the evening gets to N. E. although the sky remain covered the day following, but by night the land-breeze has been from the northward and westward, the regular breeze will surely ensue in the evening, good weather succeeding and continuing for four or six days; the latter period being the longest that it will last to, in the season of the norths: but, if the wind retrograde from N. E. to N. N. E. or North, the weather will be still unsettled.

"Examples are not wanting of norths happening in May, June, July, and August, at which times they are most furious, and are called *Nortes del Mueso Colorado*; the more moderate are called *Chocolateros*, but these are rather uncommon.

"The Wet Season, or Season of the Breezes, is from March to September: the Breezes, at the end of March and through the whole month of April, as already explained, are, from time to time, interrupted by Norths, and are from E. S. E. very fresh; the sky sometimes clear, at other times obscure. At times these touch from S. E., and continue all night, without giving place to the land-breeze, which prevails, in general, every night, excepting when the north wind is on. The land-breeze is freshest when the rains have begun.

"After the sun passes the zenith of Vera Cruz, and until he returns to it, that is, from the 16th of May to the 27th of July, the breezes are of the lightest description; almost calms, with much mist or haze, and slight tornadoes. After that time the pleasant breezes from N.W. to N.E. sometimes remain fixed.

"From the 27th of July to the middle of October, when the Norths become established, the tornadoes are fierce, with heavy rains, thunder, and lightning: those which bring the heaviest winds are from the east, but they are also those of the shortest duration.

"In the season of the Breezes, the total variation of the barometer is 4-10; the greatest ascent of the mercury is to 30 inches 35-100, and its greatest descent to 29 inches 96-100. The thermometer in July rises to 87°, and does not fall to 83½°: in December it rises to 80½°, but never falls below 66½°. This, it must be understood, was ascertained in the shade, the instrument being placed in one of the coolest and best ventilated halls in the castle.

"In the months of August and September, rarely a year passes without hurricanes near Florida and the northern Antillas; but to Vera Cruz, or any part of the coast thence to Campeche, they never arrive; all that is felt being the heavy sea, which has arisen in the higher latitudes. Hurricanes begin to the northward and eastward; and, although they do not always go round the same way, yet, in general, they next go to the southward and eastward, with thick squally weather and rain."

From Tampico to the Bay of San Bernardo, breezes, from the southward and eastward, are steady and pleasant from April to August; but, in the remaining months this coast is much exposed to gales from East and E. S. E., which blow without intermission, for two or three days, before a North comes on. In about latitude 26½°, there are land-breezes in the summer, which blow from midnight until nine in the forenoon. [See page 286.]

From Maranham *to* Para.

You must pass to the northward of the Croix grande, which lies in latitude 2° 10′ S. and give it a birth of 2 or 3 leagues. The bank of Manuel Louize, which has not been long discovered and is very dangerous, lies in the latitude 1° 16′ S. it is never dry nor does the sea break much upon it, except at low water; you pass to the northward of it about 5 leagues; it is about 15 leagues from the land. From the bank of Manuel Louize to the bank of St. Joao you have 10 to 12 fathoms, passing 5 leagues to the northward of Manuel Louize and keep in 17 fathoms water, you have nothing to fear as far as Salinas, for which directions have been given. Between Salinas Bay and Point Tigioca (which is the East Point of the River Amazon,) and lies in 00° 28′ S. there are several bays. In the bay of Mara Cana, you may anchor in 7 or 8 fathoms, but must not come near the island, as it is very dangerous. At Point Matras de Maraponi you must not come nearer than 3 leagues, nor anchor the point bearing south, as it is foul ground. At the point of Piracaembana there is a large sandy bay, where you may anchor in 9 fathoms, soft white sand. In the bay of Cajatuba, you may anchor in 12 fathoms; you must not come nearer in; you will then be about 3 leagues from the land. The point of Curusa is round and some red spots; you may anchor on the east side of the point, in 17 or 18 fathoms, white sand, at about 3 leagues from the land.

From Point Tigioca there are two banks, bearing north from the point; the outer bank, which is called the Baxo de Fora is 6 or 7 leagues from the land, the inner one called the Baxo de Dentro, extends nearly from the point to within 3 or 4 miles of the outer bank; there is a good channel between them with from 10 to 13 fathoms water. There is likewise a channel between the Baxo de Dentro and Point Tigioca, but it is very intricate, and by no means attempt to pass it, being only frequented by small craft. As soon as you are through the channel between the banks,

you will have 7, 8, and 9 fathoms, except you get to the westward on the bank of St. Joao, which is towards the western shore, where you have 3 fathoms at low water, spring tides: on this bank the sea does not break, it is soft mud, and good anchoring on it. The water is smooth, which is not the case in the channel of the river where there is a greater depth of water. The Baxo de Fora and the Baxo de Dentro are hard sand, and when there is a fresh breeze the sea breaks very much on them; when the water is smooth they are very dangerous, and are steep too. I have passed within $\frac{1}{4}$ of a mile to the westward of them in 9 fathoms at low water: spring tides there are not more than 2 or 3 feet water on them.—When you are at the east entrance of the channel between the Baxo de Fora and the Baxo de Dentro, you have all the points open to the eastward, and when through, Point Tigioca bears S. E. by E. and the islands of St. Caetano, S.; you may then steer S. W. by S. and S. S. W. which is a good course till you are a considerable distance, 9 or 10 leagues up the river, and will carry you clear of all the banks, which lie off the islands St. Caetano, and a bank of hard sand, which lies off the Point Vigia at at about $1\frac{1}{2}$ or 2 miles from the shore.

The longitude of this coast has generally been laid down too far to the westward. You should endeavour to make the land to the eastward of Point Tigioca, which lies about 47° 45′ W. of Greenwich. If you make Cape North, it will take you a considerable time to beat up, and, unless you have a very good vessel, you cannot do it at all. Cape North lies in long. 50° 10′ W. Suppose you make the land to the eastward of Point Tigioca, and are resolved to run up the river without a pilot, the best way is if you are pretty near the land to steer N. W. to get an offing to go the northward and westward of all the banks; then steer W. N. W. or W. keeping the land in sight from the mast head. From the Bay of Salinas to Point Tigioca the distance is about 10 leagues. Keep this course, and if you see nothing of the breakers on the banks at the entrance of the river, haul up W. and W. S. W. till you make the Island of Maraja, which is on the west side of the river; when you make this island, bear up S. and S. S. E. and haul up for the east side of the river, which you will make in about two hours; then steer between S. and S. W. by S. observing not to come too near the eastern shore till you are certain of being above the Point Vigia, as there are several sand banks off the islands of St. Caetano. Point Vigia is about eight leagues from Point Tigioca. The course up the river to Para, after passing the islands St. Caetano, and have got the eastern shore pretty close. (say 2 or 3 miles) is S. W. by S. and S. S. W. You leave all the small islands on your larboard side, till you get up near Mosqueira, which is about 16 leagues up the river, and above Bahia do Sol, when you leave the other islands to starboard. If you come up the river in the night, be careful not to steer to the eastward of south, or you may get into the Bahia do Sol, which is very dangerous, being full of rocks and shoals. At Para it is high water at 12 o'clock full and change, the tide rises from 3 to 4 fathoms. There is a fort about three leagues below the city, on a small island, where you are obliged to anchor and send your boat ashore, and wait till you get permission to go up to Para.

Other Directions for River Para.

Vessels bound from Maranham to the rivers Para and Amazon, should avail themselves of the morning's tide, anchoring at Araaji, and thence standing out to seaward in 15, 16, 18, and 20 fathoms water; this flat or shallow continues stretching northwesterly to the distance of 20 or 22 leagues. There is no danger whatever in your course; but as soon as you deepen your water and lose your soundings, you will find yourself abreast of the island of St. Joao; throughout this space the shores are low, with a few scattered sandy hillocks; there are some few openings or bays in your passage, as the bays of Cuma and Corimata, from both of which are shoals that stretch miles into the sea. Northwest of Corimata is Mocamambabe, and a little farther Cabella de Velhas; from which the coast is covered with a short heath or brushwood, which having passed, you approach Carsapocira Bay, filled with breakers. From hence N. W. lies St. Joao's Island; the land is level and low, and off the N. E. point of the island is good anchorage in 6 and 7 fathoms, and water may be had of good quality. On its west side is a river called Turivana, or bay of Turivasso, capable of admitting large vessels, and formerly much frequented; from hence to the Gurapi Mountain, which stands inland, is high, and has a smaller and rounder hillock near it, is about 70 miles, having several rivers or bays, viz. the Bays of Malaerca, Carara, Maracasume, Pirocava, Tiromabhuba, Caraiba, and Caraibamesim. These two latter join each other, and are sometimes called the sisters. Gurapi Point is low, level, and sandy, covered with a dark brushwood, and having a reef running into the sea, over which the waters break. From Point Gurapi, the coast stretches westerly, but indented with various openings and bays. It is adviseable to keep clear of this part, it being in some places shoal water; but when you are at the distance of 9 or 10 miles, the bottom will be found clear and even, with 7, 8, 9, and 10 fathoms. The bays between Gurapi and Caite, are Perealuma and Pereatinga, adjoining it Toque, Embque, Giranunga, Senamboca, Panea, and Manigultuba; you will then arrive at Caite, which will be known by some lofty manques islands, while the coast at their feet appears white and sandy. In coming from sea, and when you are just to the southward of the equator, and in longitude 46° 6′ W. of Greenwich, you will observe your water discoloured, and soon after the land westward of Caite appearing like breakers ahead. The coast from Caite bay to Maracuno runs northwesterly, and is distant about 13 leagues; you should keep about 2 leagues from shore in sailing along, where your passage will be without danger, and your soundings from 7 to 9 fathoms, and you will pass the following inlets or bays: Cotiperu and Meriquiqui; you will then see the high point called Mount Pirousu, having red cliffs on its eastern part. Adjoining to this is Perimerim bay, the Guarapipo, and Viriamduba or the Salt Ponds; here you will notice several spots or patches of white sand, on which the sea breaks; and at the western extremity of these is a watch-tower, from which a signal-gun is fired on the approach of any vessel. By keeping a good look out when you arrive at this part of the coast, you will readily perceive the smoke if you should not hear the report. This point, called Point de Atasia, has two white cliffs upon it, and on rounding it you will enter the bay of Maracuno in 5 and 6 fathoms water. Eighteen miles west of Maracuno is Point Tigioca, the eastern land at the entrance of the river Para. From Point Tigioca to Point Tapua, the course is S.W. by W. but some shoals, called Baxo de Bo-

roneo, spread northwesterly between them, you will therefore give these points a wide birth of 6 or 7 miles, at which distance, there is a channel used by small vessels, but larger vessels must keep farther out, at the distance of 10 or 11 miles from Point Tigioca; they will there have 12, 11, 15, and 10 fathoms, and between these two channels the ground is foul, but without danger. About 14 miles due north from the point are Tigioca shoals, which extend 8 or 9 miles northward, and are about 6 miles in breadth from E. to W. Over these shoals the water breaks constantly. Vessels leaving Maracuna, or coming from seaward and bound to Para, should steer directly off these shoals, passing within 3 or even 2 miles of them, and having the river open, stand up the channel a S.S.W. keeping nearer the Para side than that of Cape Maguari, the latter having considerable banks of sands almost all the way to Para. At the entrance, and opposite to Point Tigioca the distance from shore to shore is 9 leagues, but narrows as you proceed; should night come on, you will do well to anchor, taking care to give the land of Juanes a good birth, on account of the flats before mentioned, and when you weigh in the morning, let it be at low water. The land on the Para side is low, level, and dark, and filled with manques, which at a distance appears like vessels at anchor, and when you arrive at the termination of these, you will perceive two small hillocks of white sand, and farther on, some reddish cliffs, upon which some huts are erected. Having sailed on about a league from these, you will see the point or entrance to the Bahia de Sol: go not too near, as it is in some places shallow, but should you find your water decreasing too much, stand immediately toward the Juanes shore, and your soundings will deepen. Continuing your course, you will approach Point do Mosquito, between which and the narrow Island Totuack is the entrance to the Bahia de Antonio; the passage is about 1½ mile broad, and has 7 fathoms mid-channel; the ebb tide here sets very strong. Having passed the southern point or Point do Pidheiro, you will see the city of Belim, or Para; continue your course south, passing to the westward of the islands of Reiquites and Oncas, the latter having a fort upon it, and anchor opposite to the city, in 3, 4, or 5 fathoms water. Vessels leaving this river, and taking their departure from point Tapua, should steer agreeable to the tide, keeping that point S. E. until you are distant from it 15 or 16 miles; Cape Maguari will then be in sight; haul up N. E. or N. N. E. taking care to avoid the shoals of St. Rosa. The winds are generally from the eastward, and blow in squalls. The beginning of the flood sets from the eastward very rapid, and veers gradually to the northeast and north; the rise of water is 10 feet. In thick weather, when Cape Maguari cannot be seen, you may discover your approach to the banks of St. Rosa by the soundings becoming irregular, which is not the case to the eastward of the channel. Keep the weather shoals on board as much as possible. Whoever is bound to Maranham or Para, should make the land in the months from December to July, because high winds seldom prevail. The shores then appear clear and bright; but from July to November, a constant fog envelopes the land, and the higher the tempests, the thicker and more hazy the atmosphere appears. The winds prevailing on this coast, are the N. E.—E. N. E. and E. which are all fair for going in or out of Maranham and Para. Throughout the coast you may anchor 2 or 3 leagues from the land, but it is not adviseable to go into less than 8 fathoms water. The tides rise 3 and 3½ fathoms, and it is high water at four o'clock, full and change.

Coast *of* Brazil.

St. Paul's island, called also Panedo and St. Peter's, lies in lat 0° 55′ N. and long. 29° 13′ W. It is composed of an assemblage of steep rocks without verdure, covered with bird's dung, and with no place fit for anchoring, or convenient for landing. This small island has been seen by Indiamen both outward and homeward bound, although it is considerably to the westward of the common course of the latter; and no ship bound to the southward should cross the equator so far west.

Fernand de Noronha has not unfrequently been visited or seen by ships bound to India, occasioned by the currents having set them to the westward, after the failure of the north-east trade wind. It is a remarkable island, and is readily known by a high rocky peak called the pyramid, very barren and rugged, which seems to lean to the eastward, when it bears S.S.W., and by its S.W. point, which is perforated and gives a free passage to the sea, and therefore by some called the hole in the wall. Off this point, at a considerable distance, lies a sunken rock which is dangerous to approach. From the S.E. part of the island, named Tobacco-point, a reef extends to seaward a considerable distance; and a rocky patch on which the sea always breaks, lies 2½ or 3 miles S.E. by S. from this point, and nearly 3½ miles S. ¼ W. from the east point. There is a channel of 10 to 15 fathoms water within this patch, and when on it, the pyramid will be shut in by the highest hill.

This island is about 7 miles in length, and 2 or 2¼ miles broad: it produces black cattle, sheep, poultry, melons, corn, &c. It is inhabited by Portuguese exiles, and has a strong garrison; and all the little sandy bays and anchoring places are defended by forts. The road is on the north side near the N.E. end of the island, and the anchorage is tolerably good in 9 to 13 fathoms water, at about half a mile from shore, with the pyramid bearing from S.S.W. to S.W. It is quite exposed to northerly and westerly winds, which are said to prevail here from December to April, at other times they are mostly south-east, or easterly, and sometimes at N.E. The surf is frequently high, and at such times there is no landing. Fresh water may be procured from a well near the governor's house, but it is a scarce article in the dry season, and cannot always be got off from the shore on account of the surf. On the south side of the island, to the eastward of Tobacco-point, is a small bay called the Port, fit for boats only, where it is said fresh water may be procured from a rivulet.

The currents generally run strong to the westward, therefore the necessity of approaching the road by Rat or Wooding island is obvious. Rat island is about 1½ mile in length, and lies about 1¼ mile from the N.E. end of Fernand de Noronha: it produces grass and firewood, with some wild goats; but the wood will sink if thrown into the water, and there is great risk in staving the boat while getting it off from the rocks.

The pyramid is in latitude 3° 55′ 15″ south, and longitude 32° 35′ 30″ west: the tide rises about 6 feet, and flows on full and change days of the moon, until 4 o'clock.

Between St. Paul's and Fernand de Noronha the current sets W.S.W. about 20 miles in 24 hours.

The Roccas are low sandy keys with shrubs on them, and cannot be seen in the clearest weather, more than three leagues from the mast head. They are particularly dangerous to ships sailing between Fernand de Noronha, and the coast of Brazil by night, if they are not certain of their relative position from the former; for they are liable to be carried by the

strong westerly currents, more to leeward than may be apprehended. The English East India ship Britannia, and King George transport, were wrecked on these keys at 4 A.M. Nov. 2nd, 1805. They lie about eighteen leagues to the westward of Fernand de Noronha, in latitude 3° 56′ S and in longitude 33° 26′ west; their whole extent is about 5 miles, and at their north east end is a pretty high rock: the sea breaks exceedingly high all around them. When the above ships were wrecked, the current set at the rate of 2½ knots to the westward: the tide rose and fell 6 feet. There are 28 fathoms about 2 miles from their west extremity.

According to Pimental, a shoal lies 17 leagues S.S.W.; another, according to the Portuguese, about 25 leagues to S.W.; another, discovered by the English, 45 leagues to W.N.W. of Fernand de Noronha.

From Cape St. Roque *to* Maranham.

Cape St. Roque is the north easternmost promontory of Brazil; it lies in 5° 8′ south latitude, and 35° 38′ west longitude. The banks of St. Roque extend about 7 or 8 leagues to the northward of the Cape, and 12 or 13 leagues to the westward, dry in many places, with several navigable channels between them. Between the S. E. extremity of the banks and the cape, there is a narrow passage of 1½ mile in breadth, with 4 fathoms water in it: close to the east end of the banks there are 7 fathoms, and at the distance of 3 leagues, 36 fathoms.

About seven leagues to the westward of Cape St. Roque, is *Point Delgado*, the west point of the River Vermelho, or Red River, so called from some red cliffs on its east side; about midway is Point Seara. A bank lies before the mouth of the river, having a passage on each side of it, with 2½ to 3 fathoms water, in the westernmost of which a vessel may anchor. About 7 leagues farther westward is Brandu Bay, and the river Doce; whence the coast trends to N. W. by W. and W. N. W. to *Point Pedras* on the east side of Paranduba bay. From point Delgado to Brandu bay, the coast is mostly flat and barren; between the latter and Point Pedras, the country is bare and black, its surface covered with sand, and appearing like small islands.

Off Point Pedras are some rocky shoals, having channels between them and the main of 3 or 4 fathoms water. Hence the coast lies nearly west to the river Guamara, which is known by 2 inland sugar-loaf mountains of unequal heights, and about 3 leagues farther west is Tubarao or Shark's Point. Nearly midway between Point Pedras and Shark's Point, are some red cliffs, off which lies the east end of *Salinas Bank*, which thence extends nearly parallel to the shore to a-breast of Shark's Point. It lies about 4 or 5 miles from shore, and the channel between has 4 fathoms water, but there are several banks lying therein, which makes the navigation difficult and dangerous to those who are unacquainted therewith.

Tubarao or Shark's Point is on the east side of the river Amargoso, near which to the westward are 2 others; namely, the river Cavallos, and the river Conchas. North-westward from Tubarao Point about 3 leagues is Ponta do Mel, or Honey Point, known by some high red cliffs, and some palm or cocoa trees near the sea. Nearly N. W. ½ W. 6 or 7 leagues farther is Cape Corso on the north side of the river Upamena, where there are some salt ponds; at the entrance, the depth is only 9 feet at high water, but within there are 8 fathoms. On the west side are some

red cliffs. The water is shallow to a considerable distance from Cape Corso, and also from Honey Point.

Six or 7 leagues N. W. ½ N. from Cape Corso is Agebarana Point; between is Itiobara Bay, to the eastward of which is a remarkable hill, called Red Mount. On the west side of Agebarana Point is *Porto das Oncas*, and about 5 leagues north-westward from it, is the river Jaguaripe, which may be known by a round bare hill of sand on its N. W. side, terminating in a rock below, and within land a mountain having 7 sugar-loaf points. To the northward of Agebarana Point are several rocks above and under water. About 3 leagues north-westward from Jaguaripe River, begins some dark coloured land, which thence extends about 4 leagues farther, having several openings like bays. About a mile from the first of these openings, there are some white cliffs appearing like a schooner under full sail, standing eastward. Westward of this bold land, the coast is more flat and level, and to the westward of this flat land a short distance, is the *Bay of Iguape* which forms a small harbour. This bay is surrounded by high perpendicular cliffs, against which the sea breaks on high tides. There is good shelter in 2½ or 3 fathoms, within a high round rock; there is an anchorage also on the N. W. side of it in 4 or 5 fathoms, but the latter is quite exposed. Here water may be obtained from pits in the strand. Near this rock of Iguape, on the east, the River Xaro empties itself into the sea; and to the westward of it, about 3 leagues from shore, is a bank of sand, with some small shells, on which the water appears greenish; the depth on it is 5, 6, and 7 fathoms.

About W. N. W. ½ W. 6 or 7 leagues from Iguape is the bluff point of Macoripe; south-westward of which, is the fort or settlement of *Seara*, or St. Joze de Ribamar, in 3° 32′ south latitude, situated near a small streamlet, which in summer has very little water. Small vessels anchor opposite the fort, at about a musket-shot distance from a reef which appears at low water. Between this reef and the shore the ground is very bad, and unfit for anchorage.

Ships bound to Maranham should make the land hereabout; they may then run along shore within a few leagues of the coast in sight of land, in 10 or 12 fathoms water; observing to make allowance for the operation of the tide, particularly when passing the mouths of the rivers, as the ebbs set strong to the north-eastward.

At the distance of 14½ leagues N. W. by W. ½ W. from Point Macoripe, is the point of Mount Melancias in 3° 7′ S. latitude, having on its east side the river Frecheiras, and 2½ leagues to the westward of it the river Mondahu. There are other rivers between Seara and the point, but they are small and of no use; the coast is also skirted with rocks. Mount Melancias is very remarkable by being situated very near the point. N. W. by W. ¾ W. 7½ leagues from the point of Mount Melancias, is the east point of an island, which thence extends 5 miles in the same direction, and has a shallow bank on its north side. It lies near the shore, and the two rivers Aricati Assu and Aricati Merim, disembogue themselves at its ends. Four leagues from the west end of the island in the same direction is the point on the east-side of the river Caracu, off which is a small spit of sand: an islet lies in the entrance of the river, off which is a small spit of sand also.

The coast hence lies W. by N. 9½ leagues, to the east point of Jericoacoara Bay. This bay is covered with sea weed, and the shore is barren. It is full of shoals, having near the shore 2 fathoms, and a little further out 4 fathoms. It is in latitude 2° 44′ south, and may be known by a high

mountain a little inland, almost round, the ground breaking near it, and forming others of a little less height.

Between the river Mondahu and Jericoacoara Bay, a flat of 4 fathoms extends from shore upwards of 4 leagues, having 5 or 6 fathoms on its extremity, with red coral bottom: without it are 8 or 9 fathoms.

From Jericoacoara Bay the coast lies due west 22 leagues to the river Igarasu; between are the rivers Camosim, or Camussi, and Tamonia, with several smaller ones. On the east side of the entrance of the Igarasu, is the island Pedra do Sal; and about 8 miles north-westward from the Igarasu is the Barra Velha, or Old Bar, of the river Parahaiba, on which there are 4 fathoms at low water. The entrance is only 120 fathoms wide, but within it widens and forms a kind of a lake, with from 6 to 8 or 9 fathoms water. As you proceed upward, the Parahaiba joins the Igarasu, for they are both branches of the same river. The bar lies between two heads of sand, which extend a considerable distance from shore, and are covered at high water; the bottom of the bar is mud and red coral. The great bar lies farther westward, between an island which separates the old one from it and the main. W. N. W. 12½ leagues from the Old Bar of Parahaiba, is the entrance of the river Perguicas. The coast between these places is easily known by being a tract of exceedingly white sand hills, without any heath or shrub whatever, called *Lancoes Pequenos*, or little white sand hills; and the sea-water off this part is of a very light blue colour. From the mouth of the Perguicas a ridge of sand extends to the N. by W. nearly 7 leagues. It has 8 fathoms on its extremity, and at the distance of 4 leagues from shore only 4 fathoms, with a decreasing depth nearer to the land. It is from 2 to 3 miles wide, and there are from 8 to 10 and 17 fathoms on the east side of it; on the west side the water is not quite so deep. Vessels running along shore should haul off 4 or 5 leagues to the northward until they have passed it, and then in again towards the shore to any convenient depth.

On the west side of the river Perguicas begins the *Lancoes Grandes*, or tract of large white sand hills, similar to those before described, but larger; and the instant you arrive off them in sailing westward, the water changes from the light blue colour before-mentioned, to a green, so that the division of the colours takes place off the river Perguicas, and probably at the ridge that spits off from it. This tract extends about 12 leagues westward, the coast lying W. by N., and about 2 leagues short of its west extremity there is one sand hill larger than all the others.

The entrance of the river Perguicas is about a mile and a half wide, and has 4½ or 5 fathoms water; but to enter it, it is necessary to keep close to the eastern point, to avoid the sand bank which lies at its mouth. When you are within, you may anchor in 4 or 5 fathoms. There is also a passage on the west side, between the point and the bank, of about a mile in width, and from 2½ to 3 fathoms in it.

Adjoining these sheets of sand to the westward, there are above 5 leagues of coast covered with green mangues, which, at a distance, have the appearance of a dark kind of brush-wood. Where these terminate is the river Marim, having three islands of green mangues at its mouth. Between these islands and the east point large ships may enter, the channel being one mile wide, and a depth of 7 or 8 fathoms; the other entrances have only one fathom. Between 2 and 3 miles northward from these three islands is a shoal bank, on which the sea always breaks; it has 4 fathoms near it. About 2 miles west from the entrance of the Marim, is a low level island of dry mangues, and to the westward of it,

distant about $\frac{3}{4}$ of a mile, is another island about $1\frac{1}{2}$ mile in length, called *Pria*, on both of which fresh water may be obtained from pits in the strand. A fort formerly stood on Pria. Nearly 4 miles W. N. W. from Pria, is the Isle of St. Anna, about 2 miles across each way, and surrounded by a shallow bank, a spit of which extends to N. E. by N. about 7 miles, having from 5 to 3 fathoms on it.

S. W. ½ W. 5 leagues is Point de San Joze, the east extreme of Maranham island. Between is the entrance to the Bay of St. Joseph, which it is not safe to enter without a pilot. From Point St. Joseph to the N. W. extremity of the island it is 8 leagues. The *Coroa Grande*, or Great Crown, is a large bank extending nearly 18 miles north from Point St. Joseph; its eastern limit is 10 or 11 miles west from St. Anna, whence it extends about 18 miles to the westward, and terminates nearly north from Aracaji, a red cliff about 5 miles eastward of the N. W. point of Maranham. There are several navigable channels through this great bank, but they are little known. The channel which leads to the city lies between the Coroa Grande, and the coast of Tapitapera on the west, and is 7 or 8 miles wide, with from 7 to 10 and 12 fathoms on sandy bottom, and having in it a shoal called Baixa de Meia, or Middle-bank. St. Luis of Maranham is in latitude 2° 29′ south, and longitude 43° 40′ west.

Directions for sailing to St. Luis *of* Maranham.

Having passed along the coast from the eastward, in the depth of 10 or 12 fathoms, as before directed, be careful to make the small islands of Mangues Secos, and Pria, and also the island of St. Anna; then haul out N. W. if it be ebb tide, or a little more north if flood, to avoid the long spit of sand that stretches out from the latter island, until you get in the depth of 18 or 20 fathoms, and lose sight of St. Anna from the deck. Then steer west until you make the *Hill* of *Itaculumi*, keeping a good look-out on the larboard hand for the north head of the Coroa Grande, which always shews in detached breakers. This precaution is particularly necessary with flood tide and little wind; and if the tide sets you near it, you must steer more northerly to counteract its effects. When you have made the hill of Itaculumi, and brought it to bear west, at the distance of four leagues, you will be to the westward of the Coroa Grande, you may steer south into the bay, taking care to avoid the Middle-bank. As you proceed, the Aracaji, or high red cliff, will appear in sight a-head of you, which you may approach to the distance of 3 miles or less, in 9 or 10 fathoms water, and anchor with it bearing S. by E. or S. S. E. and send a boat for a pilot. It is high water on full and change days at three quarters past six o'clock. Spring tides rise 19 or 20 feet.

Near the coast of Maranham there is a rock of the most dangerous nature which can be met with at sea—being a bank of sharp rocks intermixed with sand almost conical in shape, about three miles in length from the E. ¼ S. E. to W. ¼ N. W. and about half a mile from North to South. The rocks are separated by intervals more or less large, in which there is from 8 to 10 fathom water, while the summit of the conical rocks are above the surface. Latitude by our observation is 52′ 27″ South, and longitude 0° 1′ 30″ east of the meridian of fort San Antoni de Maranham, (longitude west of Paris 46° 36′ 14″) or about 25 leagues north of the point of departure of vessels from Maranham, 3 leagues east of the small

hill called Itaculumi; variation of the compass 0° 57′ E. The above differs from Arrowsmith's Chart 5 leagues in latitude, and 7 in longitude, and sufficiently accounts for the many unfortunate accidents which it has occasioned."

Remark.—It has been before observed, that, off the tract of little white sand hills, the sea is of a light blue colour, and off great white sand hills it is green. In like manner, in the Bay of Maranham there may be seen some spots of muddy water, whilst in others it will be perfectly transparent: there will also be seen floating, a kind of fruit appearing like the rough outer coat of an European chesnut. These marks are not seen generally, more than 9 or 10 miles from Tapitapera; but during the winter or rainy season, from December to July, both the fruit and discoloured water are to be met with at a great distance from land.

The rainy season is also the best to approach the coast in, because there the land always appears clear and bright, and the winds are moderate; but August, September, October, and November, is the windy season, during which the land is constantly covered with a thick haze; particularly when it blows hard. The prevailing winds on this coast are the N. E., E. N. E. and east, all of which are fair to sail in and out with. Vessels may anchor any where on this coast by attending to the time of tide, in order to have sufficient depth of water.

From Maranham *to* Belim *or* Para.

The best time to leave Maranham is the morning, then pass to the eastward of the Middle-bank, and stand out north until you get the depth of 15 to 18 fathoms, or until you have passed the shoals that lie off the Bay of Cuma, which may be effected by a run of 8 or 9 leagues, and making proper allowance for the stream of the tide. Then steer N. by W., or N. by W. ½ W., and you will fall into 8, 7, and 6 fathoms, on a flat that extends 4 or 5 leagues from shore, and so far to the north-westward as I. de San Ioao.

The coast from the Bay of Cuma to St. Joao's island is all low and flat, with a few strands of white sand. Nine leagues N. N. W. from the former, is the Bay of Cabelho de Velha, from the north side of which some shoals extend to a considerable distance off: the coast hence lies about N., W. ½ N. 9 leagues is St. Joao's island. When you have passed the shoals off the Bay of Cabelho de Velha, you may steer N. W. by N. and should you get less than 6 fathoms, you need not be alarmed; and when you get the increasing depth of 10 or 12 fathoms, you will be off the flat bank, and to the northward of St. Joao's island.

The Island of St. Joao lies N. E. and S. W., is about 3½ leagues in length, and very low: it is about 2 miles from the main, and its N. E. point is in latitude 1° 17′ S.; a vessel may anchor about 2 cables' length from its N. E. point, in 6 or 7 fathoms, and fresh water may be readily obtained from the lakes near the point.

A shallow bank lies about 18 leagues E. by N. from St. Joao's island, having 7 fathoms very near it, and at 2 miles from its S. W. end 20 fathoms; it is nearly 2 leagues in length.

The coast from the Island of St. Joao lies about 18 leagues W. N. W. to Serra Gurupi, and is divided with rivers and bays close to each other; the first of which is Turivaçu Bay, so wide at its mouth and the land so

low, that one point cannot be seen from the other. The Serra Gurupi is a high hill, at a short distance inland, having near it another somewhat smaller and rounder. The coast here is low, level, and sandy, covered with a dark dusky brushwood ; and from the point, some shoals, on which the sea breaks, extend from 2 to 3 leagues off : about 3 leagues farther westward, is the bar of Gurupi river.

From the point of Serra Gurupi to the Bay of Cayte, the coast lies west 13 or 14 leagues, but as the shoals extend a considerable distance from shore, it is not safe to approach it nearer than 3 leagues, at which distance there are 7 or 8 fathoms, on clear bottom. Besides the Gurupi, there are several rivers between ; the coast of Cayte is known by some high mangues islands, and white sands along the shore.

From the Bay of Cayte to Mount Pirauçu is about 11 or 12 leagues west, a little northerly : between are the bays of Cotiperu and Meriguiaui, and several small rivers ; and as the water is shallow, it is not safe to go nearer than the depth of 6 to 8 fathoms, which is about 6 or 7 miles from shore. The hill or mount of Pirauçu terminates in a high bluff perpendicular point, with red cliffs on the east part of it. Hence to Maraccana is 13 or 14 leagues, nearly west : and between are the bays of Piramerini, Guarupipo, and Viranduba, or the Salt ponds. At the latter are several beaches of very white sand, and some projecting points on which the sea breaks, and appears at a distance like shoals. Here is also a vigia, or watch-tower, on which a signal is made at the approach of any vessel ; at this spot there are two great cliffs of white sand. In the Bay of Maracana are 5 or 6 fathoms water

Belem or Gran Para. West southerly about 8 leagues from Maracana is *Point Tigioca*, the east point of the mouth of the River, off which, to the north and N. W. lie the shoals of Tigioca, extending 6 or 7 leagues from the point, and having near their extremity 6 or 7 fathoms water ; the sea breaks heavily on these shoals. There is a passage between them and Point Tigioca ; but the depths are irregular, having, in some places, only 2 fathoms, and probably less at low water ; at the narrowest part it is about half a mile wide. The principal channel lies to the northward and westward of these shoals, between them and the *Island Joanes*. To sail in here, it is necessary, when you are 2 or 3 leagues off to the northward of Maracana, to haul off N. W. or more northerly, according to the tide, until you are 8 or 9 leagues from it, then steer to the westward, taking care to go no nearer to the shoals than 8 or 7 fathoms. By keeping in that depth, you may steer W. S. W., S. W., S. S. W., &c. and pass between it and Point Maguari, from whence to the city of *Belem* or *Para*, it is about 24 leagues. The Island of Joanes is low, level land, and at a distance appears to be covered with a round, bushy, low shrub.

Should the approach of night render it necessary for a vessel to anchor, she may do it with safety in sight of, and at the distance of 3 or 4 leagues from, the Island of Joanes ; and the best time to weigh anchor again is at low water, then run in by the east side of Joanes, and passing the shoals of Tigioca, keep nearest the east shore. The bar is a small narrow bank, lying across the channel, with 4 or 5 fathoms at low water on mud bottom. The land from Tigioca Point to a considerable distance in, is low, level, and black, and full of mangues, which at a distance appear like shipping at anchor : it should not be approached nearer than 5 or 6 miles. At the termination of this dark land, are two small beaches of white sand, and farther on some red cliffs. A league farther is a point of land, southward of which is the Bay do Sol, to the S. W. of which is

the island of Morobira, separated from the land by a narrow channel; it has a village on its S. W. point. Off these places the water is shallow; should you get into 4½ or 5 fathoms, edge off immediately towards Joanes, into the depth of 8, 10, or 11 fathoms. About 5 or 6 miles farther is the Bay of St. Antonio, on passing which, the city of Para will appear. There is a round island lying within sight of the city, and to the westward of it 3 or 4 smaller ones, one of which has a red cliff. To the northward of these islands is a shoal, which appears at low water; and to the southward of them, at a short distance, a long island, called the Oncas, with a fort on it, directly opposite the round island. The channel lies between the round island and the fort, and the anchorage is before the city, in 4 or 5 fathoms water.

There are an immense number of islands in this river, through which the channels are intricate and dangerous, and therefore should never be attempted by any but those who are well acquainted, without a pilot. [*See pages* 427, &c.]

Directions for the Mouth of the River La Plata.

Cape St. Mary lies in 34° 57′ S. lat. and in 54° 47′ W. long. from Greenwich. Ships generally make the land with N. or N. E. winds, therefore it is better to keep to the N. until you get soundings, as the current sets to the S. W. Being in its latitude, and having got round in 25 or 30 fathoms fine sand and shells, you may reckon yourself about 20 leagues from the shore; with from 15 to 20 fathoms, sand and clay, you are not far off shore. If it is clear weather you may stand in boldly even in the night, and in the day, when clear, Cape St. Mary may be seen 10 or 12 leagues off, the ship being then in 15 fathoms. When you have not seen the land before night, be sure to keep to the N. of the Cape by your dead reckoning, to allow for the current which sets to the southward.—When you get soundings in 25 or 30 fathoms fine sand and shells, steer S. W. until you have 16 fathoms with sand; then if you judge yourself as far north as Cape St. Mary, steer S. S. W. until you get into the parallel of Lobos, which you will know, by having sand and clay. Running this S. S. westward if you are set to the westward, you will deepen the water to 20 fathoms; but if you are set to the southward, you will continue in 16 fathoms. Between Cape St. Mary and point Castillos the water decreases very suddenly.

When you have got into the parallel of Lobos, you may steer W. which course will carry you to the south of it, being in from 18 to 22 fathoms soft clay.

By keeping in not less than 18 fathoms, you keep to the south of Lobos; and by taking care not to have more than 22 fathoms, you clear the English bank to the north of it. From the island of Lobos to the island of Flores, the course is N. 83° 15′ W. 19½ leagues. You will have from 17 to 7 fathoms near Flores.

Soft clay is a proof of your being in the channel—and mixed with small stones and shells is a proof of your being in the parallel of the English bank, and fine brown sand mixed with mud or clay is a proof of your being to the south of the English bank.

When you are near Flores the depth is nearly the same to the northward as to the southward of it, but the bottom is firmer to the north; so when you find the bottom firmer, steer a little more to the south, till you

get into soft ground. If you get to the south of the channel near the English bank, the ground is hard, and less water; in this case steer more to the northward, until you get soft bottom; and in either case continue your westerly course as before.

Directions for Navigating in the Northern Channel of the Rio de la Plata, or River Plate, *from* Monte Video, *to the* road *of* Buenos Ayres, *and into the* Bay *of* Colonia.

[*Variation of the Compass about* 13° *East.*]

VESSELS intending to go up this Channel should not draw more than 12 feet of water; for although the soundings which are laid down in the Chart, indicate a sufficient depth for Vessels of a greater draught, yet, in places between the Bay of Pavon and Colonia, where we have had 3 fathoms, we have at other times found only 13 feet.

On leaving *Monte Video* for *Buenos Ayres*, steer so as to keep the *Mount* bearing N. E. by E. until *Point Espinilla*, which forms the eastern point of entrance into the River St. Lucia, bears N. ½ E. you will then be to the southward and westward of the *Panela*, a sunken bed of Rocks, having only 5 feet water on them, and 4 fathoms with soft muddy bottom close to them: they lie with the *Mount* bearing E. N. E. the Cathedral N. 75° E., and *Point Espinilla*, North, and are about 5 miles distant from the nearest shore. There is a passage between these rocks and the shore, by keeping the *Mount* bearing E. by N., which will take you in mid-channel in from 3½ to 4¼ fathoms water, between them and a Sand-bank which has only 2 fathoms on it. This Sand-bank extends from Primera Baranca S. S. E. ¾ E. about 5 miles, the *Mount* bearing from its South extremity N. 85° E., and *Point Espinilla* N. 45° E. but as this passage can only be recommended with a fair wind, it can be but of little importance.

Being outside and past the *Panela Rocks*, you may shape a W. N. W. course, which will take you about 4 miles to the south westward of *Point Santa Maria*, in from 4¼ to 3 fathoms water, soft muddy bottom, but, (as Captain Heywood very correctly observes, that no stated course can be steered in consequence of the irregular set and rate of the tides or currents) it is to be understood that great attention must be paid to the Ground Log, and allowance made for those irregularities, in shaping the different courses herein given. *Point Santa Maria*, is easily to be distinguished, from its being the western extremity of the high land, which is bold to, called, the Ravines of St. Gregory and St. Lucia, and there being also a few sand hills immediately to the westward of it. This remarkable point ought always to be made by vessels, as it will insure their not being drifted between the Banks of Ortiz, but it should not be approached nearer than 4 miles, in order to avoid a sand-bank that extends about 3 miles in a S. W. by W. direction from it, and then trends to the northward and westward into the bay along the coast, on which there are only 2 fathoms.

Having *Point Santa Maria* bearing E. N. E. distant about 4 miles, you may haul up N. W. by W. for the River Cufre, (about 4 miles to the eastward of which is a remarkable table sand-hill,) taking care not to shut

in *Point Santa Maria* with a prominent sandy Point to the westward of it, off which there is (at present, 1819) the wreck of a vessel, as by so doing you would immediately shoal your water, off the bay of Pavon, from 2½ fathoms soft mud, to 7 feet hard sand.

There are only two clumps of Trees to be seen when in shore to the westward of *Point Santa Maria*, excepting a few at the entrance of the River Cufre: the first or easternmost clump is about half way between *Point Santa Maria* and *Pavon;* the second or westernmost clump is at the entrance of Pavon River, from whence to the westward the general character of the coast is sandy, interspersed with patches of green brushwood, &c.

When abreast of *Pavon*, bearing N. E. by N. distant between 4 and 5 miles, in the depth of 3 fathoms, soft muddy bottom, you may steer for Colonia W. ½ S. in from 3 to 2½ fathoms, keeping at the distance of 3 or 4 miles off shore, and when in sight of the steeples be careful in not bringing them to bear any thing to the southward of W. ½ S. in order to avoid the *Skerries*. a bed of rocks, one of which is above water, lying with the steeples of Colonia bearing S. 77° 30′ W. distant about 10½ miles. and at about 2 miles from the nearest shore, having 2½ fathoms water close to them.

Being past these rocks and in sight of the Island of Farallon bearing W. by S. steer for it in that direction, until the steeples of Colonia bear N. W. ½ N. when, keeping them on that bearing, you must haul across the river, (between the N. W. tail of the Ortiz bank, which bears from Colonia S. 74° E. distant 16½ miles, and having on it 2¼ fathoms water, dark brown sandy bottom, and the Fishers bank, the north end of which lies with Colonia steeples in one bearing N. 11° W. and the *Island of Farallon* S. 85° W. having on it 2 fathoms, hard brown sand,) until the Island of Farallon bears W. by N. when you may shape a W. by S. course, taking into consideration the wind and set of the tide, for the outer Road of *Buenos Ayres*.

Or if going into Colonia, when you have passed the *Skerries*, continue steering towards the *Island of Farallon* W. by S. until a red roofed house, which is the westernmost building, and situated near the middle of the bay, bears north, when you must steer for it, in order to avoid a reef of rocks extending from the *Island St. Gabriel* half way across towards Colonia, and anchor with the steeples bearing E. by S. and the centre of the Island St. Gabriel S. W. in 18 feet water, on soft muddy bottom.

If having a westerly wind and intending to work up this channel from *Monte Video*, do not bring the *Mount* to bear to the eastward of N. E. by E. ½ E. until you are past the Panela rocks; and when abreast of *Point Santa Maria*, take care not to approach it nearer than 4 miles, in order to avoid the sand bank that lies off it; and, if standing over towards the Banks of Ortiz, to go about, when the bottom becomes stiff clay from soft mud, which is the general nature of soundings in the fair channel.

When standing towards the shore to the westward of *Point Santa Maria*, be careful that you do not shut it in with a prominent sandy point to the westward of it; and when in sight of the steeples of Colonia, never bring them to bear to the southward of W. ½ S. in order to avoid the *Skerries*.

Being past the *Skerries* and bound to Colonia, when working between the Main, which is steep to, and the Fisher's Bank, be careful and never bring the *Island of Farallon* to the westward of W. ¾ S., as the water shoals suddenly from 5 to 2 fathoms on the Fisher's Bank. But you may

stand off across the river, between the N. W. tail of the Ortiz and the Fisher's Bank, where, having more sea room, you may bring the steeples of Colonia to bear N. N. E. and then steer for them, in 3½, 4, 3¾, 3, 2½, and 4 fathoms, until the red roofed house bears north, when you may run in and anchor with the bearings before given.

Directions for Monte Video.

Between the English bank and the island of Flores, you may run W. by N. ½ N. 7 or 8 leagues, and then bring too till you see the entrance of the harbour; then you run in mid-channel, and anchor in any clear birth. Ships drawing more than 18 feet, must anchor outside in 4 or 5 fathoms. It will be necessary to cast one anchor to the S. E., one to the S. W. also, and one to northward, which take in abaft to be ready for the first south wind. Between the bank and island, are 4, 5, 5½, 6, and 9 fathoms, ooze.

Abreast of Fort Philip, which lies on the starboard hand, south of Bank Black sand, the depth of water is from 3½ to 3 fathoms; and in the best anchorage in the harbour, from 2½ to 2 fathoms, all soft mud, except near Rut island, where it is foul, and a rock at most times above water, having a pole fixed on its top. In sailing in from the eastward you should give the point, at the S. W. part of the town, a birth of at least one-fourth of a mile, by which you will avoid several sunken rocks scattered about the point and off Fort Philip; and as soon as you get the north part of the town to bear east, haul in, and bring the jetty or landing place S. S. W. about one quarter of a mile distant; you will then be in the best anchorage, and have 14 or 16 feet water, with moderate tides; moor head and stern to the S. W. and N. E. The best anchorage for a frigate is for the Mount to bear N.W. by N.; Cathedral N.E. by N.; and Point Brada E. by N. in 4 fathoms, muddy bottom. The holding ground is not good, owing to the bottom being soft mud. In this anchorage you are distant about 3½ miles from the city of St. Philip. To water a frigate here is attended with much difficulty owing to the great distance you lie from shore, and you have to procure it from wells north of the city, and roll it about 250 yards to get it to the boat, and when obtained is not good.

The harbour of Monte Video, situated on the north shore of the River la Plata, is formed by a Bay about two miles deep, exposed to the winds from S. E. to S. W. This harbour can contain 200 sail; the water is shoal, having only 12 to 14 feet; winds, from south to S. W. are generally accompanied with a great sea, especially when it blows fresh. The prevailing winds in the summer season are from the North and East; in the winter they blow from S. W. with great violence, which makes it extremely dangerous for vessels to lie there at that season: this wind sets in full sea: there are no regular tides in the harbour, being governed entirely by the winds.

Should you in approaching or leaving the River la Plata, wish to anchor at the island of Lobos, which lies off Maldonado Roads, it must be to the south of it, as the ground near is too loose to hold.

To sail to the south of the English Bank.

Being in latitude 35° 30′ S. steer west until you have 8 or 10 fathoms clay, then if Cape St. Antonio or Point St. Pedras are not in sight from the mast head, steer north until you get into the lat. 35° 15′, when you will have 5 or 6 fathoms sand mixed with shells, you may then be sure of being due south of Monte Video. The guide for the English bank by soundings is five fathoms sand and stones.

When admitted to anchor, as the current may set you to the Ortiz bank there are no dangers to the south of the English bank.

In case of observing signs of bad weather, particularly to the N. run to the S. as the north wind in bad weather generally veers to the S.

The Ortiz bank lies in the latitude of 35° 1′. S. Ships passing between the Ortiz and the S. shore, have only to keep the land in sight to clear the bank. On the Checo bank, the smallest of the Ortiz, and most southern, there is the wreck of an English vessel, the mast of which serves as a beacon. There is a good passage between the Ortiz bank and Checo with nothing less than four fathoms; the Ortiz side is the deepest.

You will carry 5½, 5¾, and 4 fathoms in the channel (mud) and shoal gradually to either side; the passage 4 or 6 miles broad. There is a good harbour at Eusenada, about 8 leagues below Buenos Ayres. And at the latter place ships must anchor in the outer roads, and send a boat to the town for a pilot, as the entrance is difficult.

REMARKS.

In a north wind the river generally falls a fathom, and in a south it rises a fathom.

The currents are governed entirely by the winds, and frequently continue some hours after a heavy blow.

The mount to W. of Cape St. Mary may be seen in 18 fathoms.

Between Cape St. Mary and Cape Castillos there are three bays and three points, the plainest of which is Cape St. Mary, lying in

	Lat. S.		Long. W.	
Cape St. Mary,	34°	39′	53°	58′
Island of Lobos,	35	02	54	42
Flores,	34	57	55	43
Monte Video (town)	34	54	56	04

East Coast of Brazil.

We will now return to Cape St. Roque, and follow the coast as it trenches southerly, first observing that every navigator should be attentive to the time of year he makes the Brazils, there being a kind of monsoon or trade wind blowing from the N. E. and E. N. E. with a current setting south, from the month of September to March; while from March to August, the winds are from the S. E., E. S. E. and S. S. E. the current then setting north: according, therefore, to these seasons, he should run into a higher or lower latitude than the port he is bound to. From Cape St. Roque to Cape St. Augustine, the land may be approached by soundings

of moderate depth, and gradually lessening as you approach the shore. Above 30 miles south of St. Roque, is the Rio Grande or Indian Potingi, a rapid river, having a rocky reef stretching from its northern point, sometimes covered; and a flat rock off its southern point, upon which the Fort dos Reys Magos is erected, from which a reef also extends to the sea. The entrance is between these reefs, and the anchorage is abreast of the Fort, in 3½ and 4 fathoms. Some shoals also lie a league off the northern point; indeed, it has many rocks scattered about, as far as the river Calutas. The town of Natal lies on the southern shore of Rio Grande. You will have good water of 5 or 6 fathoms all the way, and may anchor with good holding ground, and well sheltered from the sea. The river is said to be navigable nearly 100 miles. Eight leagues from Rio Grande is the Bahia Formosa, and between is Pirangi, Ponta Negra, and Ponta da Pipa. Ponta Negra or Black Point, has a small bay, fit only for small coasting craft. Your entrance is from the north. Ponta da Pipa, which is a rock on a point of land, is shaped like a wine pipe, on which the sea breaks. South of this rock are some springs of good water, which you may obtain if necessary, when the tides are low. To the northward of the point, the bay is open: you may anchor close to the white rock with good clear ground, in 5, 6, and 7 fathoms water. Abreast of this part, about 3 leagues from the shore, is a shoal, which may readily be discovered by the sea working over it, but on no part are there less than 4 fathoms; small vessels may therefore pass over it in safety. About 2 miles south from Ponta da Pipa is the little river Cunhau, having 3 fathoms at the bar; this will be known by a white cliff. Southward of this 1½ mile is Bahia Formosa; this bay is 2 leagues across, and 1 league deep, but open to the sea, and too much encumbered with shoals and rocks to be recommended for anchoring in. Here are the small ports of Buzios, having some rocks scattered about its south point, but by keeping more to the northward, you will avoid them. St. Juan de Stave is to the southward, and has a shoal midway of its entrance, with a passage on either side. Tabanty Bay lying south of Stau, has several reefs of rocks within it. The most distant of them is 5 miles from the shore; keep, therefore, 2 leagues or more from the land, and pass in safety. The river Congohajon is broad at its entrance, with 6, 5, 4, 3, and 2 fathoms water, decreasing as you advance up, but at the western part, where it narrows, are some sunken rocks, and on the northern side, 2 shoals which dry at low water. Port Angaro has a shoal off its northern point; between are only 2 fathoms, but to the southward of the shoal are 4 and 5 fathoms. There is a shoal also off the southern point: give the land a good birth and you will avoid it, and having passed it you may anchor. Camaratiba is a small river to the southward, having some rocks off its larboard point, which running southerly enter into Treason bay. This bay is in the form of a semicircle, having a reef of rocks running from its east point to nearly its centre; it has three openings or entrances; the larboard one has not more than 1½ fathoms water, but the other two are capable of admitting large vessels, the middle one having 4 and 5 fathoms, bounded by the reef on one side, and the rock Picas on the other; and the third opening having 5, 6, and 7 fathoms both in the channel and within the bay, and capable of admitting 50 ships at a time. Within the bay, and opposite to a river's mouth is a spot of sand running about a cable's length from shore. This bay is good and generally esteemed the best on this coast, but it is divided into two parts by a shoal which runs from the land to the reef, terminating on one side of the bar, and lying to

the eastward of the other two; therefore the frequenters of this bay should be careful not to go to the eastward of the middle of the bay. From hence to the island of Manques are several reefs running along shore, the farthest not extending 6 miles. This island is small, and lies at the mouth of the river Mongoangapy. This river has many reefs upon which the sea breaks, and we know only of a narrow inlet having 3 fathoms, by which you can enter; but when you are within the reefs and between them and the small island you may lie landlocked in smooth water. Southward are the two small rivers Misery and Doce, before which is an open bay; there are some sands stretching from point Lucena to the northward, between which and the land is good riding, with 5, 6, and 7 fathoms water, but the passage from thence to the point is dangerous. To the southward is the entrance to the river Pariba, having Fort Anthony on its northern point and Fort Catharine on its south, these two forts commanding the passage. The bar has 2½ and 3 fathoms over it. Without the bar are 4, 5, 6, and 7 fathoms, and within is a good depth of water, the river being navigable far into the country. The city is three leagues up; in entering take great care to avoid the shoals stretching from Cape Ledo, as well as those from the opposite point. Cape Ledo is in latitude 6° 49′ south, and longitude 35° 7′ west from Greenwich. From hence southward, the shores abound with rocky shoals, stretching along in narrow ridges as far as Tamarica island. Four leagues from Cape Ledo is the White Cape, from which some shoals run into the sea; it is so called from some white cliffs on its northern side. From White Cape to Porto dos Franceses, or Frenchman's Harbour, a ledge of reefs extend, between which and the shore vessels may ride in 10 fathoms smooth water.

About the middle of the reefs is an opening, called the Bored Rock, having 4 fathoms only; Porto dos Franceses is surrounded by high cliffs, by which it may be readily known; it has anchorage for about 12 ships, though the ground is bad, but vessels bound from Europe to Paraibo, generally make the White Cape called Cabo Branco, and coasting northerly to Cape Ledo, arrive at the entrance of the river. Pursuing a southerly course, you will pass the rivers Guiryo, Aveay, Guiana, and reach Capibaribe, the bar of which lies between Point Pedras and Point Coqueiros; vessels of 40 tons go up this river about 7 leagues to the town of Goyana. You will now approach the island of Tamarica, for having passed Guiana, the breadth of the channel between the reef widens and deepens. Small vessels belonging to the country frequently sail through to Tamarica. The island of Tamarica has good water, and an excellent harbour, the principal entrance to which is south of the island. Vessels of 300 tons may safely go over the bar; but you must have a fair wind for that purpose, on account of the narrowness of the channel, which is in some places not a musket shot wide and at its narrowest part is a shoal, having at low water only 2 fathoms over it; but having passed this bank, your water deepens, and you may ride in perfect safety. The bar has 3 fathoms over it with spring tides, and the rise of water is about one fathom and a half: from the bar to the anchorage is one league. The northern bar of the island is called Catuama; only small craft can enter, and to them its entrance is dangerous: within, the water deepens to 5 fathoms, and on the northern side is a flat rock, with 1½ fathoms over it; on the northern end of Tamarica is a fort, and on a little island at the S. E. extremity of Tamarica is another. Should a mariner use this harbour, he ought, on leaving it, to run out to sea N. E. by E. until he finds

himself clear of the shoals, and deepens his water to 7, 8, and 9 fathoms; he may then steer a due south course for Pernambuco, which will be readily known by the Recif or small island, situated between a rocky ridge and the shore, and about 18 miles south of the entrance to Tamarica harbour; but before you reach this place, and a league from the bar of Tamarica S. by W. is the river of Maria Farinha, south of which is Paô Amorillo or Yellow Wood river; but though there is room enough for vessels to anchor, it is considered unsafe, being between the reef and the shore in a narrow channel, and it being always necessary to have two anchors out, one on the reef, and the other on land, to prevent the ships swinging with the tides. One league south of Amorillo river, is the river Doce, where not even boats can enter; the river Tapado, is the next you will meet with, S. W. of which is the city of Olinda, standing upon a hill, on the top of which, is the Jesuit's College, a large building and very conspicuous; within the bar of Olinda, is anchorage for several ships, but though there are reefs before it, they lie too deep to protect the entrance from the winds, and the high sea which continually rolls in, renders it at all times a place of danger; near 4 miles south of Olinda, are the bars of Pernambuco, which may be said to have two bars or entrances: the northern or Great Bar, and the Picao for small vessels, having on the Recif a round fort for their defence; large ships cross the Great Bar in 4 and 5 fathoms water, and steering west, anchor in the Poco, or well, where close to the reef, is 3½ and 4 fathoms at low water, with a bottom of whitish sand; but the Little Bar has not more than two fathoms, and sometimes not so much over it; from the Poco, a shoal of shifting sand extends onward, until you are abreast of the town of Pernambuco; this bank is full of inequalities sometimes having 1½ and 2 fathoms over it, and often not one fathom. Opposite the bar is a dangerous shoal, which must carefully be avoided; it is nearly a mile out to seaward, and only 1½ fathoms water; and composed of red concreted stone and shells; many vessels having struck on this shoal, it is therefore recommended to be governed by the wind, which, if northerly, will lead you between the land and it to the northward, and if southerly, to the southward. Pernambuco is much frequented, and is a place of very considerable commerce. In sailing from this port with a land breeze, steer S. by E. but should the wind be from the south, or S. S. E. then stand out E. N. E. and when you are to the eastward of the Englishman's shoal, which has just been described, you will deepen your water to 6, 8, and 10 fathoms, clear ground and whitish sand; to the N. E. of the bank is less depth of water, but clear of danger. Proceeding southward, toward Cape St. Augustine, the shore continues to be encumbered with narrow ledges of rocks and sand, within which is shallow water, but on the outside of these ridges are 8, 9, 10, 11, and 12 fathoms, clear ground all the way. Cape St. Augustine is in latitude 8° 27′ S. and longitude 35° west. Vessels coming from the sea, and making the land in latitude 8° 30′ when in sight of the Cape, which at a distance, has not the appearance of a headland, but only a continuation of the coast, should look to the southward, where the Saddle Bow Hill will be visible, and when this hill bears S. W. the cape will bear due west of you; if the coast should run north and south, you are between the cape and Pernambuco, but if it runs S. S. W. you are to the southward of the cape; if off Marçahipe, the Saddle Hill will bear west; and if in the latitude of Alexo island N. N. W. In doubling Point Marcahipe to the north, Cape St. Augustine heaves in sight; at a distance it appears a long and narrow strip of land, having

several breaks upon it, and a point of land resembling a small island attached to it, in shape, not unlike the head of a Funny Fish; on the top is Fort Nazareth, to the south of the point is a bay fit only for boats, but to the north of the cape is the bay of Gaybu, where vessels may lie at anchor within musket shot of the cape. A fort is erected here to defend this bay, called Francisco Xavier de Gaybu; immediately in front of the cape is rocky ground, until you deepen your water to 25 fathoms, it then becomes good sandy ground; 3½ leagues north of the cape is the bar of Candelaria, into this river boats may enter with 3 fathoms water, and 3½ leagues farther is the town of St. Antonio do Recif de Pernambuco, a principal town of the Brazils, and well fortified. From *Cape St. Augustine*, southward, the shores are low and covered with shrubs, having a white sandy beach and *reefs* running as far as point Marcahipe. Three leagues S. S. W. from the *cape*, is *Porto das Galinhas;* this bay is formed and sheltered by the reefs without, and has 2 fathoms water within it and clear ground, but only boats can enter it. The *point* of *Marcahipe* is low, and appears at a distance inundated; it is full of wood, and in sailing along appears without any projecting point, but when you are a little north of it, the point is visible. To the S. W. is *Alexo Island*, which is small, having anchorages both at its north and south ends, but exposed to the winds and seas; between this *Island* and the *main*, is a channel ⅓ a league in breadth, 4 and 5 fathoms deep; but there is a rock near the Island rendering it unsafe for anchorage. Opposite to the Island is the river Sarinhaym; farther south is the river Formosa, fit only for boats; south of Formosa is Tramandary Bay, the bar of which is among the reefs which encircle all the coast. But when you are once within it, it forms the best bay on all the coast, having good anchorage with clear ground, 5 and 6 fathoms at its entrance, and 4 and 5 fathoms within, defended by a fortress with four batteries; approaching this bay, your soundings will gradually decrease from the distance of 6 and 7 leagues, where you will have 24 and 25 fathoms. The coast from Tramandary turns south-westward, where, keeping an offing of 7 or 8 miles, you will sail along clear of all danger, passing the rivers Ilhetos, Huna, Piracununga, Dordaris, and Mangos; here you will see the point and church of St. Bento, before which is Barre Grande; this place has many reefs running into the sea, and in it is a flat rock, opposite to a small rivulet, and covered with water: this bar is abreast of some cliffs, and has 3 fathoms water over it. Farther on is Porto Calvo, fit for vessels of 120 tons; and of these about 6 may be accommodated with shelter, those who are unacquainted with the place must keep the lead going, for along the coast 2 miles from the land are reefs, stretching along between these is the bar, having 5 and 6 fathoms over it, 3 and 4 within them, and when you are into the river, you will lie in calm smooth water, with a bottom of sand; about 9 miles farther, you will reach the river Camarigibi; the shore is level, the beach white, and the reefs still continue at the distance of one and two miles from the land; on the south side of the Camarigibi river are some cliffs of red sand, and these stretch toward the Rio Anthonio de Grande; farther on is Sapuagira river, and then little Anthonio river; near the latter, is another range of red cliffs and 3 round hills, the middle one being the lowest, all these rivers are fit only for boats. Coasting onward in a S. W. direction, and always giving a good birth to the reefs, you will reach point Saragoay, forming two capacious bays, where vessels of any size may find occasional shelter.

You will now pass Alagoa, and farther on St. Michael's river, navigable only by small craft; rivers Yaqucacu and Ipoci are of the same description. Coroipo river is to the southward of these, and has before it a rocky bank called Baxo Diego Roderiguez; it appears above water, is a full league out at sea, and stretches a considerable way to the southward, perhaps five or six miles; between it and the land, large ships may pass in safety; but the river Coriopo is so narrow and has so little water in it, that at low water it is nearly dry. At the extremity of the reefs is the small river Ipeba, having passed which, you approach the river St. Francisco before the south point of entrance to which is the island of Passaros; between this island and the main, is a channel called Garatuba River, leading into the Rio St. Francisco; it is narrow, and you have 2 and 2½ fathoms water, therefore in fair weather it is often preferred to the northern entrance, having also less tide to oppose your passage. From the island Passaros a shoal runs out more than one mile and a half into the sea. The Rio St. Francisco is so rapid and strong that few vessels attempt it; the entrance is to the northward, and when within, you anchor at the port of Piasabusa, about 3 leagues from the bar where the water is deep; about 7 or 8 leagues up, is the town of Penado. From the island of Passaros, the shore bends circularly to the westward to Cutindiva, Sergipa, and Rio Real, and is by some called Vazibaris Bay, into which the sea rushes tumultuously, more especially when the wind is from the west and southwestward; it is accordingly considered dangerous, and had always best be avoided, by keeping out at sea. Cutindiva, and Sergipe is fit only for small craft, and the latter is so blockaded by shoals at its entrance, that it requires a good and correct knowledge of the place, to attempt the passage. Rio Real also, is equally dangerous and impracticable with a large ship, on account of its numerous shoals and its strong current, against which it is scarce possible for any vessel to proceed. From Rio Real the coast runs S. W. to Tapicuru River, which is small, and fit only for boats; the breakers at its entrance run so high, and the land itself is so low, that it is with difficulty its entrance can be discovered. Inland the ground rises, and a league from the shore you pass in 10, 11, and 12 fathoms water; farther out it deepens to 50 fathoms; from hence you arrive at Torre d'Avilla, having passed the small river of Ponica, before which is a fishing bank, with 9 fathoms water; here small craft frequently anchor; from hence you reach the small island of Tapoame 3 leagues S. W. of which is the entrance to the Bahia. When bound to the Bay of All Saints, and coming from sea, do not make the land in less than 12° 30′ south latitude. The land is in appearance very remarkable, being studded with hillocks of white sand, like linen laid there for bleaching; while this appearance continues, you will keep your southwesterly course; and immediately it discontinues you will find yourself at the mouth of the Bahia, the island of Tapahone will show itself, but come not too near it, as foul ground runs out from it, steer S. W. by W. and you will avoid the shoals of St. Antonio, and as soon as you can descry the point whereon Fort Philip is erected, steer right in. These directions are for the N. E. monsoons, or for the months from September to March, but during the monsoons, setting in from March to August, and blowing from the S. E., E. S. E. or S. S. E. you must not make the land in less latitude than 13° 30′ S.; the shores will have a sombre appearance, and you will particularly observe a bare round hill standing near the sea, and called St. Paul's Mountain; approach not too near, because of a shoal bay, formed by the rivers Taporica, or Yagua-

ripe, but with a good lookout run northward until the Bahia opens to the eastward of Taporica Island; keeping therefore to the westward of Cape St. Salvador, and giving the east point of Taporico a birth of 3 or 4 miles you will enter the bay steering W. by N. and N. N. W.;* beware of the shoals of St. Antonio and you will have 24, 20, and 18 fathoms all the way to the Island of Frades. On Cape St. Antonio stands a fortress; a little farther is another, called St. Maria; three others, the new fort, Diego, and fort Praya, will appear before you reach the city of St. Salvador. This is built upon a rock, stands high, and is extremely populous and opulent. Beyond the city are several other forts and batteries, particularly Fort Philip, built upon a point of land nearly north of Cape St. Antonio; between these two points, the coast forms a semi-circle, where vessels anchor, having good clean bottom, holding well and sheltered from the winds. Directly abreast of the city is the Albertus shoal, narrow and long, about one mile from the shore. Off fort Philip, also, a reef extends one mile into the bay; this, together with the land, runs northeasterly to the entrance of Tapogipe River, on the starboard entrance to which is fort Bartholomew. The river has 6, 5, 4, 3, and 2 fathoms, decreasing as you advance, but before the entrance to the river there are 15, 16, and 17 fathoms, advancing to 40 fathoms, in the middle of the bay of All Saints, which here is wide and free from danger. To the northward is the Island do Mar, having some shoals off its eastern side; to the N. W. is the Island of Frades, east of which are many rocks and shoals, but not in the way of vessels using this bay. Between the Island Frades and Point Baleo, which is the northernmost land of Taporica Island, and upon which are six forts, there is a good channel 4½ miles wide; to the northward of the Frades, also, is a passage, but much narrower, and encumbered with shoals; there is also a channel west of Taporica Island, but as this is intricate, and in many parts intersected with shoals and rocks, therefore never used by Europeans or strangers, its description will be considered unnecessary. At the south end of Taporica, are many shallows and flats, running 8 miles from the island, and between the west point and little Taporica, is the Yaguaribe River, full of shoals, though with 3, 4, and 5 fathoms water. About 7 leagues to the southward, is the Morro or Headland of St. Paul's, south of which runs a river, having 4 and 5 fathoms water, the entrance to which is called Sobreaguades Bay. In entering this river, keep the starboard land close as possible, for the opposite side is so filled with dangers, that if your ship should get entangled in them it will be lost. On the side of the island towards the sea, a reef of rocks accompanies the coast for 5 leagues, terminating in shoals of one league farther. Seven miles south of Sobreaguades Bay is Tabatingo Bar, fit for boats, &c. and farther on is a reef stretching S. E. from the land about 2 miles, and forming the northern entrance to Serinhayn River. To the south lies the island Quepa, and 2 miles south of Quepa is a point of land, from which a shoal extends northerly, narrowing the entrance to Comomoau. Large ships may go safely up the River Comomoau, having 15, 12, 10, and 8 fathoms for many leagues. Being about 2 leagues within the bar, several islands divide the

* Ships bound into St. Salvador must be careful not to approach Cape Antonio too near, as there is a reef of rocks running out from it in a S. W. direction, 6 or 7 miles. This reef likewise runs to the eastward, and has a good channel between it and the main. There is a tolerable good light on the cape. Water may be had here without much difficulty in smooth water; you procure it at the south part of the harbour from a fountain close to the water.

river into separate channels, the widest of these is called the River Marau; this is also the deepest. The town of N. S. da Conceicao, is about 9 or 10 miles up. The River Seringhayn is broad, but encumbered with many shoals. There is a channel also to the town of Camomoau. The Grande Bar is fortified, and capable of receiving large ships. From hence to the southward, the shores are covered with mangues, which coasting along, you will come to some high land, terminated by a white rock, and this rock is the south point of the Rio das Contas; the river is narrow and full of sunken rocks, so that only boats enter; from hence to the Ilhos, is 24 miles; the coast is clear and the soundings regular. The Ilhos are two islands, appearing, at a distance, in the shape of cardinal's hats, about 4 miles from the land; one being covered with trees, and the other bare. From them a reef of several rocks extends southward, rendering the passage that way hazardous; but to the northward of them, the channel is good, and between the northern Ilhos and the main, you may anchor in 8 fathoms, muddy bottom. Opposite to the Ilhos, is the river of the same name, which, when you are within, divides into several branches; on the first of these, called Lake Taypa, on the north side of the river, is the town of St. George, nearly opposite to which is the village of Aldea; on the bar are less than 3 fathoms at low water, but upwards of 4 fathoms in some places. The principal land-mark of this river is a round hillock, which has the appearance of an island, though in fact, it is but part of the main; and close to the entrance on the north side, is a highland called the Dog's Snout or Point Caon, at the foot of which are breakers. When these rocks or breakers bear E. and W. from you, enter and keep the southern land close; you will then have the mouth of the river open. Coming from sea between the months of March and September, and wishing to run for these islands, you should get into latitude 15° 30′ S. and making land in this parallel, you will first see the Aymores Mountains, then run on north for the Ilhos; the coast is clear of danger, and the Ilhos are in lat. 14° 52′ S. But if your voyage be between September and March, endeavour to make the land in the latitude of 14° S.; you will then see the land of Camomoau, which is covered with thick mangues, which made, run southerly, and observe the directions given above. From Point Zambo, the southern point of Ilhos River, the shores become hilly as far as the river Contando Tuba; you will then pass the small rivers of Duna, Juzia, Patipa, and arrive at the river Grando, which last has three bars or entrances, but none of these rivers will admit any but small craft.

The shoals of St. Antonio commence about the entrance of Rio Grando, and many of them above water; keeping therefore to the southward, and passing to the eastward of these shoals, you will perceive a reef of seven rocks: here you will have an opening leading to the port or harbour of Santa Cruz. Steer in west, keeping the lead going, and you will find anchorage in 8, 9, and 10 fathoms. When you are fairly within the reefs, the water will be quite smooth, and you will ride in a spacious and secure bay. Here the first vessels that ever visited the Brazils came to anchor, and here, also, the first settlers fixed their establishment, though they afterwards removed to Porto Seguiro, which is to the southward. If bound to Porto Seguiro during the months from March to September, you must not make the land in a higher latitude than 17° south, lest you fall in with the Abrolhos, and from September to March, you should endeavour to fall in with it in the latitude of 15° 30′ S.; where you will see the Aymores Mountains, as before directed; but when you make it

in 17° or 17° 20′ you will notice a hill of considerable extent, called Mount Paschal; there is a white rock near it, and on its north side a spacious valley; you will then see some red cliffs, having an open strand to the southward, north of which, is Porto Seguiro. Being E. and W. with the above white rock, you will perceive some breakers, which extend northward 6 or 7 miles into the sea; on the south side of these breakers is Porto Seguiro, where you may anchor in from 8 to 10 fathoms water. This harbour is safe and commodious, and at its entrance may readily be known by four high rocks, appearing like the Needles at the Isle of Wight; the western ones are of the sugar-loaf form, and the innermost has an archway perforated through, the sea passing under it. A little southerly, is the river Serinham, on the banks of which is the town of Seguira, and the villages of Bocay, Juda, and Amaru. Several rocks and islands lie off the land from Seguira, northward, as far as Rio Grande, and between are good anchorages; but it is requisite you should have some previous knowledge of them, before you attempt anchoring. Between the Point Gorda and Long Island there is anchorage, and also, abreast of Povocao Valho. To the eastward is a good channel, through which, leaving the outer island, or the island of Nostra Citio di marena fara, to the eastward, you may pass in safety; the water deepens fast to seaward. Eight miles east of St. Antonio's Bank are 19 and 25 fathoms, then 38, and a few more easts of the lead there is no ground at 60 and 75 fathoms, passing to the southward, and having Mount Paschal in sight, you will reach the Abrolhos islands and shoals which stretch out in divided patches above 60 miles from the main.

In the latitude of 18° are four islands, forming almost a square. The N.W. island is called Seco, and the S.W. Barbora, while the S.E. is named Passaros and the N.E. Monte dos Pedros. These islands are without wood or water. On the N.W. side between the two largest islands, is a passage with 2½ fathoms, and water so clear, that the rocks at the bottom can easily be perceived; to the S.W. also is a channel with 7 and 8 fathoms water. E. and S.E. of these islands, the ground is all rocky for a considerable distance, and you may see the rocks, although in 15 fathoms water. Ships passing this way, should keep a good lookout, and mariners frequently first sail into soundings about this part; for to the eastward of the islands, as far as the 38th degrees of longitude, are 50 fathoms, decreasing as you approach the Abrolhos. Soundings have also been had in the parallel of 18° latitude, as far as longitude 35° 30′ the bottom of stones, shells, and coral rock. We do not think it adviseable for vessels bound to Rio Janeiro, to make soundings here, but prefer going more southerly, as far as the latitude 22° S.; but if you should, near the shoals of Abrolhos, come not into less than 20 fathoms, and steering south a little west, you will meet with no impediment. To the westward of the four islands before mentioned, is a channel running north and south; it is broad, and has 12, 13, and 14 fathoms water, with a clear bottom of sand and mud. Between this and the land are several rocks above water, of soft calcerious nature, and appearing like large hats, for which reason they are named by the Dutch, Chapeiroens, and by others the Jesuits. This channel is safe, though not much frequented; but should a vessel be driven to these islands by bad weather, she may effect it by a N. and S. course to the largest island, in 8, 9, and 10 fathoms water; an India ship will find anchorage about a musket shot from its northern point in 10 fathoms, with a bottom of sand; if a smaller vessel, she may run along the island to the southward, in 6, 7, and 8 fathoms,

then doubling its point, stand W. and as soon as she is N. and S. with a particular opening in the island, anchor in 4 and 5 fathoms. Ships bound from the Bahia to Espirito Santo, or Rio Janeiro, &c. may navigate this coast at any season of the year, either in a small vessel, by coasting it, or by standing to the eastward and clearing the Abrolhos altogether. But if you should coast it, the mariner will attend to the remarks already given to Porto Seguiro, from whence, having passed Mount Paschal, (which is situated between the rivers Jacho and Sarnabitaba,) the Abrolhos shoals begin. The inner or little channel is intricate and known only to the natives, it is therefore hazardous to attempt; but having passed the rivers Carivelus, Parnipa, and Parupa,) which are said to unite inland, insomuch that persons have been known to sail up the one and come down the other,) you will arrive at Point Abrolhos, which is high land, and to the south of all the shoals. Sailing on southwesterly, you will pass the island of Goerce, behind which a vessel may anchor, and arrive at the mouth of the river Doce, whose waters are so rapid and full, that its entrance is rendered difficult, even to small craft, though the depth is considerable, and canoes navigate it upwards of 20 leagues; further on is the River dos Reys Majos, (before you come to which, is a mountain of the same name;) here is an anchorage between the shore and some islands, the outermost of which is named Drielingen, and the inner one, Reposo. Having passed the river Sierra Mestra, Lunare appears terminating to the south, with a point called Shark's Point, or Punta de Tubaraon, and between them, is the river Rorreyras, fit only for craft; you now reach Espirito Santo, which, though narrow, is capable of harbouring large vessels. On its southern point is a cliff or rock called Morro de Juan de Morena. In making for this bay, in latitude 21° S. you will see several hills, one of which is very high and ragged. This stands near the river Goropara; and to the northward is another hill called Pero Cao. When you make these hills, you will also see three small islands, and to the southward is another. This joins to the small river of Goroparo, admitting only boats and small vessels; these sail up west, leaving the flat island Reposo to the northward, and anchor between it and the land. We have said the entrance to the bay of Spirito Santo is narrow; at its entrance is a shoal, which must be left to the southward, and sail right on for the island within the bay, and when you have brought it to bear N. or N.W. you may anchor in good and clear ground; you will have 8 and 7 fathoms at the entrance, and 5 and 4 when at anchor.

About 36 leagues S.W. from Spirito Santo, is Cape St. Thomas; in taking your departure from thence to Rio Janeiro, vessels should steer out S.S.E. to avoid some flats and shallows said to exist in the neighhourhood of the Cape, and when you are in the latitude of 22° change your course to the westward. There is said to be a passage within these shoals, through which the small craft coast along, but it is not sufficiently known for us to give a description of.

There are several rivers on the coast, viz. Gorapara, Iritibi, Tapoana, and Paraiba, of these, the latter is the largest. Cape St. Thomas is low, and cannot be seen far off. Vessels coming from sea and making the land thereabout, should be particularly careful not to go to the northward of 22° on account of the shoals above mentioned; for you will be upon the shoals before the land can be discovered; but being E. and W. from Cape Thomas, your course should be W. S. W. The three islands of St. Ann's will then heave in sight; stretch on in that direction for Cape

Frio ; but should you out be able to reach the Cape, you may come to anchor between these islands ; the largest or middle one, is about a league in circumference ; having, on that side nearest the main land, a pleasant bay, where fresh water may readily be obtained. Between these islands is a passage ; and the northern island has, on that part facing the main, a good convenient place for ships to careen. To the northward of the island is Bahia Formosa, to the S. W. is St. Ann's bay ; off the southern point of this bay is White Island, and due east from Buzios Point is Anchor Island, distant about 5 miles, and having deep water between ; the shore from hence, has several scattered islands as far as Cape Frio. The land from St. Thomas to Cape Frio is high, and in clear weather may be seen more than 20 leagues off at sea ; and in the latitude of these capes, that is from 22° to 23° S. you will have soundings at that distance, from 100 to 9 fathoms, decreasing very preceptibly ; as you near the land, you will observe a current running strongly towards the N. E.

Cape Frio lies in 23° 01′ S. and is remarkable ; for when you are distant from it 14 or 15 leagues, and it bears W. S. W. from you, your soundings being 49 and 50 fathoms, muddy ground, the Cape will then appear like a small island with two little hummocks, while from the mast head you will perceive a small island close under the high land south of the Cape. Among the many lofty mountains by which your approach to the Cape may be known, is one to the northward, about midway between the Cape and St. Ann's Island ; it is called the high land of St. John, and appears like an old decayed church, the tower seeming to be on the S. W. side. If vessels should have occasion to put into Cape Frio, there is to the northward a place of good shelter, and very convenient for small vessels, called by some, Praya de Angra, and by others, Porto Alerto.—The entrance is between the northern point of Cape Frio Island, and the Island of Porcós ; there is no danger ; the water is deep, and you will obtain good shelter, provision and fresh water ; you may heave down, if requisite, and obtain any kind of assistance from the town. To the northward between Cape Frio Island and the main, is a channel, but very narrow, with 4 fathoms water. You should, in attempting this passage, keep near the island, as a flat of sand stretches nearly across from the side opposite ; the stream from the westward, runs very strong through it, rendering it hazardous. From Cape Frio, the coast runs directly west to Rio Janeiro, a distance of 27 leagues ; there is a strong current from the west, and you may sail along within 3 leagues of the shore, in from 30 to 40 fathoms water all the way ; farther out the water deepens to 60 and 70 fathoms and upwards. At first, having passed Cape Frio, the land is low, and scarce to be seen at 6 and 7 leagues distance ; but sailing on to the westward, it becomes high, appearing in hummocks, and like the form of sugar loaves. In the way vessels may anchor either a little past the Monks, in from 20 to 30 fathoms water, clean ground, with a bottom of green sandy mud, or near the Maurice Island in 18 fathoms. You will now approach the entrance to Rio Janeiro, which may easily be known by a remarkable sugar loaf hill on its western point ; there is also to the southwest, another singular one called Gavia or Tajuca Point, known to the English by the name of Parrots-beak. This high land we recommend ships to make, when bound for this harbour, and with light winds, cast anchor, waiting for the sea-breeze : this will be found more advantageous, than being driven to the eastward by the current. The anchorage though deep, will be clean and good holding ground, of a greenish mud, and the sea-breeze blows every day from 11 o'clock till sunset ; it will,

therefore, be very easy for a ship to run in before the wind. Observe there are several small islands off the entrance to Rio Janeiro, the most remarkable of which is Round Island or Redondo; it is bold too on its N. and E. sides, and formed like a hay-stack, but off its southern side are several dangerous rocks. In day time, these dangers will be seen by the rippling of the smallest sea; but at night, or with thick weather, come no nearer than 2 or 3 leagues of the island.

To the eastward rather more than 2 miles, is Razor or Flat Island; and between, is a good passage, with from 10 to 17 fathoms; and to the northward of Round Island, are 4 or 5 small islands; these are all to be left on your starboard hand as you enter Rio Janeiro. In running into the harbour, observe when Sugar-loaf hill bears N. W. the channel is open, and as you near, you will see the shipping at anchor. At the N. E. side of the entrance, is a strong fort lying nearly N. E. of the Sugar-loaf, about 2½ or 3 miles apart. This is called Fort St. Cruz. Here every vessel at entrance, must bring to, and an officer be sent to announce the arrival, and the purport of its voyage. The colours must be hoisted, and sometimes the harbour-master takes charge of the vessel, and conducts it to moorings. The mate is often taken and examined; but the captain must on no pretence quit the ship until the health of the crew, and the particulars of the voyage are made known. After this, a submission to the existing laws of the country is required, together with other ceremonies. You are then permitted to go on shore, and hold intercourse with the natives; but you must land at the palace stairs, and neither officer nor seaman is allowed to walk about the city, without the military accompanying him.

When you are abreast of the fort, keep close in toward the fort of Santa Cruz, or in mid-channel, and anchor in 16 or 18 fathoms abreast of the town. When within the entrance, the course up is N. by W. ½ W. about a league, which will carry you to the island Cobras. In your passage you will leave on your starboard hand, the forts of Santa Cruz, Boa, and St. John's Battery; on your larboard hand, fort St. John, Square Island fort, Round Island Battery, and the fort of St. Sebastian. This latter is built on a high island, and abreast of the tower of Rio Janeiro: there is a regular tide at 7¾ hours ebb, and 4¼ flood with very little slack, and its velocity is from 3½ to 4 knots an hour. It is high water at 4 o'clock.—Refreshments of all kinds may be obtained at this place; beef and mutton good, cheap, and plentiful; fruit and vegetables in abundance, fresh water with ease, but wood is somewhat dear. Above the town of Sebastian, this harbour becomes extremely capacious; but European vessels seldom have any occasion to navigate farther than we have described.—Round island at the entrance of Rio Janeiro, is in latitude 23° 5′ south, and in longitude 43° 19′ west from Greenwich. S. W. of the entrance to Rio Janeiro about 14 leagues is the Maranbaya channel, the shores between being mountainous. Leaving the hill of Gavia, you pass Tejuca river and four small islands; leave them to the northward. Following the shore, you pass also the Palmas islands. There is a passage between all these islands and the main, but never used by ships of any burden.—On their outer or southern side, you will have from 15 to 30 fathoms water, until you arrive before the bar of Guaratiba, fit only for small craft. Sailing onward, a strait or channel runs along the coast; you must keep off the land, because the current constantly sets upon it, and passing by a low, sandy island, you will see the mountain of Maranbaya: it is high, round, and barren. Farther on is Maranbaya channel, formed on the western side by the island of Grande; this opening is near 2 leagues

wide, leading into a spacious bay, within which, and at the back of Maranbaya island, is good anchorage. The island Grande has also several bays, which are safe and capable of containing ships of burden. Entering by the channel of Maranbaya, on the island of Grande, is Palmier's bay, called by some Seio de Abrabao or Abraham's Bosom, from the security with which vessels may ride there; but far more safe and secure is the bay at the west point of the island. North of the island Grande, is the Villa Grande, or town of Angra dos Reos; before which are many islands and rocks, with anchorage between; riding near midway of the island Grande, the island Japoa bearing north, about half a league from the main land. Here you may anchor in 6 or 7 fathoms. Besides the channel of Maranoaya leading to the village or town of Angra dos Reos, there is the Gairoso, a channel to the westward of the island Grande full 3 leagues wide, with deep water and clear from every danger except a small sunken rock said to lie midway of the channel, which can easily be avoided by sailing on either side, in from 12 to 20 fathoms. A town or village lies on the western side of the main, called Parasay, but it is little frequented, and consequently little known to Europeans. Passing point Iotinga, which is the western point of the Gairoso channel, and sailing 36 miles westerly, you will see the island of St. Sebastian, before you reach which, and about 4 leagues S. W. of point Iotinga, is Cabbage island, affording at a port on its western side both wood and water. Large vessels may pass between it and the main in safety. To the westward, and about one mile from the main, lies Hog island, having a good channel with 6, 7, and 8 fathoms water between; this place is named Shark's road. To the southward is Monkey island, and farther on, the north point of St. Sebastian's island. To enter between St. Sebastian's island and the main, you should steer a S. W. course; keep near the island's side, on account of a shoal stretching from the Convent to the village of Francisco. This island is above 5 leagues in length, and can shelter many vessels; the anchorage is either at Guaromim bay, or before the village Armasao; here is a small fort, and to the southward is a sunken rock. In the middle of this channel is 12, 13, and 14 fathoms decreasing on both sides as you near the land. Southward you will pass the village of Sebastian; and sailing out at the Toque Toque, you will see the Alcatrasses or Cormorant's island, round which is foul ground. There is a small port on the eastern side of the island of St. Sebastian called port Castilhans, and to the N. E. are the islands Victory and St. Luzia, both uninhabited. Taking your departure from Toque Toque, you pass Mount Trigo, a small island; and to the westward is Barra de Bertioga, where none but small craft can enter, and these only when they are unable to reach the Great bar. Ships of burden do sometimes attempt it, in which case you must hug the main close to the bare head-land, where there are 10 fathoms water; but running along the coast, you come to Craw island, lying about a mile off, and then standing off till you double a high point of land which is on the principal entrance or bar of the Santos. Vessels must sail into this place due north; its entrance is about one league wide, forming a circular bay, with a sandy beach. To the eastward is point Engenho, and farther on a fort, opposite to which, and on the other side of the channel, is fort Trinxeira: the passage here narrows, not being above half a mile wide. Abreast of the forts are 14, 12, and 13 fathoms; the channel runs E. N. E. and then N. N. W. and west, until it reaches the town of Santos, before which is anchorage in 5, 6, and 7 fathoms water. The whole of this channel is good, and free from any danger whatever. The Barra

de St. Vincent is to the westward, and was once a good channel, but the continual increase and accumulation of sand has choked its entrance up, scarce admitting canoes to pass. S. E. about 3 leagues from the entrance to the Barra de Santos, is a flat rock, appearing white from the dung of birds; this you will readily avoid. To the southward of this place lies the small island of Redondo, in latitude 24° 33' above 20 miles off shore; and 18 miles S. W. from the Santos is Conceicao bar or Itanhaem, which is narrow, dangerous, and used only by boats and small craft; a large rock lies on the middle of the bar. Three leagues and a half to the east are three small islands called the Burnt islands; 50 miles S. W. is the river and bar of Iguape. Both these are filled with sand, so that canoes can scarce enter with safety, but if you get within the bar, an arm of the sea carries you all the way to Cananea; this canal divides into two parts, forming a complete island, on which stands the town of Cananea, before which you may anchor in 5 and 6 fathoms water. The inner or northern canal, called Mar de Arciraya, runs at the back of the island, receives several small rivers in its course, and empties itself into the Mar de Tarapande, which also runs to the Barrade Cananea. From the Barra de Iguape to the Barra de Cananea, is about 30 miles, the shore low and flat; opposite to the entrance lies the island Abrigo, dividing it into two channels, both of which are dangerous, on account of the breakers and shoals thereabout: the northern entrance, called Barra Falsa, is narrow and shallow. Corvettes and small boats only enter there; the southern entrance is wider and deeper, and into this, ships of burden find a passage. Sail on to the southern shore, keeping close in 3 and 4 fathoms water; but observe, the bar is shifting, and consequently dangerous to all strangers. The bar is about a mile in breadth; when you are within, you will deepen your water to 5, 6, and 7 fathoms, and may anchor as most convenient for your purpose. From Cananea southward, you will fall in with a small island called Castillo; this is nearly opposite to Arrepira, which is now not navigable. Farther on is Figuera, another small island; and coasting along you will reach the Barra de Suparagui, admitting canoes only. This creek is divided from the main entrance to the bay of Paraagua by the island of Pecas, near a mile from the southern part of which are some rocks. These rocks form the northern boundary of the channel, while the island do Mel, lies to the south; between the passage is nearly a mile in width. A league off at sea, are only 3½, 4, and 5 fathoms, but as you approach the bar, it deepens to 5, 6, 7, and 8 fathoms. In the channel are 4½ and 5 fathoms, and when within, you will have 5, 6, and 7 fathoms. There is another entrance to the southward of Mel island, called Barra de Sul, but like Barra de Superagui, it is fit only for boats. The course to Parangui town, and the villa Antonina is due west; the former is on the larboard side, almost 4 leagues from the bar, while the latter is rather to the northward, and about 6 leagues up the river, there are several islands scattered about, but the channel is generally clear, and every known danger is visible. Eight leagues S. W. is the Barra Guaratuba, or Guarativa, before you reach which, you will meet two small islands 5 miles from the shore. The entrance to Guaratuba is on the north side, near a large rock, where you will have a deep channel with 15, 18, and 20 fathoms water; but from this, all is shoal to the southward, and to the seaward, for nearly 5 miles; this river is remarkably rapid, and famed for its fisheries. Whoever runs for this harbour from the northward, should keep close to the land, make for the point of the rock above mentioned, and when about to en-

ter, keep the small flat island astern. This island lies about 1½ mile to sea, and your anchorage will be immediately behind the hill to the northward, or opposite to the hill on the south side. This river is supplied by several others, of which Rio St. Ioao is the most considerable, and is said to be navigable for upwards of 12 leagues. About 20 miles southward is the northern entrance to the Rio St. Francisco, called Bepitanga, capable of accommodating any vessel, and having from 6 to 13 fathoms in its channel to sail in, it is adviseable to coast up the land which lies at the southward in 6, 7, and 8 fathoms, and when you arrive at the headland where this coast ends, you should make for the northern point, taking care to avoid a bank, running to the N. E. which is shoaly, having not more than one fathom at low water, and as soon as this north point comes abreast, stand S. by W. for the town, or for the church of St. Joze, built on an eminence: opposite to this you may anchor in clear ground. The other entrance to the river is 5 leagues to the southward, and fit only for canoes; but opposite are two islands with anchorage and shelter from the sea, in 4 and 5 fathoms water, with a bottom of whitish sand. To the southward are the rivers Tapuca and Tramandi; the latter is narrow but deep, and said to be navigable for boats more than 40 leagues. The Enseneda de Tajayhuge is to the southward, and farther on the bay of Guaraupas, the entrance to which is 8 or 9 miles in breadth, well sheltered from all winds, and depth of water for any ship; two rivers discharge themselves into this bay, over beds of white rocks, and the surrounding land is covered with thick woods. To the southward is point Manduri, from whence you proceed south, to the island of St. Catharina; this island is 33 miles in length from north to south, and its breadth is in some places very narrow. On its eastern side we know of no anchorage; its northern point lies in 27° 21′ south latitude. In coming from the northward, it has a remarkable island, shaped like a galley, by which name it is generally distinguished; while to the southward is Alvaredo, or Woody island, to the westward is the bay of Tijucas. To enter between St. Catharina and the main, the best and most frequented passage is between the north point of the island and Alveredo; but you may go between Alveredo and Galley islands, and in case you cannot accomplish either of these, proceed between Galley island and the main; and should the wind die away, turn in and anchor in Tijuca bay. Desirous however, to get to St. Catharina, keep midchannel, and steer southward between two forts, anchoring abreast of the river Ratones, or go on to the town, which stands on the western part of the island, and is much frequented; there is a southern channel, but it is difficult to navigate, and chiefly used by boats: water may be had of good quality, and in abundance; also provisions and many articles of commerce. The tides are irregular, the flood entering by the two channels north and south, and proceeding as far as the narrow strait, but yet it does not rise above 3 feet. Arazatiba bay is on the main, to the southward, where vessels sometimes shelter, but we have already said the entrance to it is dangerous. Three small islands lie at its mouth, on one of which a fort is erected, and about a mile to the eastward of these, are three others somewhat larger, and called the Irmines. N. E. of these is the Moleques do Sul, and southeasterly is Coral island, or Rock, between which and the shore, vessels may anchor. To the southward, in latitude 28° is another island, called Aboreda del Sul; this is situated about 2 leagues from the shore, and between is a good passage. To the southward are rivers Patos, Ririqueera, and the islands Embatuba, lying close in with the shore.

Passing on, you will observe the Hill of St. Martha, a projecting headland, and forming the southern point to the Lagoon river, on the north point of which, is Villa Neuva; the intermediate rivers from St. Catharina to this place are small, and choked with sand. Vessels therefore give this part of the coast a good birth, sailing at 30 or 40 miles from the land, and having 40, 45, and 50 fathoms water, without any danger. From hence the shore bends west and southwesterly, high ridges of mountains appearing inland. The rivers Urueanqua or Aracangua, near which stands a convent, Iboipitinhi and Manpitabi, lie between; they are all shallow, and unfrequented by any but canoes. To the southward is the Lake Tramanday, having a village of the same name to the northward, and that of Ioao Antines to the southward; the entrance to this appears about a mile wide, and opens into a large lake running northerly in the direction of the coast; about 50 leagues off land now intervenes, running generally south and southwest, without any river or bay. You will then arrive at the Rio Grande, or Great Lake of St. Pedro, the entrance to which lies in 32° 8′ or 10′ south, but vessels having a northerly wind, should make the land in latitude 31° 30′ south; but with a southerly wind in latitude 32° 20′ south, approaching the land to a convenient distance without any risk. Across the mouth of this river runs a bar, and as you approach, you will see a Pilot boat stationed there, purposed to direct the mariner. Observe her hoist a red and white flag fore and aft; if both are kept up, be sure there is sufficient water over the bar; you must then steer directly for the Pilot boat, watching the motions of the flags; for if the Pilot directs you to steer to the starboard, he will lower the staff the flag is affixed to, pointing it starboard; this he will continue to do until you steer the proper course; he will then return the staff to its former position. The same with the other flag. When there is but one flag up, you must steer directly for the boat. When one red flag only is put up and taken down again immediately, you must anchor, hoist your colours and a jack at the fore-top-mast-head; the Pilot will then come on board. But should the weather not permit your anchoring, you must put off to sea; for when the winds blow strong on shore, and the sea runs high, the land ought not to be approached too near, it will always then be most prudent to keep 9 leagues off, or in about 30 fathoms water. The S. E. and S. S. W. winds cause the greatest rise of water over the bar. When the wind is from E. S. E. to W. S. W. the south bar is the best to enter; and with winds from E. to N. the north bar. Although the entrance of the Rio Grande is narrow, yet when within, it widens to a large lake, running northerly for upwards of two degrees, and receiving several rivers from the westward; on entering over the bar, you will have a fortress on the western land, and farther in, several batteries, until you arrive at the Villa Grande, where stands the Fort St. Pedro; on the opposite or eastern shore, stand the batteries of St. Pedro, near the entrance, and the batteries of St. George and St. Barbaria farther on; you will then pass Fort da Coniscao and Fort das Fingueras; there is also another battery to the northward; over the north bar is 1½ fathom at low water, and over the south 3 and 2 fathoms; within the bar is 4, 5, and 6 fathoms, and vessels may anchor either before the battery da Fuarda do Pontal, on the western side, or near Fort Figueras, or farther north. The Lake of Rio Grando has also a communication with a large lake to the southward, by means of a narrow channel, guarded by Fort Gonzalo; two degrees south of Rio Grando, is the river Choy, narrow and little known; this is the

entrance from the sea to the lake above mentioned, having on its southern banks Fort St. Michael. Between Rio Grande and to the southward of this river, as far as point Grande Castillos, the shores are encumbered with many shoals, their exact forms and depths of water, being known only to the natives; it is asserted, some of these shallows extend 10 and 12 leagues from the shore: it is therefore recommended, that mariners bound to Rio Grande, do not make land in a higher latitude than 32° 20′ S. Vessels bound to the river Plate, should make the land of St. Mary in latitude 34° 38′ S. as hereafter directed. Off the coast of South America, but at a very considerable distance, is the Islands of Trinidada and Ascensao, a description of these may be considered useful. The Island of Trinidada lies in 20° 28′ south latitude, and in longitude 29° 5′ West. In coming from the eastward, as you approach it, the Islands of Martin Vaz, three in number, will first be perceived at the distance of 8 leagues off; they are remarkable, and lie about 9 leagues E. by N. of Trinidada, are nearly north and south of each other, and cannot easily be mistaken. The middle one is high and covered with grass, the two others quite barren. Between the southernmost and centre rocks is a passage, but between that and the northernmost, it would be hazardous to attempt one, they appearing almost to join, and when seen at a distance, are like five distinct heads of land. Trinidada is nearly 6 miles round, unequal and rugged; mostly barren, though in the valleys are several shrubs, with plenty of sea fowl, and the shores are covered at times with stock fish.—The landing is dangerous, on account of the great surf which continually breaks round the Island; this occasions watering to be scarcely practicable, though the water is excellent, yet is doubted whether it be plentiful or permanent. You may anchor on the west side of the Island, about a mile from the shore, in from 40 to 45 fathoms, coarse sand; but do not anchor nearer. Here you will see a stupendous chasm in the rock, forming an arch, and two remarkable rocks called the monument and the sugar-loaf, the former 850 feet high, the latter 1160 feet, and both have trees on their summits. It is said the best anchorage lies off the east side, the west side being rocky; this side is distinguished by an old Church with a large cross upon it; off this you may anchor in 6, 8, 10, and 12 fathoms, the cross bearing W. S. W. and a point of land, resembling the South Foreland, bearing S. W. by W.; thus situated, we are told a vessel may be moored with one cable on shore. The watering place is near the church. Here the wind is very variable; sometimes light airs and calms succeed S. E. winds: sometimes a N. N. E. wind has been known to blow for months, and sometimes heavy squalls will set from the westward.

The Island of Ascensao is said by a Portuguese mariner to lie in latitude 20° 46′ S. and longitude 35° 08′ W. and by him thus described: He states it to be high, having a cove on its north side, with fresh water; off its western side are five small islands or rocks, one of which stretching far out to seaward, appears like a ship under sail. Fish and wild fowl are there in abundance, but modern navigators deny the above situation for this island, and altogether doubt its existence.

Directions for making the land, and coming down to the Bar *of* Rio Grande.

The land is very low, and hardly to be seen in some parts, even in 12

fathoms; when first seen, you discover sandy hills, brush wood, and green meadows. There are but few objects to give you sufficient knowledge to ascertain the place with exactness, but 8 or 9 leagues to the N. E. (the coast runs N. E. and S. W.) you will see the church of the parish of Electa, which in clear weather is distinctly seen in 7 fathoms, in which depth of water you may sail from this to the bar. From the church as you sail down appear high hillocks of land, which are perfectly bare of any objects. After running the last named distance, you must be looking out for the tower beacon, which is white, and has the appearance of a house about 40 feet high, on the top of which will be hoisted a red flag, immediately on discovery of a vessel, upon which the pilot boat goes down to anchor on the bar, to wait the vessel bound in. This boat will have a white flag flying, the pilot on board will be waving a red flag, either to starboard or larboard, which directs the vessel approaching the bar how to steer, till you are just upon them, when they immediately heave up their anchors and get under weigh for you to follow them. The boat has two spritsails, and sails fast. A vessel has to run all chances to go over the bar, and ought not to draw more than 8 feet 9 inches. If you draw 9 feet and $\frac{3}{4}$ of an inch, it will be proper for you to hoist a red flag, with a white one under it, on the fore-top-gallant-mast head, both of which should be large and easily discovered; if, after this, you observe the boat still continues her white flag flying, you may venture to run down to the bar to go in; but should the white flag be lowered, you are to come to anchor or put about. A vessel drawing 10 feet 2 inches, (which is the most water a vessel ought to draw bound there,) must hoist on her fore-top-gallant-mast-head a red flag and a blue one under, observing at the same time if the pilot boat continues her white flag flying, you may approach her; if it is hauled down, anchor or go about, as the lowering it shows there is not sufficient water on the bar. In approaching the bar you shoalen your water very suddenly from 5, 4, 3, and 2¼ fathoms, which last is what you ought to have on the bar.

It is judged most proper to make the land in about 31° 3′ S. and not to run in for it till you have observed in that latitude; also the lead should be strictly attended to, as the current sets generally to the northward, and storms have put many vessels on shore when least expected.

General remarks on the harbour of Rio Janeiro *and* Cape Frio.

From Abrolho's bank the soundings extend to a considerable distance from the coast all along to Cape Frio. This Cape is remarkable headland, with several small islands near it on the N. E. side, and one forming its extreme point; about 6 leagues to the northward of the Cape, there is a bay which is said to afford safe anchorage inside of the islands.

Ships steering for Cape Frio should take care not to run into this bay, particularly with the winds easterly or south-easterly, in the night. The land to the northward of the Cape is mountainous, but near it of middling height, appearing like islands; the Cape itself makes in two hummocks, like paps, and has deep water near it.

Ships bound to Rio Janeiro endeavour to fall in with Cape Frio; it is therefore desirable to ascertain the true situation of this promontory.—Capt James Mortlocks, an excellent observer, made it at one time in latitude 23° 1′ S.; at another time in 23° 2′ S. and in longitude 41° 42′ W.

Capt. Tosin by good observations, made it in latitude 23° 1′ South, and longitude 41° 42′ W. Several ship's journals prove this Cape to be in latitude 23° 00′ S. or 23° 1′ S. whereas the English Directories erroneously state it to be in latitude 22° 41′ S. an error which might induce a navigator to run his ship on shore. Some observers have made the Cape 10 or 12 miles more easterly than the longitude mentioned; but as Capt. Mortlock and Tosin were careful observers, and agree with each other to one mile, the true situation of Cape Frio may be stated latitude 23° 00′ 30″ S. and longitude 41° 40′ W.

The coast from Cape Frio to the Sugar-loaf (which forms the western entrance of the harbour of Rio Janeiro) trenches east and west nearly, distant 59 miles; the soundings are regular and the coast perfectly clear from all danger; you generally find a strong current setting to the westward. Off the mouth of the harbour lie several small islands, which is an excellent mark for vessels running for this port; you need not be afraid to approach them as the water is bold, having from 20 to 25 fathoms all round them. The passage between Razor and Round island is clear and good; they lie 3¼ miles from each other; the Sugar-loaf forms the western, and Fort St. Cruize the eastern entrance of the harbour, and bear east and west from each other, distant one mile. There is no kind of danger in entering the harbour; all that is necessary, is to keep your ship (if you are not acquainted) in the broadway, rather bordering on the Cruize side, for should the wind be far to the northward you may fetch in without tacking. The harbour is spacious, good, and well fortified; it is high water on the bar at full and change at 4 o'clock; the tides do not ebb and flow regular, but are governed principally by the wind, run with great velocity and rise about six feet.

The latitude and longitude of the Sugar-loaf, as ascertained by a good survey in 1796, is latitude 22° 57′ S. longitude 42° 44′ W. var. 7° E.

Vessels wanting large quantities of water have to apply to the Custom-House, for their mode of bringing it off is with a large tank which holds from 12 to 14000 gallons, and for this quantity you pay 24 dollars.

Var. at Rio Janeiro 6° E.

General directions for leaving Rio Janeiro, *and bound to the* River Plate.

In leaving Rio Janeiro, you must endeavour to get an offing of from 16 to 20 leagues, where you will have 60 to 70 fathoms, but as you get to the southward, into the latitude of 30 and 31 deg. south, you will have not more than 35 to 40 fathoms, twenty leagues distant from the land, and by standing on S. by W. or S. S. W. you will perceive the water shoal to 14 and 12 fathoms, at about 16 or 18 leagues from the land. Large ships should not get less than 16 fathoms, especially between Rio Grande and the Great Castillos, a point 8 or 10 leagues north of Cape St. Mary's, as there are many shoals and banks with only 5 and 6 fathoms, although they lie 10 or 12 leagues off the land. In bad weather a great swell breaks over them, which is dangerous even to small ships. Coming from Rio Janeiro to the River Plate, His Britannic Majesty's ship Samson had only 4 and 5 fathoms, rocky ground, in the latitude of 38 deg. 30 min. though at the time, the land in clear weather could not be seen. Steering south, the water deepened to 16 and 18 fathoms, and to the southward of 34 de-

grees steering S. W. by S. the water still deepened, the bottom mud.—When you are in latitude 34 degrees 30 minutes, or 35 degrees S. and have from 20 to 22 fathoms, should the weather be fair, and the wind northeasterly, haul in for Cape St. Mary's, which is in the latitude of 34 degrees 58 minutes S. and longitude 54 degrees W. steer in W. by S. until you get into 16 fathoms, and if the weather should be clear, you will discern the land a little to the northward of the cape; but should you be in the latitude of the cape with hazy weather, and only 16 fathoms, steer S. S. W. or S. W. by S. until you get into the latitude of Lobes, keeping in from 16 to 20 fathoms; if more than 20, steer westerly; but if less than 16, steer southerly. Being between the Point Castillos and Cape St. Mary's, the water decreases suddenly, and must be cautiously approached.

When in the latitude of Lobes, and having 22 fathoms, steer west, which course will carry you clear about a league south of Lobes, and by not letting your water be less than 18 fathoms, nor more than 22, you will ascertain to a certainty that you are to the southward of Lobes, and to the northward of the English bank. Standing on to the westward do not get into more than 22 fathoms, particularly when you are to the westward of Lobes, from Lobes to Flores island, you will have between 17 and 7 fathoms, in a direct line between the two islands, the soundings being very regular as you approach Flores. The proper channel is with a ground of soft clay; but sand intermixed with stones, shells, and gravel, is a sure sign of your being in a parallel with the English bank; and should you meet with brown sand, or mud, or clay, you will be to the southward of the English bank. When near Flores, your depth is the same to the northward as to the southward, but the ground is harder to the former than the latter; therefore when you find hard ground, alter the course southerly. Pass Flores to the southward, because of a ledge of rocks stretching out 3¾ of a mile from its northern point, having no more than 2 fathoms in several places; if with a line of battle ship, come not nearer than a mile of Flores' southern part, unless the wind is scant, and you are desirous of hauling for a weatherly anchorage, with E. or S. E. winds, in which case you may near it to about ¼ of a mile, when you will have 5½ and 6 fathoms. Bring the south point of the island S. E. by E. ¼ E. and the north point E. by N. ½ N. and you will have from 5 to 5½ fathoms; this is the best anchorage for large ships: you will be near a mile from the island, and have a muddy bottom. S. W. ½ W. ¾ of a mile from the south part of the island, is a shoal with only 23 feet water upon it, on which His Britannic Majesty's Ship Raisonable struck, but got off without damage. Mr. Oakes, Master in the British navy, says of this shoal, that it is a rock extending nearly E. S. E. and W. N. W. about a cable in length, and ½ in breadth, being distant from the island about ¾ of a mile, its least water 4 fathoms, and that part of it, not above 5 fathoms in circumference: the other parts of the shoal were 4½ fathoms, at ¼ less 5, he was off the rock in muddy bottom. In the shoalest part the following bearings were taken; the outer point of the rock of the N. W. end of the Island Flores, E. by N. ½ N. The extreme point of a low edge running toward the main from the same end of the island, on with the saddle of the N. E. hill on the island, bearing N. E. ½ E. The N. E. point of the island N. E. ½ N. nearly, and the Mount west. On the east of the Flores island is no good anchorage. Going from Flores toward Monte Video, steer W. by S. or W. by S. ½ S.; you will then avoid a dangerous shoal, having only 11 feet water. This lies off the Goritta

rocks. (It is thus described by the Sarah of London, which struck and remained on it 8 hours.) It lies from N. W. to S. E. is about two thirds of a cable in length, and one fourth of a cable in width, having only 11 feet on its shallowest part, and 5 fathoms all round. The bearings taken on board while aground, were the N. E. part of Goritta rocks N. W. ½ N. distant 2 miles; highest part of Maldonado mountains, N. E. by E.: the south point of Flores E. ¾ S. Goritta rocks near the main, W. by N. ½ N. and point Braba, W. ¼ S. E. N. E. from point Braba, is another shoal, dangerous, and nearly on a level with the surface of the water; round it you will have 2½ fathoms water, at the distance of 2 cables' length. The bearings on this shoal are, Point Braba, W. S. W. about 2 miles, Goritta Point N. E. by N.; the centre of the white sandy bay, N. W.; easternmost Farm House, west of Goritta Point N. ½ W. Inside this shoal is a good channel, and between it and the point is anchorage to the N. E. of the shoal in 2½ fathoms. Observe Point Braba will bear S. W. or S. W. by S. and at the distance from the shore of about one mile, you will lie well sheltered from the W. and S. W. winds, with room enough for 50 sail to anchor; there are 2½ fathoms for a mile and a half or 2 miles round the bay. Continue this course until you bring the mount to bear N. W. by W. or N. W., then haul in for the harbour or the men of war's anchorage, which is about 5 miles from the Tower; (the mount will then bear N. W. by N. and the town of Monte Video north,) in 4 and 4½ fathoms, muddy ground.

Remarks concerning the Winds, Weather, Tides, or Currents, Soundings, &c. in the River Plata, with a few Instructions for navigating therein, by Capt. Peter Heywood, of the Royal Navy.

AT the entrance of the Plata, the prevailing winds, during the summer months from September till March, are north-easterly, with tolerable clear weather overhead, but a dense atmosphere near the horizon. These winds haul gradually to the eastward as you advance up the river; and about the full and change of the moon, strong breezes from the south-eastward are common at this season, accompanied with rain and foul weather. Up at Buenos Ayres, during the summer months, the S. E. winds are fresh generally in the day time, hauling round to the northward in the night.

During the winter months from March till September, the prevailing winds at the entrance of the Plata are S. W. or more westerly; but up the river, more generally from the northward than the southward of west.

The winter season is best in point of weather, at Buenos Ayres; for the winds being chiefly from the N. W. to S. W. the water is smooth, and the communication can be kept up between the shore and shipping with more facility. The weather is sometimes, but not frequently, foggy:—fogs are most common in the months of July, August, and September, and prevail more at the entrance of the river, as far up as the S. E. tail of the Ortez, than up above the banks.

As it cannot be said that there are regular tides in the Plata, but currents, as uncertain in their duration as they are irregular in their rate and direction: no certain allowance can be made for them, and therefore

a ground log should always be used, to know the course made good, and distance run.

The tides, speaking generally, when the weather is fine and settled, and the winds moderate, do not, in any part of this river, rise or fall more than five or six feet; though up at Buenos Ayres, at the distance of eight miles from the city, we had, when the winds were strong at N. W. as little sometimes as fifteen feet water; and with strong breezes from the E. S. E. to S. S. W. the depth was upwards of five fathoms; but, except on such extraordinary occasions, we had between 17 and 22 feet water. I have heard, however, some marvellous stories of the river having been almost dried up, across from Buenos Ayres to Colonia, during heavy westerly gales.

The River Plata has many singularities, though I think they may, in a great measure be accounted for from its formation being so different from any other known river: Its entrance being very wide and shallow, it is affected by every change of wind in a most extraordinary manner; so much so, that a shift of wind may be predicted to a certainty almost, by carefully observing the state of the mercury in a barometer, and the set of the currents, as they usually shift before the wind. In calm weather the currents are generally very slack, and then as regular almost as tides, setting up and down the river alternately. When the winds are variable the currents are equally so; and I have known the ship to be curren-rode four different ways in less than six hours. When the current comes in from the eastward along the north bank of the Plata, a north-easterly wind may (generally) be expected to follow; and, at the same time, (should the wind have been previously to the S. E.) the mercury in the barometer will fall a little; but much more if the transition be quick from south-west without stopping on the south-eastern board.

When the wind continues in the N. E. quarter, the mercury is more depressed (comparatively speaking as to its strength,) than with any other wind, and there is usually then a set into the river on the north bank, and out on the opposite; indeed, whilst the winds are between N. E. and S. S. E. the current generally runs up to the westward, past Monte Video, though without much augmenting the depth of water off that place, but filling the river up above the banks.

The winds between N. N. E. and W. N. W. make the water lowest, the outset being then strongest along the south bank of the river past Point del Indio and Point la Memoria, but very inconsiderable along the north bank.

Before the setting in of a S. W. gale, or pampero, the weather is usually very unsettled, and the winds unsteady and variable in the northern and north-western boards, and preceded by a considerable fall in the mercury, though it usually rises a little again before the wind shifts to the south-west; and often continues to rise, even though the wind may increase from that quarter.

Before these winds set in at Buenos Ayres, the current runs up and fills the river unusually high; at the same time, as strong an outset is experienced along the north bank, which continues whilst the winds are strongest from the W. S. W. to S. seeming to prove that these winds force up from the southward a large accumulated body of water past Cape St. Antonio, which can only find a passage out again by the north shore, where they increase the depth of water, as well as up the river; and, particularly the shallow harbour of Monte Video. Whilst these S. W. winds

blow, the air is cold, and the atmosphere clear and elastic, in a degree rarely to be met with in any other part of the world. They are generally succeeded by some days of fine serene weather; the wind continuing moderate from the southward, or varying to the eastward.

I have never known the velocity of the tide or current in the River Plata, any where to exceed three knots per hour; but I have heard it said by some, that they have found it run at the rate of six or seven miles an hour.

As the winds outside the River Plata, and particularly about Cape St. Mary's, are most frequently from the north-westward and northward, except when the S. E. summer and S. W. winter gales blow, about the times of new and full moon, I consider it, on the whole, most advisable for ships bound into the river, to get in with the land about the latitude of that cape, which is 34° 40′ S. and its longitude 53° 54′ W. of Greenwich, or 2° 0′ 9″ E. of Monte Video.

In latitude 33° S. the bank of soundings extends off the land full 36 leagues; where the depth of water in longitude 50° 20′ W. is 94 fathoms, the quality of the bottom dark olive coloured mud, as well as all along the outermost verge of the bank.

In latitude 34° S. and 30 leagues from the land, the bank is steep and the soundings decrease quickly in standing to the westward, to 25 fathoms, 20 leagues off.

In latitude 34° 20′ S. and longitude 51° 50′ W. or about 30 leagues east of the Great Castellos Rock, the depth is 63 or 64 fathoms, and the bottom dark mud. In standing in for the land, between the Great Castellos and Cape St. Mary's, the water shoals in a short distance from 60 to 25 fathoms, and the quality of the bottom changes to sand, which grows coarser as you approach the coast, and as far as seven leagues off shore is intermixed with shells. This bottom is found only in and to the northward of the latitude of Cape St. Mary's, except very close in with it.

To the southward of 34° 40′ S. the bottom is chiefly mud, intermixed with fine sand or gravel; and if a ship happens to be set to the southward of Cape St. Mary's, as she hauls in for the land, yet keeps to the northward of Lobos, she will get out of fine sand into dark mud, which is the quality of the bottom (chiefly) between Cape St. Mary and Lobos, as well as 8 or 9 leagues to the eastward of that island; and the depth of water generally between them, 26 and 20 fathoms.

In latitude 35° S. and longitude 52° W. or 42 leagues true E. of Lobos, there are about 90 fathoms water, dark sandy bottom, from whence the bank of soundings takes a S. W. direction. East of Lobos 27 leagues, the depth of water is 25 fathoms; and in steering in, on its parallel, the same depth nearly continues till very near that island. But if you should be set a little to the southward of Lobos, you will shoal the water to as little even as 10 fathoms perhaps, on a hard sandy or gravelly ridge, that extends all the way from the English bank, in its parallel as far as longitude 52° 30′ W. or full 18 leagues to the eastward of the meridian of Lobos.

Thus the approach to this river cannot be considered dangerous, if proper care is taken in navigating, and due attention paid to the lead and to the course steered.

I shall here insert the Honourable Captain Bouverie's description of Cape St. Mary, &c. which I believe to be very correct, and his directions are judicious:

"Cape St. Mary is a low point, with rocks all about it. The direction of the coast to the westward of it becomes more westerly than at any other part to the northward of it; about six miles north of it, is a house, with a row of trees just to the northward of the house, (probably a fence of high prickly pear bushes) which is very remarkable.

"About a mile south of the house is a bluff point, with a few rocks at the foot of it, which is remarkable, as being different from the rest of the coast, the general character of which is a sandy beach. One cannot fail of knowing the Cape by these marks, if you run down the coast near it; if you are at any distance off, you will not perceive them. The water off Cape St. Mary is shoaler than to the northward of it. Off the Cape, in a S. E. direction, you have 8½ fathoms at the distance of four or five miles."

I am inclined to think Captain Bouverie may have been somewhat deceived in his estimation here; for I found more water at the distance he mentions. On the 17th November, 1810, at noon, observed, in latitude 34° 42′ S. and longitude about 2° 20′ E. of the Mount Video, had light winds for S. by W. and fine weather; at half past one P. M. tacked in 23 fathoms to stand in shore, and carried from that depth to 18 fathoms, when sights were taken for the Christopher, which made 2° 13′ 21″ E. of Monte Video, Cape St. Mary's bearing N. 66° W. and standing on, laying up W. and W. by N. tacked in 12½ fathoms water, the prickly pear hedge mentioned by Capt. Bouverie being on with Cape St. Mary's, (which is formed by a low rocky islet nearly joining the shore,) bearing N. by compass, and the breakers stretching to the S. E. of the Cape N. 7° E.; about three miles was our distance from the Cape. Capt. Bouverie, in continuation, says, "To the northward of it, (the cape) between it and Palma you have 10 or 11 fathoms at a little distance from the shore.

"Ships in general make the land with N. or N. E. winds; therefore it is best to keep in the Cape's latitude, or to the northward of it something, till you get soundings, as the current sets to the S. W. It is better not to make the land north of the Cape; not that I believe there is any absolute danger, but the water in many places is shoal a long way off the land, and would alarm any one not acquainted with that circumstance.

"In latitude 33° 27′ S. and longitude 52° 09′ W. is a shoal where we found 9 fathoms water. I believe it is a ridge running in that parallel of latitude, all the way to the shore. In latitude 34° S. is some tolerably high land, on which is a Spanish fortress, called Fort Teresa. It is a square with bastions at the angles; it has three guns in the faces and one in the flank, and stands about a mile from the beach. About six leagues N. N. E. from it, is a mark set up, as the termination of the Spanish territories.

"Being in latitude of Cape St. Mary, and got ground in 28 or 30 fathoms water, fine sand and shells, you may reckon yourself 20 leagues off shore; with from 15 to 20 fathoms, sand and clay mixed, you are not far off the land. When you have not seen the land before night, be sure to keep to the northward of the cape by your reckoning, to allow for the current, which sets to the southward.—This is the case with the above-mentioned N. and N. E. winds: with S. and S. W. winds, the current runs strong the other way."

I am inclined to think that the strong north-easterly currents which are to be met with, off the mouth of the Plata when the wind is about to blow.

or blowing, from the south-westward do not extend much, if at all beyond the bank of soundings.

Agreeing in opinion with Capt. Bouverie that, generally speaking, it is adviseable to make the land about Cape St. Mary, I would also recommend, if the wind should be any where between S. E. and N. N. E. to enter the river on the north side of the English Bank, passing Lobos on either side, according to the wind and state of the weather. There is a good passage between Lobos and the Main, having 17 to 14 fathoms water.

The island of Lobos is in latitude 35° 01' S. and longitude 54° 39' W. or 1° 24' E. of the Mount Video. It bears about S. W. by the world from Cape St. Mary, distant 41 miles. The variation off it is 13 easterly.—(1813.)

When within three or four leagues of Cape St. Mary, in 17 or 18 fathoms, S. S. W. by compass, is a fair course to steer for passing outside of Lobos in the night-time; for with the wind from the eastward or N. E. the set along shore into the river must be guarded against. Steering this S. S. W. course, the depth of water will increase to 20 and 22, and some casts perhaps of 25 or 27 fathoms, (if you are set neither to the westward nor the southward of it,) and the bottom will change, first to sandy mud, and then to dark blue mud, as you approach the latitude of Lobos.—If you are set to the southward, in steering S. S. W. you will not deepen so much; the bottom will keep sandy; and when you approach the latitude of Lobos, you will have no more than 19, 18, and 17 fathoms; but if you are set to the southward of Lobos a few miles, you will have hard casts of from 16 to 10 fathoms, and may rest assured of being on the parallel of the English Bank, and may therefore make a west-northerly course true, till you find the bottom soften, as it is all dark blue or greenish mud in the channel between the foul ridge of the English Bank and the north shore, all the way up to Monte Video in the fair way from Lobos. When off Lobos, if the weather threatens, and it should be likely to blow, a ship will find safe anchorage in the harbour of Maldonado, sheltered from southerly winds by the island of Goretti, which bears N. 42° W. true, 11 or 12 miles from Lobos. As I have never been in Maldonado myself, I shall insert here what Capt. Bouverie says about it.

"The Spanish surveys of this bay lay down a sufficient depth of water for any ship between every part of the island and the main; however it cannot be safely entered but by small vessels, except to the westward, and you must not go farther in than to bring the N. W. point of Goretti to bear S. S. W. ½ W. or S. W. by S. by compass, with four and a half or five fathoms, good strong clay. With southerly winds there is in the east passage a heavy swell; and the water, from the ground being uneven, breaks almost the whole way across, in bad weather—the Diomede, (50 gun ship) passed through it to the anchorage before its dangers were known, and had not less than 18 feet; but there are places where there is as little as 1½ fathom, and it is very irregular. There is a bed of rocks to the south of Goretti; the marks for it are

"The tower of Maldonado, N.

"And the outer part of Point del este, E. N. E. ½ E.

"In the direct line of the entrance of the bay from the westward is a bed of rocks where there are parts having only three, and one quarter less three fathoms; the bearings taken on the rocks are—

"N. E. Point of Goretti E. ½ S.

"N. W. Point of Do. E. by S. ½ S.

"S. W. Point of Goretti, S. E. by S.
"Point Ballena . . . . . W. by N. ½ N.
"The hill of Pan de Azucar just within the entrance of Point Ballena.

"In mid-channel, between these rocks and the island, is 6½ and 7 fathoms; their distance from the island is about three-fourths of a mile.—There are 7 fathoms close to them all round the western side. The watering place is on the main, close by a battery: the stream loses itself in the sand, except when swollen by heavy rains, and you have to roll your casks about 60 yards over the sand. The water is very good."

Having Lobos bearing N. by W. of you by compass, distance three or four miles, you will have about 18 fathoms; and in making a compass course W. ½ S. by ground log, (having due regard to the wind and current at the time,) you will make the island of Flores a-head of you. In this track your soundings will gradually decrease from 18 to 12 fathoms, due S. of Black Point, and to 7 or 8 fathoms when you approach within 9 or 10 miles of Flores.

Though Capt. Bouverie says "You may run quite up to Monte Video, either by night or day, by making a due west course, first trying the current to make allowance for it;" and though I have frequently done it myself, yet I would not recommend it as a general rule to be followed by strangers to the River Plata. Great care and attention to the course made good and to the soundings, are indispensably requisite in those who attempt to conduct vessels during the night in any part of this river, and even these have been but too often insufficient to save ships from destruction. But in merchant vessels I fear we cannot always expect to find even those qualities; and therefore I withhold my opinion of its being adviseable for them to run in the night: neither can it be done by men of war without some risk.

Flores bears by the world W. 4° 30′ N. from Lobos, distant 52 miles. It lies nearly N. E. and S. W.; has a small hummock in the middle, and one at each end, that to the S. W. being 39 feet high. Between these the land is low and marshy, and overflowed sometimes between the central and N. E. hummock. It may be seen at the distance of five or six leagues from a ship's deck in clear weather. There is good anchorage all round this island; but a reef extends in a N. W. direction from the north point about a mile. Seals and sea lions, and various aquatic birds resort to this small island, as well as to Lobos; and in the months of August and September, great quantities of very excellent eggs may be procured. With the wind easterly boats may land on the western side of Flores, particularly in a small cove very near the S. W. part of the island. From Flores, W. N. W. the Cautas Rocks (above water) are distant about five miles; and there are five fathoms between them and it. True S. at the distance of 11 miles from Flores, is the north part of the English bank, on which in that latitude 35° 08′ S. there are about 12 feet water. The depth of the water between Flores and the English bank is seven fathoms, all the way across to within a very little distance of both. The English Bank in latitude 35° 12′ generally breaks, and with a low river, is above water in some places. Its extent to the southward has not yet been accurately defined; and for 70 or 80 miles to the south-eastward of it, the ground is said to be foul and uneven, and has not been explored. Between the Archimedes and the English Bank, there is a swatch of five fathoms water, (according to Capt. Beaufort, of the R. N. who explored these banks in 1807,) and as many miles wide.

The shoalest part of the Archimedes Bank, about 2¾ fathoms, is four miles in extent, about north and south by compass; and there are four fathoms all round it. The centre of it is in latitude 35° 12′ and the Mount Video bears N. 22° W. by the world, from it, distance 20 miles. Besides this bank, there is a small knoll in latitude 35° 14′ S. which is true S. from Monte Video 21 miles, and has not more than 3½ fathoms water on it, and about four fathoms all round it.

Passing to the southward of Flores, at the distance of a couple of miles, you have 6½ or 7 fathoms, and may steer W. ½ S. by compass, to pass Point Braba, which bears true W. 4° N. distant four leagues from the S. W. end of Flores. This point is bolder to, than the land to the westward between it and the town of Monte Video, and may be passed close in 4½ or 5 fathoms, at a mile or a mile and a half distance. The best anchorage for a frigate off the town of Monte Video is with Point Braba, bearing by compass W. by N. ½ N. the Cathedral N. E. by N. and the mount about N. W. by N. in 3½ or 4 fathoms, two miles or more from the town, with the harbour quite open. The bottom is all soft mud.

The harbour of Monte Video is very shoal, having only from 14 to 19 feet water; but the bottom is so very soft, that vessels receive no damage by grounding there. Capt. Bouverie says—

"A. S. S. W. wind which blows right into the harbour, and causes a good deal of sea, always occasions the water to rise a fathom or more. In a long continuance of fine weather, the tides sometimes assume the appearance of regularity; but this is not often the case. They are governed entirely by the winds: The winds from the southward cause the water to run out on the north shore strongest. Fine weather and N. W. wind make the water lowest. It is usual in Monte Video harbour to have an anchor to the S. E. and another to the S. W. and to take one in abaft from the northward, for the water forced in by the southerly wind sometimes rushes out with astonishing rapidity: when the anchor to the N. is of the greatest service."

The Mount Video is in latitude 34° 53′ S. and longitude 56° 03′ W. of Greenwich, being 1° 24′ W. of the island of Lobos, and 2° 10′ E. from the Cathedral of Buenos Ayres: on the summit of this Mount is a fortified building, whose base is 42 feet 6 inches by 20 feet, used sometimes for a light-house. The diameter of the lantern is 10 feet 6 inches, and its elevation above the level of the sea 450 feet. At the base of the Mount are several runs of excellent water, particularly in two small smooth sandy bays on the S. W. part of it, where ships in the outer roads may supply themselves with ease; and another on the E. side of the Mount, just abreast Rat Island, adapted to ships in the harbour.

Giving the preference to the passage on the N. side of the English Bank, especially when the wind is any where between S. S. E. and N.N. E. on passing Lobos, because it may be expected most probably to shift, if it does at all, round by N. to the westward; though perhaps not before that wind and the inset together might carry a ship up to Monte Video: yet if the wind should be to the north-westward at the time of making the land, it may pretty confidently be expected to shift next to the westward, or S. W. and therefore a ship should not strive to beat up round Lobos and the north channel against an outset, but stand at once over towards Cape St. Antonio, where, by the time she could stretch across, she would most likely find a S. S. W. wind and N. W. current to run up with along a weather shore to Buenos Ayres, or Monte Video if bound thither, passing to the westward of the Bank of Archimedes in about five fathoms wa-

ter; or, if the mount should be seen in good time, endeavour to bring it to bear to the westward of north by compass, till within five leagues of it.

In standing to the southward from abreast of Cape St. Mary with the wind south-westerly, a ship will have from 18 to 24 or 25 fathoms, when in the latitude of Lobos, and about 12 or 13 leagues to the eastward of it; and making a S. S. E. course, the water will then shoal to 18, 16, 12, or 11 fathoms in crossing the ridge which is generally composed of sand, gray specked mixed with stones hereabouts, after which the depth increases gradually to 35 or 36 fathoms, over a sandy bottom in latitude 35° 40′ S. and longitude 53° 25′ W. In the latitude of 36° S. and 15 or 20 miles farther to the eastward you will deepen off the bank entirely. A ship having got to the southward as far as 36° S. may consider herself in the fair way for proceeding up on the south side of the English Bank; and if the wind serves, a true west course may be made good.

In latitude of 36° S. the depth of water on the meridian of Cape St. Mary is 38 fathoms, and the bottom fine gray sand like ground pepper. Keeping still to the westward, on that parallel of 36° S. the depth decreases to 19 or 18 fathoms true south of Lobos, and for 10 leagues farther you have from that to 15 fathoms. But if from the latitude of 36° S. on the meridian of Lobos you make a W. by N. or W. by N. ½ N. course true, you will shoal the water to 8 or 7½ fathoms in latitude 35° 45′ S. on the meridian of the English Bank. The quality of the bottom generally is sandy, mixed with small stones, the nearer you approach to the ridge of the English Bank the same is intermixed with bits of shells and sometimes with clay or mud.

From latitude 35° 45′ S. due S. of the English Bank, a W. N. W. true course to latitude 35° 33′ S. will bring the Mount Video to bear N. by the world, in about 6½ fathoms, the bottom mud, at the distance of 13 leagues from Point Piedras: and from this position the same true course may be made to raise the land about Point del Indio, if bound up to Buenos Ayres; or N. W. or more northerly to get sight of the Mount Video, having due regard to the set of current up or down the river, that you may neither be horsed on the S. E. tail of the Ortiz Flats nor on the western part of the Archimedes Bank. The bottom above this is soft mud or clay in the channels, fit for safe anchorage. In latitude 35° 30′ S. or thereabouts, and due S. of the Archimedes Bank, or some miles farther to the eastward, I have been told by some persons they have had as little as 4 fathoms, hard ground.

Ships leaving Monte Video to proceed up to Buenos Ayres must be very attentive to the lead, and the course steered across the river must be very carefully regulated by the set of the current at the time. If the weather is sufficiently clear the Mount is the most sure guide, keeping it by an azimuth compass on the magnetic bearing N. E. by N. and when it sinks to an eye in the top, a more westerly course may be steered to raise the land about point del Indio. This direction is intended to apply particularly to frigates, or ships drawing more than 16 feet water, because it is not adviseable for them to cross the tail of the Ortiz Flats much farther to the westward than a true south-west course from the Mount will take them; for with a low river I have had barely 3¼ fathoms in the Nereus, with the Mount bearing N. 35° E. by compass, distant 10 leagues. At other times I have sunk the Mount on a N. 53° E. magnetic bearing, and had as much as 3½ fathoms water; but the river was then well filled.

On the southeastern part of the Ortiz Bank, which is there hard stony sand, there is still remaining (in 1813) part of a mast or beacon about 12

or 13 feet high. It is in latitude 35° 02′ 15″ S. and 0° 45′ W. of Mount Video, from which it bears W. 14° S. by the world 37 miles. There are about 12 or 13 feet alongside of it; three fathoms, two miles to the eastward of it, but not more than 10 or 12 feet as far as three miles S. W. of it. Point del Indio bears true S. 33° W. 16 or 17 miles from it.

For the distance of full 17 miles to the south-eastward of the Ortiz Beacon, there are generally no more, and often less, than 3½ fathoms; the bottom tough clay nearest the bank, and in some places farther to the south-eastward, soft mud, and not more than 3¼ fathoms.

After sinking the Mount about N. E. by N. and having 3½ fathoms, a W. S. W. course will raise the land (if the weather is clear) about Point del Indio to the eye at the mast-head, and probably you will not have more than 3¼ or at best 3½ fathoms. The Mount and land near Point del Indio are sometimes visible at the same time.

Point del Indio is in latitude about 35° 16′ S. and 0° 56′ W. of the Mount Video, from which it bears S. 63° W. by the world, distant 50 miles. There is little more than three fathoms at the distance of 10 or 11 miles, when the river is in a mean state; farther to the southward and off Point Piedras, there is only that depth full 14 or 15 miles off shore. Very great caution therefore is required in approaching it, and a constant lookout should be kept for the land, as it is very low, and cannot be seen farther than 12 or 13 miles in any weather from the deck of a frigate.

When the land is barely raised to an eye 19 or 20 feet above the surface of the water, a W. N. W. magnetic course will lead along shore between it and the south part of the Ortez, which is distant about 14 miles from it, and between them there is no where more water than three and a half, but mostly 3¼ fathoms. With a high river I have had one quarter less four fathoms. The nearer the Ortez the deeper the water.

In steering up W. N. W. with the land seen from the deck (if clear weather) you will have 3½ or 3¼ fathoms (yet if the river is low, perhaps some casts of three fathoms) and raise a remarkable clump of trees, called Embudo, which are much taller than the rest, highest at the west end, and lie in latitude 35° 6′ S. and in longitude 1° 16′ 30″ W. of the Mount Video, or 0° 57′ 30″ E. of the Cathedral of Buenos Ayres. At some distance to the westward of the Embudo Trees, there is another clump about the same height as them, but they being highest at the east end, are sufficiently distinguished not to be mistaken for the true Embudo.

When in 3½ or 3¼ fathoms, the Embudo trees bear by compass W. S. W. the S. E. end of the Chico Bank will bear W. N. W. or thereabouts, 10 or 11 miles from you; and you must now determine, from the water your ship draws and the then direction of the wind and state of the weather, whether you will pass between the Chico and the shore, or between the Ortez and the Chico.—I have passed up and down several times between the Chico and the south shore, in the Nereus, lighted in her draft to 18 feet 3 inches, but I would never attempt it again from choice now I am better acquainted with the middle channel between the Chico and Ortez, and have every reason to believe that the middle ground some charts lay down, does not exist.

A ship not drawing more than 15 feet may take either passage, and of the two ought perhaps to prefer that to the southward of the Chico Bank, particularly if the wind should be well to the southward, as she might take her soundings from the weather shore, and keeping in somewhat

more than her own draught, run up along it; and by not deepening above three fathoms, would ensure being to the southward of the Chico.

The S. W. end of the Chico Bank bears from the Embudo trees N. 32° E. true, distant 10 miles, and E. 9° N. 13 miles from Atalaya Church. Its latitude there is 34° 56′ 30″ S. and longitude 1° 9′ W. of the Mount Video. This bank runs in the direction of N. 52° W. true, or N. 65° W. by compass, about 13 miles to its N. W. end, which is in latitude 34° 48′ 50″ S. and 0° 47′ E. of Buenos Ayres Cathedral. From this N. W. end, in 14 feet water, Atalaya Church bears S. 14° W. distant 11 miles; and Point St. Iago forming the Ensenada de Baragan, bears W. 4° N. 14 miles from it. The breadth of the Chico does not exceed two miles, or perhaps a mile and a half, and its inner edge is about nine miles from the shore. The water between the shore and it, is no where more than 3½ fathoms, and the deepest water is along the inner edge of the shoal, at the distance of half a mile from it, or less in some places. About mid-way between it and the shore there is one quarter less three fathoms. On some parts of the Chico there is very little water, and within the limits I have assigned to it, no where more than 14 feet. There was for some years the mast of a vessel called the Pandora, which was wrecked on this shoal, in latitude 34° 54′ S. about 5 miles from its S. E. end, and proved an excellent beacon to guide ships passing it on either side, but it has now unfortunately disappeared. It is very necessary that three buoys should be placed on this dangerous shoal, to mark its centre and each end.

To ships drawing less than 15 feet it is only farther necessary to recommend care and attention on approaching Point St. Iago, which forms bushy and distinct, and when it is brought to bear to the south-westward, haul out into the stream of 3½ fathoms to round outside the Spit, which runs about N. W. by compass, from point St. Iago at least 10 or 11 miles; its extreme point in two fathoms being about five miles from the shore. When two remarkable trees on Point Lara are brought to bear S. by E. ½ E. or S. S. E. by compass you are past the Spit. This mark will also lead a ship of that draught of water clear to the westward of the Spit, in running in toward Ensenada.

After passing the Spit off Point St. Iago in 3½ fathoms, a W. by N. northerly course by compass will lead up to the outer road of Buenos Ayres, where any ship may safely anchor in the water she draws, if the river is low.

Frigates or any vessels drawing more than 16 feet water, should barely raise the land about Point del Indio to the eye on deck, and borrow nearest the Ortez, more particularly when the Embudo trees are brought to bear as far as S. W. by W. (magnetic) for with the Embudo bearing S. W. to S. S. W. the bottom is flat off to three fathoms full seven miles from the shore, and chiefly hard clay.—Therefore when the Embudo trees bear W. S. W. by compass, and you are about 9 or 10 miles off shore, in 3½ fathoms, if you have a leading wind, haul to the N. W. by W. or more northerly, as may be required to clear the S. E. tail of the Chico, and you will soon deepen your water to four fathoms and more, in the middle channel, between the Chico and the Ortez Shoal. The fair course through between them is about N. W. by W. ½ W. magnetic, and in mid channel the land can but just be distinguished from the quarter deck of a frigate. When the Embudo trees bear S. 20° W. by compass, you will be abreast of the S. E. end of the Chico, and may either take your shoal soundings along its northern outer edge, to about quarter less

four, if the wind is southerly; or if the wind be northerly or easterly, borrow into a convenient depth along the southern edge of the Ortiz. I believe the breadth of this middle channel may be five or six miles, and the depth of water from 4 to 5½ and even 6 fathoms, in the fair way, about the N. W. part of it, and abreast that end of the Chico. The quality of the ground all the way through this channel is generally soft mud, and fit for safe anchorage.

The N. W. pitch of the Chico Bank being passed, and the depth of water 5 or 5½ fathoms, you may steer by compass W. by N. ½ N. or W. by N. for Buenos Ayres, taking care not to shoal under one quarter less four off Ensenada till Point Lara Trees bear S. S. E.

A little more than half way from Point Lara to Buenos Ayres there are two other remarkable trees. When moored off Buenos Ayres in the Nereus in 19 feet water, and the bottom soft mud, these trees bore by compass S. 17° E. the Cathedral S. 67° W. and the spire of the Recoleta Convent S. 76° W.; the latitude observed was 34° 34′ 30″ S. and the longitude by Moon 58° 02′ W. of Greenwich. Variation of the compass 12° 30′ easterly.

Directions for Maldonado Roads, *and for going in and out round the* Island Goritta.

The harbour of Maldonado is situated on the north shore of the river La Plata. It is formed by Whale Point to the westward, and East Point and the small island of Goritta to the eastward. The town of the same name lies two miles from the mouth of the harbour. This is a very unsafe harbour, particularly for frigates. In the winter season, when the S. W. winds prevail, and to which you are particularly exposed, there is a terrible sea. Small vessels may lie behind the island of Goritta, so far as to bring the west end of the island to bear S. W. and make a tolerable good lee with the wind from S. W., but with it farther to the westward they ride very heavy at their anchors. There is a bed of rocks lying off the west end of Goritta, distant about three quarters of a mile, with only 6 feet water on them. The best mark for avoiding them, is to get the Tower of Maldonado to bear N. E. by N. by compass, (var. 14° 10′ E.) and steer for it till you get Whale Point and the southern part of the Sugar Loaf, (which is a large hill lying to the westward of Whale Point, inland, and has something the appearance of a Sugar Loaf,) in one; you may then be sure having the rock in the same line with you to the eastward, and may run in to get the west point of the island to bear south, and anchor in 5½ or 6 fathoms water, muddy bottom, and good holding ground, in mid channel between Goritta and the main, the passage between East Point and the east end of Goritta is said not to be safe, there being sunken rocks in it.

Coming from the northward, between the Lobes and the main, and bound to Maldonado Roads, give the point of Maldonado a birth of more than a mile, on account of the before mentioned shoal lying off it, having for its least water only 5 feet, and at two cables' lengths, 2½ and 3 fathoms. Standing in from the northward and eastward, bring this point of Maldonado to bear north, and haul in for the west point of Goritta, taking care to have no less than 8 fathoms water, until you bring a white

patch, in a ridge of hills about 10 miles to the westward of the westernmost house, on with the island Goritta; then steer for the west point of the island; keeping that mark to the westward of the houses, or over the west point of the island, you will go over the tail of the shoal off the point in 9 or 8 fathoms water, the white patch then bearing N. W. by N. The south point of the island is bold to; but if you intend anchoring between Maldonado Point and the island, which is safe and good, then bring the look-out house on the point to bear N. E. or N. E. ½ E. and haul in for the bay, steering N. N. E. in from 10 to 16 fathoms, sandy ground, until you bring the barracks within the point to bear S. S. E. the east point of the island W. N. W. the west point of the island W. by S. and the Tower of Maldonado N. by W. ½ W. then you will have from 6 to 7 fathoms, sandy ground, where you can moor with a cable each way, placing your best bower N. W. but should you be desirous of going into Maldonado Roads, you must give the N. W. point of Goritta a birth of 1 mile, for a dangerous shoal lies off it with only 17 feet water. This shoal bears from the N. W. point of Goritta N. W. by W. ½ W. extending 2 cables' length from N. W. to S. E. and is about a cable's length broad. With a fair wind, you may sail between the point and the shoal, there being 6, 7, and 7½ fathoms water, and the passage near half a mile wide. When you can bring the N. W. point of Goritta to bear S. E. by E. then steer in for the anchorage; shape your course N. E. or N. E. by E. keep midway between the island and the main, and as soon as you bring the N. W. point of the island to bear S. by W. or S. S. W. you will then have 4½ fathoms, good holding ground. Here large ships may anchor, but small ones may go up farther, bringing the N. W. end of the island to bear S. W. by W. or W. S. W. when you will have 4 fathoms, good ground.

Beef, poultry, and vegetables are to be had here on moderate terms. Water may be procured without much difficulty, in smooth weather, from a small stream that empties itself in the north part of the bay, where you have to roll your casks about 150 yards.

[We now subjoin such information relative to the Coast of Peru as has been obtained, which, though not extensive, is important.]

Lobos de Mer,

Or the Weather Lobos, are situated in the latitude 7° 0′ S. and longitude 80° 17′ W. and are about 10 leagues from the main land on the coast of Peru. They are not high, but very rugged, and may be seen 5 or 6 leagues.

Those two islands form an excellent harbour, with a smooth bottom, and good holding ground.

A small vessel may come in through the weather passage, to save the trouble of beating up, but the passage is so narrow, we would not recommend it as prudent, although there is sufficient depth of water for any ship.

The water here is smooth, and a ship might be hove out to the rocks with all safety.

There are plenty of small fish about the shores and many seal. But like most other islands on this coast, these are cursed with sterility.

Beating up to anchor, observe and keep near the west shore, and not

stretch so far over to the eastward as to shut the passage until pretty well up, (when you may reach across from shore to shore,) by which means you avoid a sunken rock that lies midway with nine feet water upon it, and is about the size of a ship's hull.

From 16 to 18 fathoms is the common depth to anchor in.

Sethura Bay.

Sethura Bay, situated in 5° 40′ S. latitude, on the coast of Peru, is very spacious. After doubling round Cape Noir, you soon fall into shoal water, which will decrease as you haul into the bay, from 18 to 3 fathoms, sandy bottom. Keeping well to windward you will have more regular soundings, but the bottom every where appears to be uneven, particularly so abreast the town of Sethura, where are many sand spits and shoals, with a swell setting in from sea-board; whereas in the weather part of the bay the water is perfectly smooth, and if a ship should ground, she would receive no damage, and could easily be got off again.

At the head of the bay are very extensive salt ponds, which produce abundance of salt of a superior quality, and which the inhabitants seem to set little or no store by.

The land in sight wears a most barren aspect, but back in the country are plantations which are very productive. Pumpkins and melons, eggs &c. may be obtained from the natives, by paying a high price.

The town of Sethura appears to be a large town, and is situated upon a river. The inhabitants, who are all Indians, are very poor, and subsist almost entirely by fishing, and appear to be industrious and very honest people.

Their water craft are of a very singular and simple construction, and deserve notice.

From four to six logs of the cabbage tree, about forty feet in length, are secured together with strips of bark, or ropes made of the bark of some tree, a midships of which raft is erected a mast, with a square-sail, supported by shrouds and back-stays: thus equipped, they sail from 6 to 8 knots on a wind, make little or no leeway, and go very dry; when on a wind they put the blades of their paddles through between the logs, to make them hold a wind, and abaft the mast they have a platform, 3 or 4 feet in height, on which they sit, eat, and sleep.

Lobos de Tierre,

Or Lee Lobos, is situated in latitude 6° 25′ S. and longitude 80° 22′ W. on the coast of Peru, is 3 leagues in length, and about five from the main land.

In Shelter Bay is good anchorage in from 16 to 13 fathoms water, over a clear bottom, the best anchorage, however, is to bring said rock to bear S. S. W. where is fourteen fathoms; farther in shore the bottom is rocky.

Sea Lion Harbour has very rocky bottom, otherwise would be the safest place to anchor about the island.

Weather Bay is dangerous, having many sunken rocks, and the whole surge of the ocean heaving into it.

On the east side of the island is a fine bay, where there is good anchorage in from five to ten fathoms, over a clear bottom and smooth water.

This island presents a most barren prospect, and is without fresh water or vegetation, and, except anchorage and seal, is of no farther consequence. Excellent fish may be caught with hook and line near the shore.

Coming in to windward of the island, it will be prudent to give it a birth, as there are many sunken rocks lying a considerable distance off.

Lobos Island.

Lobos Island lies in the latitude of 14° 18′ S. and longitude of 76° 5′ W. and is about 2½ leagues distant from the main land.

It is high and steep upon all sides, except the S. E. which descends gradually into a low plain, on which is a salt pond of no great extent.

Here vast quantities of birds rookery and hatch their young, having a thick coat of manure, which in its turn becomes covered with a laying of salt. On digging through the manure, a laying of salt was found, next another of manure and another of salt, how much farther it thus continues is uncertain. The highest parts of the island are also productive of salt, but in no great quantities.

This island is entirely barren, without a spear of vegetation or fresh water, its only excellency, therefore, is its anchorage and a few hair seal. There is a good passage quite around the island, and no dangers but what show themselves.

The best anchorage is under the lee of a low stony beach, which puts off from the N. E. side of the island, in 7 fathoms water, where is fine holding ground, clear bottom and smooth water.

Gallapagos Islands.

Hood's Island, the south-easternmost of this group lies between lat. 1° 16′ and 1° 32′ S. and long. 89° 39′ and 89° 54′ W. The only bay in this island is on the N. part, and is called Com. Rodger's Bay. A small island which lies off forms a secure bay where vessels can lie at anchor in 12 fathoms water, clear white sandy bottom. Here wood is to be obtained, and land tortoises in great numbers. Off the N. W. part of this island, about 2½ miles from the shore, is a reef of some extent. This is the only danger I could discover, and breaks with much violence.*

Charles' Island lies W. from Hood's Island about 35 miles; the harbour is on the N. W. side, and is formed by a projecting point, off which lies a remarkable high black ragged rock, called Rock Dismal. Shipping lie in 12 fathoms beyond the small reef which shelters the landing; the bottom is sandy, but vessels have had their cables cut by scattering rocks. The landing here is very good. This is called Essex Bay. On the west part of the island, about six miles from Essex Bay is a dark sandy beach,

* Porter's Journal.

called the Black Beach; from this beach is a pathway, much trodden, which leads directly to the springs, which are about three miles from the shore. The road here is the best on the island, though in many places steep and difficult.

To the eastward of this island are several islands, the largest of which is Gardiner's Island in lat. 1° 26′ S. and long. 90° 18′ W. Three miles East from Gardiner's Island lies a reef on which the sea breaks at low water.

Lord Chatham's lies nearly E. N. E. and W. S. W. the east part of this island is Hobbs's Bay, and lies in lat. 0° 47′ S. long. 89° 7′ W. A reef of rocks extend from the south point of this bay round towards the N. W. about ten miles, lying from one to three miles from the shore. Wreck Bay is the W. part of the island, and lies in lat. 0° 55′ S. long. 89° 44′; a small bank lies off the mouth of this bay, on which is three fathoms; inside of which is seven fathoms. The largest bay in this island is called Stephen's Bay, and lies on the N. W. side of the island. The surest mark for finding this bay is Kicker Rock which lies off the mouth. This rock is very high, flat on the top, and from some points bears strongly the appearance of a castle. On the western side the rock is split from the summit to the base; and from its slender appearance seems as if ready to tumble down at every breeze. The bay is capacious and well sheltered from the prevailing winds; there is good landing on several small white sandy beaches; the northernmost point of this island lies in lat. 0° 41′ S.

Barrington Island lies West from Chatham Island, distant about twenty miles from Wreck Bay; is about fifteen miles long, and extends in the same direction as Chatham Island.

Albemarle Island is the largest of these islands, and lies N. and S. about seventy miles. Port Rendevous, the only harbour known in this island is situated inside of Narborough Island; the entrance to which is off the N. E. point of Narborough, either through Bank's Bay or Decatur's Sound. In this port you anchor in from seven to ten fathoms. From the N. point of the island, a reef extends off nearly three miles; and from Cape Rose and point Essex the two southernmost points, the reefs extend above a mile. Off the S. E. part of the island, (Cape Woodford) are several small islands, the southernmost lies in lat. 1° 3′ S. bearing from Cape Rose E. by S. distant ten miles.

Narborough Island is situated between the north and south head of Albemarle, and separates Banks and Elizabeth Bays; a reef extends round the south part of the island, which forms the north shore of Elizabeth Bay. Between Narborough and Albemarle is Decatur's Sound, the length of which is fifteen miles and breadth three. The soundings obtained in mid channel were eighty fathoms, course gravel. There appears no dangers lying any distance from the shore on either side, with the exception of the reef off the S. E. point of Narborough, and that does not extend more than 1½ mile from the shore. This passage is as safe as any other that is liable to sudden shifts of wind and rapid currents.

James Island lies east of Albemarle, towards the northernmost point. There are two bays in this island, Cowan's and Adams'; Cowan's Bay is on the west side of the island, and lies from cape Marshal (the N. E. point of Albemarle) S. E. by E. There is good anchorage in this bay in from ten to six fathoms, a quarter of a mile from the beach, over soft sandy bottom. Adams' Bay is on the N. side of the island; near the E. end there is good anchorage in thirteen fathoms, sandy bottom, about half

a mile from the shore; this bay is about eighteen miles from the former.

Porter's Island lies to the S. E. of James Island; it was discovered by Capt. Porter in the Essex, and surveyed by D. P. Adams, who gave it the above name. On the most careful examination he could not discover either good anchorage or fresh water. It abounds in wood and land-tortoise, and green turtle were found in abundance. From this island, James, Albemarle, Norfolk, Barrington, Crossman's, Charles, and many others were to be seen, but could perceive none that bore the slightest resemblance, in position or appearance to those called by Capt. Colnet, Duncan's, and James' islands.

The S. W. landing is in lat.	0° 42′ 14″ S.	long.	90° 27′ 9″ W.
N. W. do	0 32 40		90 23 54
N. E. do	0 31 12		90 12 45

Between James Island and Porter's Island, the easternmost in lat. 0° 22′ S. long. 90° 18′ W. the western in lat. 0° 25′ S. long. 90° 31′ W.

Abington Island lies N. E. from point Albemarle, is about 15 miles long; good anchorage is found in Hull's Bay on the south side of the island. Binloes Island is E. ½ S. from Hull's Bay distant 27 miles; this island extends E. and W. 15 miles; affords no anchorage.

About 45 miles east of Binloes Island lies an island nearly the same size it was seen by Lieut. J. Downes, U. S. N. in 1813. The latitude from the report of several whalemen is 0° 21′ N. Wenam's Island lies in lat. 1° 21′ N. is 7 or 8 miles in circuit, and has two small inlets, one off the S. E. the other off the N. W. points, but within more than 100 yards from the island. Its sides are every where inaccessible. It affords no anchorage.

N. W. by N. from Wenham's Island, lies Culpepper's Island, distant 24 miles. This island affords no anchorage.

Redondo Rock lies N. N. W. from Cape Berkley distant 15 miles; the U. S. ship Essex was very near being driven on the rock by the current in 1813.

There are a number of other small islands or rocks which, from the present state of knowledge of this navigation, it would be impossible to describe, they are steep and inaccessable, and danger is to be apprehended from being sent on them by the currents which run with great rapidity. (The latitudes and longitudes of the principle capes, bays, and islands, will be found in the table in this book.)

A bay in lat. 46° 3′ S. The entrance of this bay is spacious, with several small islands in the midst, affording good anchorage. The land about it is of immense height. Near the water the woods are impenetrable, and the tops of the mountains covered with snow. A ship need not let go an anchor, but haul into some of the small inlets which are numerous and make fast to the branches of the trees; the land above sheltering you from even a breath of wind. The water in this bay is of great depth.

TABLE I.

[TABLE containing the Latitudes and Longitudes of the most remarkable HARBOURS, ISLANDS, CAPES, SHOALS, &c. mentioned in this work, founded on the latest and most accurate astronomical observations, surveys, and charts.]

The Longitudes are reckoned from the meridian of Greenwich.

Coast of the UNITED STATES of AMERICA.

		Lat. D. M.	Long. D. M.
Maine.	Entrance of St. Croix river	45 07N.	67 08W
	Wolves' islands	45 04	66 41
	E. end of Grand Manan	44 47	66 43
	Grand Manan N. head	44 53	66 45
	do. W. end	44 40	66 55
	Entrance of Machias river	44 44	67 20
	Titmanan island (light)	44 26	67 39
	Gouldsboro' harbour	44 34	67 52
	Mount Desert rock	43 52	68 09
	Isle of Holt	44 00	68 40
	Castine	44 24	68 46
	Martinicus island	43 50	68 55
	Wooden Bald rock	43 45	68 54
	Manheigin island	43 44	69 15
	Penmaquid point	43 48	69 27
	Bantum ledge	43 42	69 33
	Kennebeck river, entrance	43 43	69 47
	Seguine island light	43 41	69 46
	Cape Small point	43 40	69 52
	Cashe's ledge, shoalest part	43 04	69 11
	Alden's ledge	43 28	70 09
	Portland light-house	43 39	70 17
	Cape Elizabeth	43 33	70 15
	Wood island light	43 27	70 22
	Cape Porpoise	43 21	70 26
	Well's harbour	43 19	70 33
	Agamenticus hill	43 16	70 41
	Bald head	43 13	70 35
	Cape Neddock Nubble	43 10	70 36
New-Hampshire.	York river	43 01	70 38
	York ledge	43 06	70 34
	Boon island	43 06	70 31
	ditto ledge	43 04	70 27
	Portsmouth light-house	43 04	70 44
	PORTSMOUTH	43 05	70 46
	Isles of Shoals light-house	42 56	70 38
	Newburyport lights on Plumb island	42 48	70 51
	Ipswich entrance	42 43	70 49
	Squam light	42 42	70 41
	Cape Ann lights on Thacher's island	42 40	70 34
	E. point of Cape Ann harbour	42 37	70 39
	Light-houses on Baker's island	42 34	70 47
Massachusetts.	SALEM	42 33N.	70 52W
	Marblehead	42 32	70 50
	Nahant point	42 28	70 54
	Boston light-house	42 20	70 54
	BOSTON	42 23	71 04
	Cambridge (Mass.)	42 23	71 08
	Scituate light	42 11	70 41
	Plymouth lights	41 59	70 34
	Race point light	42 06	70 14
	Cape Cod light	42 05	70 04
	Chatham light	41 43	69 56
	Sandy point	41 34	69 59
	Shoal of Georges	41 44	67 43
	N. shoal of do. (6 fathoms)	41 53	67 43
	E. shoal of do. (7 fathoms)	41 47	67 20
	Nantucket light-house	41 23	70 00
	Sancoty head	41 16	69 58
	Tom-Nevers-head	41 14	69 59
	Nantucket South shoal	41 04	69 55
	Cape Poge (Vineyard)	41 25	70 25
	Gay head light	41 21	70 50
	Noman's land	41 15	70 49
	Sow and Pigs	41 24	71 00
	Entrance to Buzzard's bay	41 28	71 00
R. Island.	NEWPORT	41 29	71 18
	Rhode island light	41 28	71 23
	Point Judith light	41 24	71 29
	Watch hill point light	41 20	71 55
	Little Gull light	41 14	72 10
	Block island	41 10	71 37
Connect.	New-London light	41 21	72 11
	Falkland island light	41 15	72 45
	New-Haven entrance	41 17	72 58
	Montock point light	41 04	71 55
N.Jer.N.Y.	NEW-YORK CITY	40 42	74 00
	Sandy-hook light	40 28	74 01
	Little Egg harbour	39 30	74 22
	Great Egg harbour	39 18	74 34
	Cape May	38 57	74 58
	PHILADELPHIA	39 57	75 09
Virginia.	Light-house on Cape Henlopen	38 47	75 07
	Chincotengue shoals	37 58	75 15
	Cape Charles	37 07	76 15
	Cape Henry	36 56	76 18
	WASHINGTON CITY	38 53	77 02
	BALTIMORE	39 23	76 39
	Currituck	36 27	76 05
	CAPE HATTERAS extreme point	35 14	75 30
	Deep water off ditto	35 06	
	Ocracock inlet	35 05	75 58

		Lat. D. M.	Long. D. M.
N. Carolina.	CAPE LOOKOUT, extreme point	34 37N.	76 33W
	Deep water off do.	34 28	
	Old Topsail inlet	34 41	76 41
	Beaufort (N. C.)	34 43	76 41
	Wilmington	34 14	77 59
	Smithville	33 54	78 01
	New Inlet	33 57	77 55
	CAPE FEAR, extreme point	33 48	77 57
	Deep water off do.	33 35	
	Little river	33 52	78 34
	Georgetown	33 25	79 00
	Ditto light	33 13	78 55
	Cape Roman	33 02	79 06
S. Carolina.	CHARLESTON	32 46	79 48
	Charleston light-house	32 40	79 40
	N. Eddisto inlet	32 30	79 59
	S. Eddisto inlet	32 23	80 07
	Beaufort (S. C.)	32 29	80 33
	Port Royal entrance	32 03	80 27
	Tybee light	32 00	80 47
Georgia.	SAVANNAH	32 02	81 03
	St. Catherine's sound	31 37	81 13
	Sapello bar	31 31	81 18
	Doboy bar	31 21	81 26
	Amelia Sound	30 44	81 43
	River St. John	30 21	81 35
	ST. AUGUSTINE	29 51	81 28
	Matanza inlet	29 37	81 17
E. Florida.	Musqito or N. Smyrna entrance	28 52	80 56
	Cape Canaveral	28 18	80 33
	Outer breakers off do.	28 20	80 13
	Las Tortolas or Hummocks	27 35	80 30
	Hillsborough Is. N. P.	27 31	80 19
	——— S. P.	27 16	80 13
	Bald head	27 01	80 11
	Grenville inlet	26 47	80 52
	Cooper's hill	26 42	80 03
	Sand hills	26 32	80 03
	New inlet	26 17	80 06
	Middle river	26 07	80 07
	CAPE FLORIDA	25 42	80 09
	Aliol, N. P.	25 20	80 20
	Key Largo, N. E. P.	25 07	80 32
	Old Matacumbe	24 42	80 56
	Sombrero key	24 32	81 23
	Looe key	24 28	81 37
	Samboes	24 25	81 47
	Sand keys	24 21	81 59
	S. W. end of shoals off Cape Florida	24 20	82 31
	Tortugas islands and bank, N. W. part	24 34	83 02
	Tortugas Is. N. E. P.	24 37	82 45
	——— S. E. P.	24 33	82 45
	——— S. W. P.	24 25	83 00
	Key Marquis	24 30	82 13
	Boca Grande	24 32	82 11
	Island of Pines	24 42	81 41
	Keys of Bay Honda	24 44	81 29
	Key Vacas	24 41	81 17
	Key Agi	24 48	81 16
	CAPE SABLE	24 50	81 19

		Lat. D. M.	Long. D. M.
W. Florida.	Cape Romano	26 00N.	81 51W
	Boca Grande	26 41	82 10
	Spirito Santo Bay, ent.	27 38	82 47
	Keys Anclote	28 11	83 07
	St. Martin's keys	28 42	83 01
	Freshwater keys	29 08	83 05
	St. Marcos de Apalache	30 10	84 19
	South Cape	29 48	84 29
	St. George's key, S. P.	29 30	85 18
	Cape St. Blas	29 36	85 35
	Bay St. Andros	30 02	85 53
	Bay St. Rosa, E. point of St. Rosa island	30 21	86 43
	PENSACOLA	30 24	87 27
	W. end of St. Rosa Is.	30 19	87 31
	River Perdido	30 18	87 46
	Mobile point	30 13	88 21
	Mobile	30 40	88 21
	Massacre island	30 12	88 37
	I. del Cuerpo	30 12	88 49
	Chandelier Is. N. P.	29 59	88 57
	——— S. P.	29 30	89 12
	Key Breton	29 28	89 18
	Entrance of Mississippi, N. E.	29 12	89 09
	———Balize	29 08	89 11
	———S. E. Pass	29 05	89 05
	———South do.	28 57	89 11
	———S. W. do.	28 55	89 28
	NEW-ORLEANS	29 57	90 09
	Long island	29 15	90 14
	I. Tonbalie, S. P.	28 52	90 39
	I. del Vino, W. end	28 56	91 24
	Bancos de Hostiones, S. P.	28 50	91 44
	———W. P.	29 26	93 04
	Point Fierro	29 14	92 07
	Deer Point	29 26	92 29
	Point del Pazaro	29 24	92 48
	River Lobos, entrance	29 32	93 04
	Salt water bay	29 26	93 28
	Constant bay	29 27	93 39
	River Mermentao	29 38	94 11
	River Sabine, entrance	29 40	94 57

Islands in the West Indies.

		Lat. D. M.	Long. D. M.
Windward Islands.	TRINIDAD,		
	— Spanish town	10 39N.	61 30W
	— Icaque point	10 04	61 55
	— Point Galiote	10 09	60 55
	— Point Galera	10 51	60 51
	Tobago, N. E. point	11 29	60 17
	— S. W. point	11 05	60 48
	Grenada, N. E. point	12 19	61 40
	— S. W. point	11 58	61 52
	Grenada bank, middle	11 55	62 18
	Barbadoes, S. P.	13 01	59 36
	— E. ditto	13 08	59 24
	— Bridgetown	13 05	59 41
	— N. W. point	13 18	59 44
	St. Vincents, N. point	13 12	61 21
	— S. ditto	13 04	61 20
	St. Lucia, S. point	13 30	61 00

		Lat. D. M.	Long. D. M.
Windward Islands.	St. Lucia, N. point	13 56N.	60 56W
	Martinico, S. E. point	14 24	60 56
	— Diamond rock	14 24	61 06
	— Port Royal	14 36	61 09
	— Macouba point	14 56	61 28
	Dominica, S. point	15 14	61 23
	— N. point	15 39	61 30
	The Saints island	15 52	61 37
	Mariagalante, N. P.	16 04	61 14
	— S. ditto	15 53	61 15
	Guadaloupe, S. W. P.	15 58	61 48
	— N. W. ditto	16 20	61 56
	— N. E. ditto	16 30	61 32
	— S. E. ditto	16 11	61 15
	Deseada	16 21	61 08
	Antigua, E. P.	17 05	61 44
	— W. point	17 05	62 00
	Monserrat, S. P.	16 42	62 17
	— N. P.	16 50	62 17
	Redondo island,	16 56	62 22
	Nevis,	17 09	62 33
	St. Christ'rs or St. Kitts		
	— S. E. point	17 12	62 38
	— N. W. ditto	17 24	62 51
	St. Eustatia town	17 29	63 02
	Saba	17 40	63 16
	Aves or Bird's Is. about	15 40	63 40
	Barbuda, N. P.	17 44	61 50
	St. Bartholomew, E. P.	17 54	62 40
	St Martins, E. P.	18 04	63 01
Virgin Islands.	Anguila, S. W. point	18 12	63 08
	— N. E. point	18 18	62 52
	Prickly Pear	18 20	63 15
	Isle of Dogs, western	18 19	63 20
	Sombrero	18 38	63 30
	St. Croix or St. Cruz, E. P.	17 45	64 34
	— W. P.	17 42	64 54
	Anegado, S. P. of shoal	18 36	64 09
	— W. P.	18 46	64 23
	Virgin Gorda, E. P.	18 30	64 18
	Tortola, E. P.	18 28	64 31
	— W. P.	18 25	64 42
	St. Johns,	18 22	64 42
	St. Thomas,	18 22	64 55
	Bird Key	18 15	64 50
	Serpent island, E. part	18 19	65 17
	— Crab island, E. part	18 10	65 15
Porto Rico.	Cape St. John or N. E.	18 24	65 35
	PORTO RICO	18 29	66 05
	Point Broquen or N. W.	18 31	67 07
	Point St. Francisco	18 22	67 13
	Cape Roxo or S. W. P.	17 58	67 09
	Los Morillos	18 00	67 16
	Point Coamo	17 55	66 27
	C. Mala Pasqua or S. E. P.	17 59	65 47
	Muertos island	17 52	66 30
	La Moon I.	18 06	67 50
	Monito I.	18 09	67 53
	Zacheo or Desecheo I.	18 24	67 26
	Cape Engano	18 35	68 20
	Saona I. E. part	18 13	68 31

		Lat. D. M.	Long. D. M.
St. Domingo or Hispaniola.	St. Catherine's I.	18 18N.	68 58W
	St. Domingo	18 28	69 51
	La Catalina	18 08	70 11
	Cape Beata	17 42	71 20
	Altavela rock off do.	17 23	71 21
	Cape Jacquemel	18 13	72 35
	Island Baca	18 04	73 33
	Point Gravois	18 00	73 55
	Cape Tiberon	18 20	74 29
	Navaza island	18 24	75 03
	Cape Donna Maria	18 38	74 27
	Jeremy	18 38	74 07
	Caymito	18 39	73 43
	Petit Guave	18 25	72 54
	Leogane	18 29	72 38
	PORT-AU-PRINCE	18 33	72 21
	I. Gonave, S. E. P.	18 42	72 47
	— N. W. P.	18 56	73 18
	St. Mark	19 04	72 45
	St. Nicola Mole	19 49	73 25
	Tortudas, W. P.	20 06	72 54
	— E. P.	20 02	72 35
	CAPE FRANCOIS	19 45	72 13
	Port Dauphin	19 42	71 55
	Shoal off M. Christie	20 02	71 40
	Monte Christie	19 54	71 43
	Point Isabella	19 53	71 10
	Old Cape Francois	19 40	69 55
	Cape Samana	19 16	69 07
	Cape Raphael	19 03	68 53
Jamaica.	Morant, E. P.	17 53	76 09
	KINGSTON	18 01	76 51
	Port Royal	17 59	76 55
	Portland point	17 42	77 14
	Pedro bluffs	17 50	77 55
	Black river	18 01	78 01
	Savannah-la-Mar	18 13	78 23
	Cape Negril, S. point	18 14	78 37
	— N. point	18 24	78 35
	Montego bay	18 31	78 09
	Martha Brae	18 31	77 49
	St. Ann's	18 31	77 22
	Galma point	18 29	76 59
	Arnatta bay	18 21	76 51
	N. E. point	18 13	76 20
	Morant Keys or Las Ranas	17 25	76 00
	Pedro shoals		
	— Portland R. N. E. P.	17 00	77 13
	— Rattlesnake, N.W.P.	17 05	79 13
	— south part	16 43	78 26
	Formigas shoal, N.E.P.	18 34	75 42
	— S. W. P.	18 28	75 51
	Little Cayman, S. W. P.	19 36	80 05
	Caymanbrack, E. P.	19 43	79 32
	Grand Cayman, S.W.P.	19 18	81 05
	— E. P.	19 18	80 37
	Swan islands	17 21	84 04
	New shoal	15 56	79 08
	Navaza	18 24	75 03
	Cape Mayze	20 14	74 04
	C. Bueno or Guanos	20 06	74 12

		Lat. D. M.	Long. D. M.
South side of Cuba.	Pt. ent. Cumberland harbour	19 54N.	75 11W
	St. JAGO DE CUBA entrance	19 57	76 05
	Tarquin's peak	19 54	76 50
	Cape Cruz	19 47	77 42
	Boca del este	20 19	79 03
	Key Breton	21 05	79 55
	Trinidad river	21 44	80 05
	Bay Xagua	21 53	80 43
	Stone keys	21 47	81 45
	Los Jardines	21 37	81 31
	S. E. point of the bank	21 24	81 18
	El Jardinillo	21 24	81 50
	Keys Jardines	21 24	82 04
	I. Pines, S. W. P.	21 22	82 55
	Indian keys	21 29	82 56
	Keys St. Philip	21 43	83 06
	Point Piedras	21 48	83 42
	Cape Corientes	21 43	84 23
	Cape St. Antonio	21 54	84 57
	Sancho Pedro shoal	22 04	85 28
	Shoal discovered in 1797	22 06	85 02
North side of Cuba.	Los Colorados, S. W. P.	22 19	84 44
	— N. E. P.	22 58	83 06
	Point Juan and Jaunito	22 22	84 21
	Hill Guajibon	22 48	83 21
	Bay Honda	22 54	83 05
	Port Cabanas	22 58	82 52
	MARIEL	23 01	82 45
	River Banco	23 04	82 38
	HAVANNAH, the Moro	23 09	82 19
	Point Escondido	23 08	81 47
	Point Guanos	23 09	81 40
	Pan of Matanzas	23 02	81 42
	MATANZAS	23 02	81 36
	Point Ycacos	23 08	81 09
	Stone key off do.	23 12	81 09
	Key Cruz del Padre	23 14	80 55
	Las Cabezas	23 16	80 43
	Nicolas shoal	23 10	80 13
	Key Carenero	22 51	79 49
	Key Francis	22 40	79 17
	Key William (northernmost)	22 36	78 34
	St. Juan	22 14	78 53
	Key Coco, S. side Bahama channel	22 29	78 17
	Key Point Paredon do.	22 30	79 05
	The Barrel	22 25	77 56
	Cayo Confites	22 11	77 40
	Cayo or Key Verde	22 05	77 37
	Guajava	21 54	77 25
	Point Maternillos	21 40	76 59
	Point de Mangle	21 13	76 14
	Point de Mulas	21 07	75 34
	Tanamo	20 43	75 13
	Key Moa	20 44	74 49
	Point Guarico	20 40	74 41
	Baracoa	20 22	74 25
	Nativity bank, or E. reef	20 08	68 41
	Superb shoal	20 58	68 59

		Lat. D. M.	Long. D M.
Caycos I.	Silver key, S. E. end	20 15N.	69 29W
	— N. E. do.	20 32	69 27
	— W. do	20 29	69 59
	Square Handkerchief, N. E. P.	21 20	70 23
	— S. E. P.	20 56	70 28
	— S. W. P.	20 53	70 56
	Turk's island. Grand T.	21 30	71 03
	— Salt key	21 20	70 58
	— Sand key	21 12	71 10
	— Endymion's rocks	21 07	71 15
	Great Caycos, S. part	21 31	71 27
	— N. E. P. or shoal St. Philip	21 45	71 22
	— N. W. part	21 54	71 47
	North Caycos, middle	21 56	71 57
	Booby rocks off do.	21 58	71 57
	Providence Caycos, N. W. P.	21 52	72 21
	Little Caycos S. W. P.	21 36	72 27
	Key Francis	21 31	72 07
	Sand key	21 18	72 03
	South keys shoal	21 01	71 43
Passage Islands.	Great Inagua or Heneaga, N. E. P.	21 19	73 01
	— S. E. P.	21 00	73 06
	— S. W. P.	20 54	73 41
	— N. W. P.	21 08	73 41
	Little Heneaga, E. P.	21 28	72 55
	— W. P.	21 28	73 07
	Hogsties or Corrolaes	21 39	74 00
	Bank	21 57	72 55
	Mayaguana, E. reef	22 17	72 39
	— N. do.	22 30	73 06
	— S. W. point	22 20	73 11
	French keys or I. Planas	22 40	73 34
	Miraporvos keys	22 07	74 32
	Castle island or South key	22 08	74 20
	Fortune island, W. P.	22 30	74 20
	North key, Bird I.	22 50	74 22
	Crooked island, W. P.	22 48	74 18
	— E. P.	22 38	73 50
	Atwood's keys or I. Samana, E. P.	23 05	73 35
	— W. P.	23 03	73 49
	Rum key	23 34	74 57
	Watland's I. N. E. P.	24 06	74 26
	— S. W. P.	23 57	74 37
	Conception or Little I.	23 52	75 16
	St. Salvador, or Guanahari, S. P.	23 57	75 32
	— N. P.	24 33	75 49
	Little St. Salvador, N. P.	24 32	76 12
	Eleuthra or Hetera I.		
	Point Palmeto	25 12	76 15
	James point	25 24	76 25
	Harbour island	25 31	76 40
	Egg island reef	25 32	76 58
	Booby rocks	25 11	77 03
	NEW-PROVIDENCE light	25 05	77 22
	Berry islands, Frozen key	25 22	77 41

		Lat. D. M.	Long. D. M.
Great Bahama Bank.	Berry islands,		
	— Stirrups key, E. P.	25 48N	78 02W
	Little Isaac (eastern)	25 57	78 44
	Great Isaac	26 01	79 02
	Bemini Is. N. W. part	25 44	79 10
	Cat key, middle	25 25	79 09
	Riding rocks, S. P.	25 15	79 04
	Orange keys, north	24 58	79 06
	— south	24 53	79 06
	Ginger key	22 44	78 01
	Key Lobos	22 25	77 33
	Las Macuras	22 10	77 11
	South edge of the bank	22 05	76 22
	Key St. Domingo	21 45	75 45
	St. Vincent's shoal	21 56	75 19
	Key Verde	22 01	75 05
	Key Sal	22 12	75 41
	Long island, S. P.	22 49	74 46
	— N. P.	23 30	75 19
	Exuma, N. W. P.	23 36	75 51
	Leeward stocking island	23 50	76 02
Little Bahama Bank.	HOLE IN THE WALL	25 51	77 10
	N. E. point of Abaco	26 17	76 59
	Linyard's key, N. P.	26 23	76 57
	Elbow key, E. P.	26 29	76 53
	Man of War key, N. W. P.	26 37	77 01
	Great Guana key	26 43	77 08
	Memory rock	26 56	79 08
	Sand key, N. P.	26 54	79 08
	Wood key, middle	26 45	79 06
	Great Bahama Island, W. P.	26 38	79 01
	— S. P.	26 20	78 35
	— E. P.	26 19	78 10
Salt Key Bank.	Dog keys, N. P.	24 01	79 46
	Water key	23 58	79 57
	Double-headed Shot keys, westernmost	23 52	80 14
	Salt key	23 39	80 08
	Anguila, E. P.	23 27	79 14
	Bermuda,		
	— Georgetown	32 22	64 33
	— Wreck hill, westernmost land	32 15	64 50
	Best latitude to run for Bermuda	32 08	

East Coast of America from River Sabine to Cape Horn.

		Lat. D. M.	Long. D. M.
E. C. of Mexico.	Point ent. river Sabine	29 40N.	94 57W
	Point Culebrao (E. part I. St. Louis)	29 10	96 05
	Point St. Francisco, entrance of Bay St. Bernard	28 58	96 55
	Horse Inlet	28 08	97 35
	Point of the coast	26 46	97 35
	Bar de St. Jago	26 05	97 31
	River Brabo, entrance	25 55	97 26
	River St. Fernando, ent.	25 22	97 32
East Coast of Mexico.	Inlets to Laguna Madre	25 02N.	97 41W
	Bar de la Marine, entrance river St. Ander	23 45	97 58
	Bar del Tordo	22 52	97 57
	Mount Commandante	22 48	97 58
	Bar de la Trinidad	22 39	97 57
	Bar Ciega	22 34	97 58
	River Tampico	22 16	98 02
	Point de Xerez	21 55	97 45
	Cape Rojo	21 45	97 35
	Tamiagua city	21 16	97 45
	River Tuspan, ent.	21 01	97 30
	Point Piedras	20 50	97 21
	River Cazones	20 44	97 15
	Tenestequepe	20 40	97 12
	Boca de Lima	20 37	97 07
	River Toccoluta, ent.	20 30	97 01
	Mount Gordo	20 22	96 57
	River Nauta, entrance	20 16	96 50
	River Palma, entrance	20 10	96 45
	Point Piedras	20 00	96 35
	River de Santa Nos	19 55	96 30
	Point Delgada	19 52	96 26
	Point M. Andrea	19 43	96 21
	Point de Bernat	19 40	96 21
	River St. John Angel	19 32	96 20
	Xalapa	19 32	96 50
	Peak de Orizabo	19 02	97 09
	Point de Sampola	19 30	96 16
	River St. Carlos	19 26	96 15
	River Antigua	19 20	96 14
	Point Gorda	19 15	96 04
South Coast of the Gulf of Mexico.	VERA CRUZ	19 11	96 04
	St. John de Ulloa	19 15	95 58
	Xamapa	19 04	96 06
	River Medellin, ent.	19 06	95 59
	Point Auton Lisardo	19 04	95 45
	Bar de Alvarado	18 46	95 38
	Ulacotalpan	18 35	95 29
	Vigia	18 38	95 18
	Point Roca Partida	18 40	94 59
	Point Morillos	18 41	94 54
	Tuxtla	18 18	95 05
	Point Zapolitan	18 34	94 41
	Point Xicacal	18 27	94 37
	Point St. John	18 19	94 29
	Barrilla	18 07	94 27
	Bar Guazacoalios	18 08	94 12
	River Tonelado	18 08	93 55
	River St. Ann	18 08	93 41
	River Cupilco	18 13	93 08
	Dos Bocas	18 13	92 45
	River Chittepeque	18 14	92 39
	River Tabasco	18 22	92 07
	River St. Peter and Paul	18 27	91 54
	Point Jicalango	18 44	91 29
	Island Carmen	18 46	91 14
	Point Escondido	18 50	90 51
	River Chen	19 20	90 36
	Point Morros	19 40	90 39
	CAMPECHE	19 50	90 30
	Point Desconocida	20 55	90 29
	Point Gordo	21 06	90 19
	Point Piedras	21 09	90 13
	Igil	21 20	89 19
	St. Clara	21 22	88 45

		Lat. D. M.	Long. D. M.
Honduras.	Bocas de Silan	21 26N.	88 23W
	El Cuyo	21 30	87 43
	Island Jolvas, N. P.	21 30	87 11
	Island Contoy, N. P.	21 36	86 52
	Las Arcas islands	20 16	91 51
	Bank Obispo	20 32	92 05
	Triangles islands	20 59	92 07
	New shoal	20 33	91 50
	Bajo Neuva I.	21 50	91 48
	Island Arenas	22 07	91 26
	I. Bermeja, or N. W. shoal	22 36	91 21
	Bajo Sisal	21 27	90 02
	Alacran	22 29	89 26
	N. part of bank off this coast	23 43	88 43
	N. E. do.	23 27	86 37
	I. de Mugeres or Women's I.	21 18	86 42
	I. Cankon, S. P.	20 42	86 58
	New river	20 26	87 15
	River Bacales	20 05	87 34
	Bay Ascension, ent.	19 26	88 03
	Island Cosumel, N. P.	20 11	86 34
	— S. E. P.	19 52	86 32
	Rio Hondo, entrance	19 04	88 17
	I. Ubero, N. P.	19 20	88 03
	— S. P.	18 22	87 53
	I. St. Cruz	18 20	87 52
	Key Jaicos	18 14	87 52
	North reef	18 02	87 50
	Chief Channel	17 54	87 55
	Wallis' river, entrance	17 52	88 19
	El Chiuchorro I. N. P.	18 58	87 11
	— S. P. of shoal	18 19	87 06
	Misterioso I.	18 38	85 25
	Vicioso I.	18 00	84 44
	Santanilla or Swan I.	17 21	84 04
	South keys, N. P.	17 30	87 12
	— Hat keys, S. P.	17 00	87 03
	Longeriffe or Glover's reef, S. P.	16 21	87 41
	Sapotillas keys, S.E. P.	16 00	88 12
	Rattan I. E. P.	16 24	86 20
	— W. P.	16 13	86 57
	Guanaja or Bonhacca I.	16 32	86 07
	Point Manabique	15 39	88 29
	Omoa	15 37	87 57
	Point Sal	15 47	87 29
	Triunfo de la Cruz	15 41	87 17
	Utila I. N. P.	16 00	87 02
	Truxillo	15 53	86 06
	Cape Delegado or Honduras	16 00	86 11
	Cape Camaron	16 02	85 10
	Cape False	15 14	83 03
	Cape Gracias à Dios	14 57	82 46
	Caxones, W. P.	16 02	83 11
	— S. E. P.	15 41	82 27
	Cayman or Vivorilla	15 46	83 26
	Key John Thomas	15 23	81 49
	Alagarte Alla, N. W. P.	15 21	82 05
	— S. E. P.	15 05	81 54
	Serranila	16 05	80 09
	Serrana or Pearl I. N.P.	14 46	79 47
	— S. P.	14 23	79 51
Mosquitos.	Guana reefs, N. P.	14 49N.	80 44W
	— S. P.	13 59	80 41
	Roncador	13 39	79 46
	Musketeers	13 27	79 46
	Providence I. N. P.	13 27	80 39
	Musquito keys, N. P.	14 49	82 19
	Ned Thomas' keys, S.P.	14 12	82 21
	Bracman's bluff	13 51	82 50
	Man of War keys	13 04	82 39
	Little Corn island	12 19	82 06
	Great Corn island	12 10	82 11
	Bluefields, entrance	11 50	82 54
Panama.	I. St. Andrew, mid.	12 33	81 00
	E. S. E keys	12 22	80 41
	S. S. W. key or Alburquerque	12 06	81 08
	Paxoro Bovo	11 20	82 48
	St. John's point	10 41	82 54
	Port Boco Toro	9 29	82 05
	I. Escudo, N. P.	9 14	80 57
	River Chagre, entrance	9 20	80 03
	PORTO BELLO	9 33	79 35
	Farallon I. N. P.	9 40	79 33
	Point Manzanillo	9 38	79 20
	Point St Blas	9 33	78 40
	Point Conception	9 19	77 53
	Isle of Pines	8 55	77 39
	Cape Tiburon	8 40	77 29
	River Suniquilla, ent.	7 57	76 54
Darien.	Point Carabana	8 37	76 57
	Point Arboletes	8 49	76 32
	Island Fuerte	9 20	76 13
	I. St. Bernard, N. W. P.	9 48	75 50
Carthagena.	CARTHAGENA	10 25	75 29
	Galera de Samba	10 48	75 20
	West entrance of river Magdalen	11 03	74 56
	St. Martha	11 15	74 11
	Cape Aguja	11 21	74 12
	Bank Navio que brado	11 36	73 11
	Hacha	11 31	72 56
	Cape la Vela	12 11	72 14
	Point Gallinas	12 27	71 41
	Monges islands, N. P.	12 31	70 59
	Cape Chichibacoa	12 17	71 17
	Point Espada	12 05	71 08
	St. Carlos	11 03	71 12
Maracaybo.	MARACAYBO	10 43	71 17
	Coro	11 24	69 46
	Point Cardon	11 35	70 20
	Point Macolla	12 06	70 19
	Cape St. Roman	12 12	70 07
	Island Oruba, N. W. P.	12 38	70 09
	— S. E. P.	12 25	69 58
	Point Aricula	11 57	69 53
	Point Savannos	11 33	69 10
	Point Soldado	11 14	68 35
	Key Borrocho	10 57	68 19
	Tucacas	10 51	68 17
Caracccas.	PORTO CABELLO	10 29	68 04
	Valencia	10 18	68 07
	Point St. John Andres	10 30	67 48
	Point Oricaro	10 34	67 17
	Point Trinchera	10 38	67 04
	LA GUIRA	10 37	66 59
	CARACCAS	10 30	66 57

		Lat. D. M.	Long. D. M.
Curracoas.	Centenela I. or White rock	10 50N.	66 06W
	Cape Codera	10 36	66 03
	Curacoa I. N. P.	12 24	69 13
	— S. E. P.	12 02	68 46
	Little Curaco	11 59	68 41
	Buenayre, N. P.	12 21	68 26
	— S. P.	12 02	68 18
	Birds or Aves I. western	12 00	67 42
	— eastern	11 58	67 29
	Roca, W. P.	11 51	66 58
	— E. P.	11 51	66 32
Samana.	Orchilla I.	11 49	66 05
	Blancha I.	11 52	64 40
	Tortuga I.	10 57	65 19
	Seven Brothers, mid.	11 46	64 27
	Margarita, W. P.	11 02	64 28
	— E. P.	11 00	63 50
	I. Cuagua or Pearl I.	10 49	64 14
	Friars I.	11 14	63 48
	I. Sola	11 20	63 38
	Testigos I.	11 24	63 09
	River Orquila, entrance	10 08	65 32
	New Barcelona	10 08	64 46
	I. Borracho	10 20	64 48
	Sante Fe	10 16	64 31
	Cumana	10 27	64 15
	Araya	10 35	64 20
	Morro Chocopata	10 42	63 54
	Escondido or Hidden port	10 41	63 27
	Cape Malapasqua	10 42	63 04
	Cape Three points	10 46	62 44
	Point Galera	10 45	62 33
	Point Pena or Salina	10 44	61 53
	Dragon's mouth	10 41	61 43
	River Guarapiche, ent.	10 12	62 43
	Point Morro	9 54	61 58
	Oronoco river	8 25	60 26
	Cape Barma	8 22	60 04
	Essequebo river	7 00	58 20
Surinam.	DEMERARA RIVER, entrance		
	— Corobana point	6 48	57 58
	River Berbice, entrance	6 20	57 11
	SURINAM river, ent.	5 58	55 15
	Paramaribo	5 49	55 15
	R. Marouri, entrance	5 50	53 52
	CAYENNE	4 56	52 15
	Oyapock river, St. Louis	3 51	51 40
	Cape Orange	4 12	51 20
	R. Cassipour, entrance	3 54	51 10
	Cape North	1 48	50 10
	Mouth of river Amazon	0 18	50 00
	Cape Magoany	0 17S.	47 56
	Point Tagioca	0 33	47 28
	Para	1 28	47 58
	Bay Maracuno	0 37	47 10
	Caite harbour	0 47	46 33
	Cape Gurapi	0 42	45 22
	Shoal	0 52	43 40
	Island of St. Joao	1 17	44 13
	Bay of Mt. Luis	1 05	43 18
	Bay de Cabelo de Velha	1 30	43 54
	Point of B. Atins	2 03	43 44
	Itaculumi	2 07	43 50

		Lat. D. M.	Long. D. M.
Brazil.	S. Marcos	2 27S.	43 40W
	Va. de Alacantra	2 22	43 47
	St. Luis de Maranham	2 29	43 40
	Coroa Grand, N. E. P.	2 12	43 18
	I. St. Anna	2 18	43 05
	Fin dos Lancoes Grandes	2 19	42 40
	B. de Rio Perguicas	2 23	42 04
	Iquarasuent, Parnhaiba	2 44	41 20
	Jericoacoara	2 44	40 15
	Coras de Caracu	2 48	39 44
	Mount Melencias point	3 07	39 07
	Seara	3 32	38 27
	Bay Iguape	3 40	38 14
	St. Paul's	0 55N.	29 13
	Roccas	3 56S.	33 26
	Ferdinand Noronha	3 55	32 35
	St. Lorenzo	3 57	37 52
	Point Daniel	4 42	37 24
	Baros de Salino	4 40	37 00
	Point Piedras	4 52	36 38
	Cape St. Roque	5 08	35 38
	River Parahiba, ent.	6 48	35 10
	I. Tamarica	7 46	34 57
	Pernambuco	8 11	35 02
	Cape St. Augustine	8 29	34 51
	Rio St. Francisco	10 57	36 04
	ST. SALVADOR (Cape St. Antonio)	13 01	38 32
	I. das Ilhos	14 52	38 50
	Porto Seguro	16 40	39 00
	Abrohlos islands	18 00	38 22
	Espiritu Santo	20 11	39 38
	Cape St. Thomas	21 59	40 40
	St. Ann's islands	22 22	41 46
	John's Is. St. Ann's Bay	22 35	42 05
	Anchor island	22 44	41 50
	CAPE FRIO	23 01	42 06
	Monk's islands	22 59	42 29
	Point Negra	23 00	42 41
	Maurice islands	23 02	42 56
	Razor I. off R. Janeiro	23 05	43 16
	Point St. Cruz	22 57	43 16
	RIO JANEIRO harbour	22 52	43 18
	Sugar Loaf	22 58	43 17
	River Guaratiba	23 10	43 39
	Point Maranbaya	23 17	43 58
	I. Grande, S. P.	23 22	44 09
	Point Joantinga	23 27	44 22
	I. St. Sebastian, N. P.	23 36	45 02
	— S. P.	23 52	45 02
	Mount Trigo	23 59	45 04
	St. Catherine's island	27 32	48 00
	Porto St. Pedro	32 09	52 02
	Cape St. Mary	34 39	53 58
	I. Lobos	35 02	54 42
	Maldonado harbour	34 56	54 50
	Point Piedras	35 29	57 02
R. Plate.	MONTE VIDEO	34 54	56 04
	BUENOS AYRES	34 37	58 24
	Cape St. Antonio	36 21	56 45
	Cape Lobos	36 55	56 47
	Cape Corientes	37 59	57 39
	Point de Neuva	42 55	64 09
	St. Helena	44 30	65 27
	St. George's Bay, C. Cordova	45 45	67 25

Terra del Fuego.

	Lat. D. M.	Long. D. M.
Cape Blanco	47 15S.	65 57W
Point Desire	47 45	66 02
Port St.Julian, entrance	49 07	67 42
St. Cruz harbour	50 19	68 29
Cape Fairweather	51 34	68 59
Cape Virgins, northern point of entrance to Magellan's straits	52 24	68 25
Cape Espirito Santo (south point of entrance to ditto)	52 40	68 26
Terra del Fuego, C. Penas	53 45	67 29
— Cape St. Diego	54 37	65 05
Staten land		
— Cape St. John, easternmost land near C. Horn	54 48	63 42
— C. St. Bartholomew	54 57	64 39
— C. del Medio entra. to Le Maire's Straits	54 49	64 48
New island, E. part	55 17	66 25
Evout's island, middle	55 32	66 47
Bernabelas islands, E.P.	55 44	66 46
CAPE HORN, south part of Hermit's Isl.	55 58	67 21

West Coast of America, from Cape Horn to Icy Cape.

Coast of Chili.

	Lat. D. M.	Long. D. M.
CAPE HORN	55 58S.	67 21W
I. Diego Ramirez, S. P.	56 32	68 36
— N. part	56 25	68 45
I. de St. Ildefonso, S.P.	55 56	69 17
Terra del Fuego		
— False Cape Horn	55 42	68 08
— Yorkminster	55 27	70 04
— C. Gloucester	54 07	73 35
— Cape Pillars, S. W. entrance to Magellan's straits	52 45	74 57
Evangelist I. W. entr. Magellan's straits	52 34	75 05
Cape Victory	52 25	74 57
Cape St. Jago	50 54	75 30
Cape Three Points	49 46	75 45
Cape Corso	49 26	75 45
I. Campana, N.W. point	48 00	75 19
Cape Tres Montes	46 59	75 27
Cape Taitaohaohuon	45 51	75 28
I. Huafo, W. part	44 00	74 42
P. Quilan	43 41	74 21
P. St. Carlos	41 49	73 53
P. Quedal	41 05	74 09
P. de la Galera	39 54	73 46
VALDIVIA, entrance	39 51	73 33
P. Tirna	38 29	73 46
I. de la Mocha, W. part	38 20	74 05
St. Maria islands, N. P.	36 59	73 41
— S. P.	37 05	73 42
CONCEPTION, city	36 49	73 09
Talcahuano, port of do.	36 41	73 12
Santiago	33 27	70 43
VALPARAISO, port	33 01	71 37

Peru.

	Lat. D. M.	Long. D. M.
Point Ballena	31 50S.	71 44W
Coquimbo	29 56	71 19
Huasco	28 26	71 15
Copiapo	27 10	71 08
P. Negra	26 24	70 56
Isl. St. Felix, eastern	26 20	79 47
— western	26 16	80 03
I. Blanca	24 56	70 36
Morro Moreno	23 18	70 32
Morro de Mexillones	23 04	70 28
Point Tames	22 33	70 10
Jaguey de Raquisa	21 50	70 09
Pavellon de Pica	20 58	70 16
Point Piedras	20 05	70 13
Point Pisagua	19 26	70 19
Arica	18 27	70 19
Point de Coles	17 42	71 14
Ilo	17 38	71 13
Point Cornejo	16 41	72 46
Cumana	16 17	73 21
Atico	16 08	73 47
R. St. Juan	15 15	75 14
Los Amigos point	14 27	76 02
Pisco	13 46	76 12
Caneta	13 01	76 27
P. Chilca	12 33	76 43
I. St. Lorenzo, W. P.	12 05	77 08
LIMA	12 03	76 55
CALLO, sea port of Lima	12 02	77 04
I. Pescador, W. part	11 46	77 10
Los Hormigos islands	11 56	77 48
I. Pelado	11 27	77 41
Island St. Martin	11 03	77 30
Point Santander	10 39	77 41
Rock seen in 1792	10 48	78 48
Ferrol, entrance	9 07	78 30
Truxillo	8 08	78 53
I. Malabrigo, port	7 48	79 21
Island Lobos de Mer	6 58	80 44
Island Lobos de Tierra	6 24	80 46
Eten	6 56	79 49
Point de Ajuga	5 59	81 04
Point Payta	5 03	81 02
Cape Blanco	4 19	81 06
P. Malpelo	3 32	80 17
GUAYAQUIL, City	2 12	79 42
I. Puna, S. W. P.	3 04	80 08
Point St. Helena	2 10	80 48
I. Pelado	1 56	80 36
Point del Callo	1 23	80 34
I. de la Plata, W. P.	1 18	80 57
Cape St. Lorenzo	1 04	80 43
Manta	0 57	80 32
Cape Pasado	0 27	80 20
Quito	0 18	78 18
Galapagos islands		
Hood's island	1 24	89 45
Charles island, N. P.	1 11	90 30
— S. P.	1 30	90 33
Barrington island, W.P.	1 00	90 17
Chatham island, W. P.	0 57	89 43
— Kicker rock	0 47	89 39
——— E. P.	0 49	89 06
Porter's island, N.E. P.	0 29	90 03
— S. W. P.	0 44	90 27

Quito.

	Lat. D. M.	Long. D. M.
Albemarle Island		
Cape Rose	1 00 S	91 05W
Point Essex	0 59	91 16
Christopher's Point	0 51	91 25
Cape Berkley	0 00	91 32
Cape Drummond	0 15	90 54
Cape Marchal	0 00	90 59
Point Albemarle, (reef)	0 09 N	91 09
Rodondo Rock	0 15	91 36
Wenham's Is. W. P.	1 24	91 51
Culpepper's Is.	1 44	92 09
Abington Is. N. P.	0 43	90 47
Cape Chalmers	0 29	90 50
Binloes Island W. P.	0 24	90 19
— E. P.	0 24	90 06
James Island N. E. P.	0 55	90 20

From the River St. Croix to Cape Cansor.

	Lat. D. M.	Long. D. M.
Entrance of St. Croix River	45 07 N	67 08W
Macgone's I. (entrance of St. John's River)	45 18	66 4
Cape Spencer	45 17	65 52
C. Chignecto, (entrance Bason of Mines)	45 24	64 49
Haute Island	45 19	64 51
Annapolis Royal	44 47	65 50
Breyer's Island	44 19	66 25
St. Mary's Cape	44 10	66 8
Cape Fourchu	43 52	66 4
Seal Isles	43 27	65 55
CAPE SABLE	43 26	65 32
Sable Island (E. point)	44 5	60 3
——West ditto	44 3	60 51
Port Roseway	43 40	65 13
Port Mansfield	43 50	64 52
Gambier Harbour	44 0	64 41
LIVERPOOL	44 5	64 40
Isle of Hope	43 53	64 39
Port Jackson	44 13	64 27
Charlotte Bay	44 34	63 53
C. Sambro Light house	44 30	63 32
HALIFAX Harbour	44 36	63 28
Port Stephens	45 0	61 59
Sandwich Bay	45 8	61 36
Torbay	45 12	61 16
Port Howe	45 13	61 6
CAPE CANSOR	45 18	60 56

The Gulf of St. Lawrence.

	Lat. D. M.	Long. D. M.
Chedabucto Bay	45 23 N	61 0W
Gut of Cansor, (S. ent.)	45 23	61 13
Cape Hinchinbroke	45 34	60 40
Cape Portland	45 43	60 3
LOUISBURG	45 54	59 55
CAPE BRETON	45 57	59 48
Scatery Island	46 1	59 41
Flint Island	46 9	59 48
Spanish Bay	46 18	60 10
Port Dauphin	46 23	60 30
Cape North Island	47 6	60 28
Cheticun Harbour	46 42 N	60 58W
Sea Wolf Island	46 27	61 12
Port Hood	45 58	61 35
Justan Corp Island	45 56	61 37
GUT OF CANSOR, (North entrance)	45 42	61 27
Cape St. George or St. Lewis	45 52	61 55
Picton Island	45 51	62 27
Cape Tormentine	46 9	63 36
Richibucto Harbour	46 44	64 36
St. John's I. (N. Cape)	47 5	63 45
West point	46 37	64 10
Cape Egmont	46 28	63 51
Halifax Bay	46 25	63 36
——— E. point	46 27	61 48
Bear Cape	46 3	62 12
Hilsborough Bay	46 6	62 55
P. Escuminac	47 3	64 33
Miscou I. (entrance of Chaleur Bay)	48 3	64 15
Cape Despair	48 27	63 58
Island Bonaventure	48 32	63 50
Flat point	48 38	63 50
Cape Gaspe	48 47	63 52
Cape Rozier	48 50	63 54
Magdalen River	49 13	64 42
St. Ann's River	49 8	66 8
Mount Camille	48 37	67 45
I. de Bik in the river St. Lawrence	48 30	68 24
I. of Anticosta, (E. P.)	49 8	61 40
—— Jupiter's River	49 26	63 25
—— S. W. ditto	49 22	63 23
—— W. ditto	49 48	64 16
—— N. ditto	49 53	63 54
Deadman's Island	47 17	61 58
Entry Island	47 15	61 24
Amherst Island (S. W. P.)	47 12	61 44
Magdalen Isl. (N. E. P.)	47 41	61 05
Biron Island	47 52	61 10
Bird Island	47 55	60 46
St. Paul's Island	47 11	60 4

Newfoundland.

	Lat. D. M.	Long. D. M.
Limits of the Great Bank of Newfoundland, (N. point)	50 15 N	49 45W
—— South point	41 0	52 0
Outer Bank	47 0	45 0
Cape Norman	51 42	56 0
Seal Islands	51 22	56 50
Point Ferolle	51 5	57 11
St. John's Bay	50 52	57 23
Point Riche	50 46	57 28
Ingornechoix Bay	50 39	57 22
Bon Bay	49 36	58 05
Cape St. Gregory	49 22	58 22
South Head	49 10	58 33

Nova Scotia. C. Breton. St. John's. St. John's. I. Anticosta. Newfoundland.

Newfoundland.

	Lat. D. M.	Long. D. M.
Cape St. George	48 30N	59 12W
Cape Anguille	48 00	59 18
Cape Ray	47 35	59 15
Connor bay	47 38	58 00
Burges island	47 33	57 37
Ramea islands	47 32	57 25
Penguins' islands	47 24	57 00
Fortune head	47 09	55 51
Burnt island	47 16	56 00
Great Miquelon	47 05	56 24
Langley island	46 50	56 24
St. Peter's island	46 46	56 15
Point May	46 56	56 02
Chapeau Rouge	46 52	55 25
Mortier rocks	47 03	54 57
Mortier harbour	47 10	55 03
Red island, S. P.	47 24	54 08
Virgin rocks	47 11	54 03
Point Brehin	47 02	54 12
Cape St. Mary	46 52	54 00
St. Mary's bay	46 50	53 40
Cape Pine	46 44	53 25
CAPE RACE	46 40	52 54
Cape Race rocks	46 30	51 30
Cape Ballard	46 49	52 42
Cape Broyle	47 08	52 35
Bay of Bull	47 21	52 28
Cape Spear	47 30	52 20
St. John's harbour	47 33	52 25
Cape St. Francis	47 57	52 30
P. of Grates	48 22	52 32
Trinity bay	48 30	52 50
Cape Bonavista	48 56	52 35
Barrow harbour	48 52	53 00
Punk island	50 01	52 12
Cape Freels	49 34	52 55
Woodham islands	49 54	53 30
Gander bay	49 44	53 55
Fago island	50 00	53 54
Twillingate islands	50 03	54 35
Bay of Notre Dame	50 00	55 30
Cape St. John	50 10	55 30
Horse islands	50 24	55 48
White bay	50 19	56 15
Hooping harbour	50 46	56 13
Green island	50 47	55 35
Groais ditto	50 56	55 38
Hare bay, entrance	51 17	55 50

Canada.

	Lat. D. M.	Long. D. M.
St. Anthony's cape	51 20N.	55 36W
St. Lunaire bay	51 29	55 30
Cape Degrate	51 43	55 30
Belle island	51 58	55 30

From Quebec to Hudson's Bay.

	Lat. D. M.	Long. D. M.
QUEBEC	46 48N	71 05W
Condras island	47 15	70 19
St. Paul's bay	47 16	70 24
Bay of rocks	48 00	69 42
Point Mille Vache	48 45	68 38
Manicougan point	49 11	67 42
Cape Nicholas	49 23	67 10
Cape Montpelles	49 25	66 51
Trinity cove	49 30	66 43
The Seven islands bay	50 10	66 00
St. John's river	50 20	63 55
Mingan island	50 16	63 35
Eskimaux islands	50 13	62 55
Mount Joli	50 05	61 23
Boat islands	50 00	60 24
St. Mary's islands	50 08	59 50
Little Mecatina ditto	50 28	59 27
Great Mecatina point	50 45	59 08
St. Augustine bay	51 15	58 50
Eskimaux bay	51 28	57 30
Grand point	51 24	57 18
Forteau bay	51 32	57 00
Red cliffs	51 36	56 52
Black bay	51 43	56 47
Red bay	51 46	56 30
York point	51 59	55 58
Cape Charles	52 13	55 30
Great bay of Eskimaux	54 20	57 36
Cape Harrison	54 54	56 50
St. Peter's harbour	56 28	60 50
Enchanted cape	56 40	60 55
Saddle islands	57 13	60 50
East island	57 45	61 20
Steel point	58 07	61 50
Cardinal's island	58 50	63 00
False black head	59 20	63 19
Black head	59 50	63 37
Cape Chidley	60 14	65 20
Button's islands	60 47	65 05

Labrador.

TIDES.

TIDE is a periodical motion of the water of the sea, by which it ebbs and flows twice a day. The *flow* continues about 6 hours, during which the water gradually rises till it arrives to its greatest height; then it begins to *ebb* or decrease, and continues to do so for about 6 more, till it has fallen to nearly its former level; then the flow begins as before. When the water has attained its greatest height it is said to be *high-water*, and when it is done falling it is called *low-water*.

The cause of the tides is the unequal attraction of the sun and moon upon different parts of the earth. For they attract the parts of the earth's surface nearest to them, with a greater force than they do its centre: and attract the centre more than they do the opposite surface. To restore this equilibrium the waters take a spheroidal figure, whose longer axis is directed towards the attracting luminary. If the moon only acted upon the water, the time of high water would be when the moon was upon the meridian, above or below the horizon; or rather at an hour or two after, (because the moon continues to act with considerable force for some time after passing the meridian.) But the moon passes the meridian about 49′ later every day; of course, if she only acted on the tides, they would be retarded every day 49′, and it would be high water at the same distance from her passing the meridian; and it is upon this principle that the time of high water is calculated in most books of navigation, although the time thus calculated will sometimes differ an hour from the truth, owing to the neglect of the disturbing force of the sun. The effect of the moon upon the tides is greater than that of the sun, notwithstanding the quantity of matter in the latter is vastly greater than in the former: but the sun, being at a much greater distance from the earth than the moon, attracts the different parts of the earth with nearly the same force; whereas the moon being at a much less distance, attracts the different parts of the earth with very different forces. According to the latest observations, the mean force of the sun for raising the tides is to the mean force of the moon as 1 to 2¼. By the combined effect of these two forces, the tides come on *sooner* when the moon is in her *first* and *third* quarters, and later in the *second* and *fourth* quarters, than they would do if caused only by the moon's attraction. The mean quantity of this acceleration and retardation is given in the Table B, subjoined; the use of which will be explained hereafter.

The tides are greater than common about three days after the new and full moon; these are called *spring-tides*. And the tides are lower than common about three days after the first and last quarters; these are called the *neap-tides*. In the former case the sun and moon conspire to raise the tide in the same place, but in the latter the sun raises the water where the moon depresses it. When the moon is in her *perigee*, or nearest approach to the earth, the tides rise higher than they do, under the same circumstances, at other times; and are lowest when she is in her *apogee*, or farthest distance from the earth. The spring-tides are greatest about the time of the equinoxes, in March and September, and the neap-tides are less. All these things would obtain exactly, were the whole surface of the earth covered with sea; but the interruptions caused by the continents, islands, shoals, &c. entirely alter the state of the tides in many cases. A small inland sea, such as the Mediterranean or Baltic, is little subject to tides; because the action of the sun and moon is always nearly

equal at the extremities of such seas. In very high latitudes the tides are inconsiderable.

From the observations of many persons, the times of high-water on the days of new and full moon at the principal places in North America, have been collected. These times are put in a table against the names of the places, arranged in alphabetical order in Table IV. The most common rule prescribed for finding high water is that depending on the golden number and epact, the tide being supposed to be uniformly retarded every day. This method will sometimes differ 2 hours from the truth, for which reason I shall not insert it; but shall proceed to explain the calculation by the adjoined tables A and B, and the Nautical Almanac; by means of which the time of high-water may be obtained to a greater degree of exactness than from our common almanacs.

RULE.

Find the time of the moon's coming to the meridian at Greenwich on the given day, in page 6th of the Nautical Almanac. Enter the Table A, and find the longitude of the given place, in the left hand column, corresponding to which is a number of minutes to be applied to the time of passing the meridian at Greenwich, by *adding* when in *west* longitude, but *subtracting* when in *east* longitude; the sum or difference will be nearly the time that the moon passes the meridian of the given place. With this time enter Table B, and take out the corresponding correction, which is to be applied to the time of passing the meridian of the place of observation, by adding or subtracting, according to the direction of the table.

To this corrected time add the time of full sea on the full and change days; the sum will be the time of high water at the given place, reckoning from the noon of the given day. If this sum be greater than 12h. 24m. you must subtract 12h. 24m. from it, and the remainder will be the time of high water nearly, reckoning from the same noon; or if it exceed 24h. 48m. you must subtract 24h. 48m. from that sum, and the remainder will be the time of high water, reckoning from the same noon nearly.

EXAMPLE I.

Required the time of high water at Charleston (S. C.) March 17, 1820, in the afternoon, civil account?

By the Nautical Almanac I find that the moon passed the meridian of Greenwich at 2h. 31m.; to this I add 11m. taken from Table A, corresponding to the longitude of Charleston. With the sum 2h. 42m. I enter Table B, and find (by taking proportional parts) that the correction is 45m. which is to be subtracted from 2h. 42m. (because immediately over it in the table it is marked Sub.); to the remainder 1h. 57m. I add the time of high water on the full and change days 7h. 15m. (which is found in the tide table following;) the sum 9h. 12m. is the time of high water on the afternoon of March 17, 1820, civil account.

EXAMPLE II.

Required the time of high water at Portland, (Mass.) May 23, 1820, in the afternoon, civil account?

By the Nautical Almanac the moon will pass the meridian of Greenwich at 8 hours 49 minutes. The correction from Table A, corresponding to 70° the longitude of Portland is 9m. which added to 8h. 49m. gives the time of the moon's southing at Portland 8h. 58m. nearly. The number in Table B corresponding to 8h. 58m. is 23m. which is to be added to 8h. 58m. (because immediately over it, in the table, is marked Add.) To the sum 9h. 21m. I add the time of high water, on the full and change days, 10h. 45m. and the sum is 20h. 6m. consequently the high water is at 20h. 6m. past noon of May 23, that is, at 8h. 6m. A. M. of May 24. And by subtracting 12h. 24m. from 20h. 6m. we have 7h. 42m. which will be nearly the time of high water on the afternoon of May 23, 1820.

In this manner we may obtain the time of high water at any place, to a considerable degree of accuracy. But the tides are so much influenced by the winds, freshets, &c. that the calculated times will sometimes differ a little from the truth.

Many pilots reckon the time of high-water by the point of the compass the moon is upon at that time, allowing 45 minutes for each point. Thus on the full and change days, if it is high water at noon, they say a north and south moon makes full sea; and if at 11h. 15m. they say a S. by E. or N. by W. moon makes full sea; and in like manner for any other time. But it is a very inaccurate way of finding the time of full sea by the bearing of the moon, except in places where it is high-water about noon on the full and change days.

When you have not a Nautical Almanac, you may find the time of high water by means of the following tables C and D; and although the former method is the most accurate, yet the latter may be useful in many cases. To calculate the time of full sea by this method, observe the following

RULE.

Enter Table C, and take out the number which stands opposite to the year, and under the month for which the tide is to be calculated; this number, added to the day of the month, will give the moon's age, rejecting 30 when the sum exceeds that number. Against her age found in the left hand column of Table D, is a number of hours and minutes in the adjoined column, which being added to the time of high water at the given place on the full and change days, will give the time of high water required, observing to reject 12h. 24m. or 24h. 48m. when the sum exceeds either of those times.

By this rule I shall work the two preceding examples.

EXAMPLE III.

Required the time of high water at Charleston (S. C.) March 17, 1820, in the afternoon, civil account?

In the table C, opposite 1820, and under March, stand 16, which, added to the day of the month 17, gives 33, and by subtracting 30, leaves 3, the moon's age: opposite 3 in Table D, is 1h. 46m. which added to 7h. 15m. the time of high water on the full and change days, gives 9h. 1m. for the time of high water; differing eleven minutes from the former method.

EXAMPLE IV.

Required the time of high water at Portland, (Mass.) May 23, 1820, in the afternoon, civil account?

In the Table C, opposite 1820, and under May, stand 18, which added to the day of the month 23, gives (by neglecting 30) the moon's age 11; opposite to this, in Table D, is 9h. 19m. which added to 10h. 45m. the time of high water on the full and change days, gives 20h. 4m. from which subtracting 12h. 24m. there remains 7h. 40m. for the time of full sea May 23, 1820; this differs 2 minutes from the former method.

In the third column of Table D, is given the time of the moon's coming to the meridian, for every day of her age; thus, opposite 11 days stand 8h. 57m. which is the time of her coming to the meridian on that day.—This table may be of some use when a Nautical Almanac cannot be procured; but being calculated upon the supposition that the moon moves uniformly in the equator, the table cannot be very accurate. The numbers in this Table are reckoned from noon to noon; thus, 1h. A. M. is denoted by 13h.; 2h. A. M. by 14h. &c.

The time of new moon is easily found, by subtracting the number taken from Table C from 30. Ex. Suppose it was required to find the time of new moon for May, 1820? By examining the table, we find the number corresponding to that time is 18; this subtracted from 30 leaves 12; therefore it will be new moon the 12th May, 1820.

When the time of high water is known for any day of the moon's age, we may from thence find the time of high water on the full and change days, by the following

RULE.

Find the time of the moon's coming to the meridian of Greenwich, in the 6th. page of the Nautical Almanac: to this time apply the corrections taken from the tables A and B, (in the same manner as directed in the preceding rule for finding the time of high water) subtract this corrected time from the observed time of high water, and the remainder will be the time of high water, on the change and full days.

NOTE. If the time to be subtracted be greater than the observed time of full sea, you must increase the latter by 12h. 24m. or by 24h. 48m. nearly.

EXAMPLE.

Suppose that on the 17th March, 1820, the time of high water at Charleston, (S. C.) was found to be at 9h. 12mo. P. M. required the time of high water on the full and change days?

I find, as in example 1st. preceding, that the number to be subtracted is 1h. 57m.—taking this from 9h. 12m. leaves 7h. 15m. which is the time of high water on the full and change days.

When you have not a Nautical Almanac, you may find the time of high water on the full and change by means of the Tables C and D. For in the present example, I find by Table C, that the moon's age was 3, corresponding to which, in the second column of Table D, is 1h. 46m. this subtracted from 9h. 7m. leaves 7h. 21m. for the time of high water on the full and change days.

TAB. A.

Longitude of the place. Deg.	Cor. of Moon's passing the meridian. M. m
0	0
10	1
20	3
30	4
40	5
50	7
60	8
70	9
80	11
90	12
100	14
110	15
120	16
130	18
140	19
150	20
160	22
170	23
180	24

TAB. B.

Time of Moon's passing the meridian. Hours.	Corr H. M
	Sub.
0	0 0
1	0 17
2	0 34
3	0 50
4	1 3
5	1 9
6	1 3
7	0 35
	Add
8	0 2
9	0 23
10	0 24
11	0 14
12	0 0
	Sub.
13	0 17
14	0 34
15	0 50
16	1 3
17	1 9
18	1 3
19	0 35
	Add
20	0 2
21	0 23
22	0 24
23	0 14
24	0 0

TAB. C.

A TABLE

FOR FINDING THE MOON'S AGE.

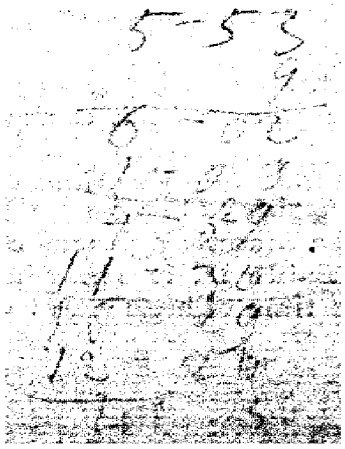
Add the number taken from this Table to the day of the month; the sum (rejecting 30 or 60 if necessary) will be Moon's age, nearly.

Year	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1820	15	17	16	18	18	20	20	22	23	23	25	25
1821	26	28	26	28	29	1	2	3	4	5	6	6
1822	7	9	7	9	10	11	12	14	15	16	17	17
1823	18	20	18	19	20	22	22	24	26	26	28	28
1824	29	1	0	1	2	4	4	6	8	8	10	10
1825	12	13	11	12	13	14	15	16	18	19	19	21
1826	22	24	23	23	24	25	25	27	29	29	1	2
1827	3	5	3	5	5	6	7	8	10	10	12	12
1828	14	15	15	16	17	18	19	19	21	22	23	24

TAB. D.

Moon's Age. Day	High Water. H. M.	Moon passes meridian. H. M.
0	0 0	0 0
1	0 35	0 49
2	1 10	1 38
3	1 46	2 26
4	2 22	3 15
5	3 1	4 4
6	3 44	4 53
7	4 35	5 42
8	5 39	6 30
9	6 57	7 19
10	8 15	8 8
11	9 19	8 57
12	10 10	9 46
13	10 54	10 34
14	11 33	11 23
15	12 9	12 12
16	12 44	13 1
17	13 19	13 50
18	13 54	14 38
19	14 31	15 27
20	15 11	16 16
21	15 56	17 5
22	16 49	17 54
23	17 57	18 42
24	19 17	19 31
25	20 32	20 20
26	21 33	21 9
27	22 22	21 58
28	23 4	22 46
29	23 42	23 35
29½	24 0	24 0

In all the preceding calculations of the time of high water, we have neglected the correction arising from the variation of the distances of the sun and moon from the earth, and from the different declinations of those objects. These causes might produce a correction of 10′ or 12′ in the time of high water, but in general will be much less, and may therefore, be neglected.



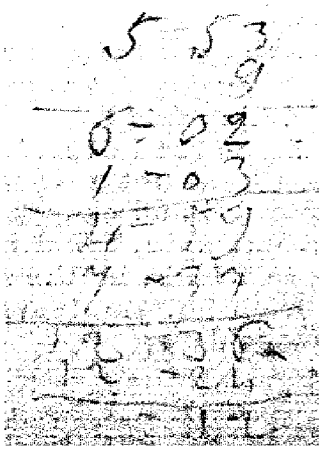


TABLE IV.

Shewing the TIMES of HIGH WATER, at the full and change of the Moon, at the principal Ports and Harbours on the Coast of North America, with the vertical rise of the Tide in feet.

PLACES.	TIME.	RISES.
	H. M.	FEET.
A		
Amazon River	6 00	
Amelia Harbour	8 30	
Ann (Cape)	11 30	11
Annapolis	11 00	
Anticosta I. (W. end)	3 30	
Augustine, St.	7 30	
B		
Block Island	7 37	5
Boston	11 30	11
Broad Bay	10 45	9
C		
Campbell (Port)	9 00	
Canso (Cape)	8 30	
Charles (Cape)	7 45	
Charleston Bar	7 15	6
Cod (Cape)	11 30	6½
D		
Delaware River (ent.)	9 00	
E		
Elizabethtown Point	8 54	5
F		
Fear (Cape)	8 00	
Florida Keys	8 50	
Frying-Pan Shoals	6 30	
Fox Island	10 45	
G		
Gay Head	7 37	7
George's River	10 45	9
Georgetown Bar	7 00	
Goldsborough	11 00	12
H		
Hatteras (Cape)	9 00	
Henlopen (Cape)	8 45	5
Henry (Cape)	7 40	
K		
Kennebeck	10 45	9
L		
Lookout (Cape)	9 00	7
M		
Machias	11 00	12
Marblehead	11 30	11
May (Cape)	8 45	
Mount Desert	11 00	12
N		
New-Bedford	7 37	5
Newburyport	11 15	10
New-Haven	10 16	
New-London	8 54	
New-York	8 54	5
P		
Passamaquoddy River	11 30	25
Penobscot River	10 45	10
Plymouth	11 30	6
Portland	10 45	9
Portsmouth	11 15	10
R		
Rhode Island	6 45	
Roman (Cape)	8 00	
S		
St. Mary's Bar	7 30	7
Sable Island	8 30	
Salem	11 30	11
Sheepscut	10 45	9
Simon's Bar, St.	7 30	
T		
Townsend	10 45	9

U. S. COAST & GEODETIC SURVEY

OCT 22 1940

ACC. No. 43840

APPENDIX.

In note to page 124, mention is made of a light-house building on *Cross Island.* It is not yet completed, which prevents the information to the mariner navigating that coast which is requisite. No time will be lost in communicating the necessary directions.

At the bottom of page 138 mention is made of a light-house building on *Burnt Island*, at the entrance of Townsend harbour. No directions have yet been obtained relative to its situation, but it shall be attended to as soon as practicable.

Pond Island light, mentioned in page 139, is completed.

Stratford Point light, mentioned in page 196, is now completed, lighted, and contains a fixed light. It bears W. S. W. from New-Haven light, distant 14 miles, and from the temporary light at Black Rock (mentioned in note to page 206) N. E. about 4 miles.

Page 240. A Beacon is erected on Tybee Island, which is lighted, and bears E. ½ S. from the light-house.

The Beacon light on with Tybee light, is the direct course over the bar. The best anchoring ground is with Tybee light bearing from S. S. W. to S. the former to be preferred, and distant about one cable's length from the beach.

Coast of Brazil, page 445. A new light-house, with a revolving light, has been erected at the entrance of Pernambuco, which was lighted for the first time on the 2d of February, 1822.

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Directions for sailing from the coast of Patagonia, *or* Falkland Islands, *to* New South Icelands.

After obtaining sight of Statten land, bring cape St. John's to bear W. 5 or 6 leagues distant; then on account of the N. E. set off Cape Horn, endeavour to make a course good S. by compass, until you arrive in the latitude 62° 50′ S. then steer E. keeping between the latitude of 62° 50′ and 63° 5′ S. until you make the land, which will be *Mount Pisgo Island*; when you have got sight of this island, bring the centre of it to bear S. W. by compass, 5 leagues distant. If, when in this situation, the weather should set in thick or foggy, keep this situation by lying by, or on short tacks, until the weather lights up, then steer N. E. ½ E. by compass until you make Castle Rock, situated off the south chop of Strait Despair; leave Castle Rock broad on your starboard bow, and keep steering north and eastward past the mouth of the strait, when you will make Ragged Island, which keep off your starboard bow and beam until you open the pass between the N. W. end of Ragged Island and the Main Island; then steer into the pass E. S. E. keeping Ragged Island shore nearest on board, and anchor in the harbour, around the second point of Ragged Island, in 6 or 8 fathoms. Double this second point well on board, to avoid the reefs that lie off in the pass abreast of the harbour of *Port Sheffield*, in Ragged Island.

There are some reefs in the offing off the mouth of Ragged Island pass, and in it, but with care, and a good look out, they are easily avoided, as the breakers, or ripples, will show where they are.

N. B.—*Mount Pisgo* is a very high round island, with a bold shore all around it, and may be seen in clear weather, at least 30 leagues.

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———, of the Atlantic or Western Ocean, improved to 1820, with an Analysis of the authorities upon which the dangers have been inserted on the Chart. The Tracks extend to the Equator, and are continued on the Chart of the South Atlantic Ocean. This is the only general Chart extant which has the latitude of the South Shoal of Nantucket within 22 miles correct.
———, of the South Atlantic Ocean, containing more authentic information than any extant, part of which describes dangers lately discovered, with original Plans of Harbours and Views.
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PRINTING executed on liberal terms. March, 1822.

To the Navigator.

Sixty errors were corrected in the English edition of the Nautical Almanac for 1822; and to guard in every possible manner against mistake, all the standard pages of *BLUNT'S EDITION* of the *NAUTICAL ALMANAC* are stereotyped.
March, 1822.

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No. 50 State-Street, Boston, (directly opposite Broad-Street.)

Maps, Charts, Blanks, Navigators and Coast Pilots, Seamen's Journals, Account Books, (all sizes) Writing Paper, Wrapping do. Cartridge do. Log do. Wafers, Quills, Ink, Inkstands, Sand Boxes, Pencils, Pocket Books, Cutlery of all kinds, Liquid Blacking, Brushes of all kinds, India Rubber, Sealing Wax, School Books, large and small Bibles, with a general assortment of every article in the Stationary line—which will be sold on as good terms as at any store in town. March, 1822.

SAMUEL THAXTER,
MATHEMATICAL INSTRUMENT MAKER,
No. 27 State-Street, Boston,
OPPOSITE MERCHANTS' ROW,

Where he has for sale warranted Quadrants and long Spy-Glasses, Callipers, Guaging Rods, Broad Rules and Wantage Rods, Sea Books and Charts, Scales and Dividers, Time-Glasses, &c.
N. B. Quadrants and Compasses carefully repaired.
March, 1822.

DAVID FELT,
Chart, Account Book, and Stationary Store,
State, opposite Kilby-Street, BOSTON,
HAS FOR SALE,

Maps, Charts, Blanks, Navigators and Coast Pilots, Seamens' Journals, Account Books, all sizes, Writing Paper, Wrapping do. Cartridge do. Log do. Wafers, Quills, Ink, Inkstands, Sand Boxes, Pencils, Pocket Books, Cutlery of all kinds, Liquid Blacking, Brushes of all kinds, India Rubber, Sealing Wax, School Books, Large and Small Bibles, with a general assortment of every article in the Stationary line; which will be sold on as good terms as at any store in town.
March, 1822.

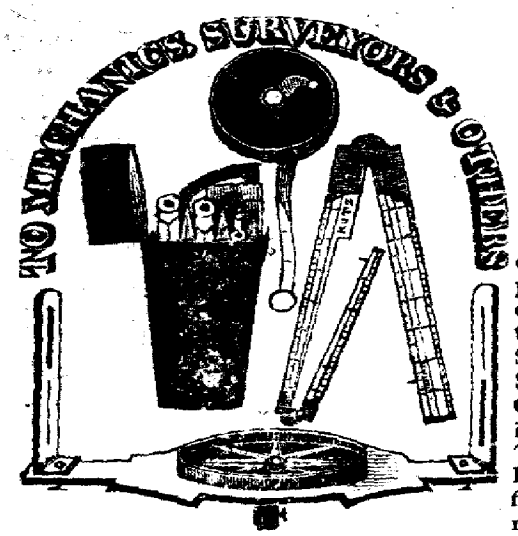
NAUTICAL ARTICLES.
WILLIAM HYDE, BOOKSELLER & STATIONER,
No. 3 Mussey's Row, Middle-Street, Portland, (Me.)

Has for sale, Bowditch's Navigator, Blunt's Coast Pilot, Do. Nautical Almanac, Gunter's Scales, (*warranted*) Dividers, Charts of all kinds, Seamen's Journals, Cargo Books, Paper, Quills, Ink Powder, Wafers, Sealing Wax, Penknives, Pocket Books, all kinds of Nautical Blanks, a great variety of Blank Account Books and Memorandum Books, and a general assortment of Books and Stationary, wholesale and retail, cheap for cash. March, 1822.

Just Published,
STANSBURY'S TABLES,

To facilitate the necessary calculations in Nautical Astronomy, designed to enable navigators to find the Longitude and Latitude from celestial observations, with accuracy and despatch.

The above work for sale by *WILLIAM HOOKER*, 202 Water-Street, where certificates may be seen from gentlemen of the first Nautical Science in the United States, who concur in stating that it is superior to any work of the kind extant. It is intended to supersede the celebrated tables of Mendoza Rios, at one half the expense.
March, 1822.



E. KUTZ,

No. 151 WATER-STREET,
Near Fly-Market Slip, New-York,

RULE & DRAWING INSTRUMENT MAKER,

Continues to make and sell the following articles, not only superior, but cheaper than any imported—viz. Carpenters' Ivory and Box Rules of every description; Navigation, Sliding and Gunter's Scales, with Don's and Robinson's improved; Surveyors' Scales, on various plans; Shoe Size Sticks; complete sets of Instruments for Gauging Oil or Liquors; Barrel and Wantage Rods; Rolling, Double Bar, and all sorts of Parallel Rules; Tape Measures and Chains of all lengths, for Land Measurement; sets of Drawing Instruments, from $2 to $50. Also, Station Staffs; Circumferenters with or without nonious; Levels; Ship and Pocket Compasses; Night and Day Telescopes, Quadrants, Thermometers, Barometers, Sun Dials for every latitude.

March, 1822.

SAND PAPER AND CARD MANUFACTORY.

S. M. & C. BARTLETT,

Sand Paper and Card Manufacturers, No. 78 Bowery, New-York,

Have constantly for sale, wholesale and retail, a general assortment of Sand Paper, Blank and Playing Cards, Books, Stationary, &c.

March, 1822.

A. SHEARMAN, Jun.

BOOKSELLER, NEW-BEDFORD,

Has for sale *QUADRANTS*, with and without tangent screws; *CHARTS*, Navigators, Coast Pilots, of latest editions; Nautical Almanacs; Ward's Formula; Elford's Polar Tables; Seamen's Journals; Scales and Dividers; Cases of Mathematical Instruments; Parallel Rulers; Pen and Pocket Knives; Log Paper, Slates, Blank Books, Pocket Memorandums, &c.—a great variety—with almost every article of Stationary used by Seamen.

☞ Orders carefully attended to.

March, 1822.

MATHEMATICAL INSTRUMENTS.

JOHN ODELL,

No. 76 BROAD-STREET, BOSTON,

From Spencer, Browning & Rust, London; in whose Manufactory he has had constant practice for upwards of twenty years, and been three years employed for the dealers in Boston—would further inform the Merchants, Owners, and Officers of vessels, that he is a real Maker of Sextants, Quadrants, Telescopes, and Compasses, both in brass and wood; do. Surveyors' Instruments, according to order.

Has on hand—Spencer's best Tangent Quadrants, Telescopes, Compasses, Parallel Rules, Gunter's Scales, Wantage Rods, Timber Rules, Semicircles for Land Surveying, Agates for Caps, do. Bubbles for Levels, E. M. Blunt's Charts, Bowditch's Navigator, fifth edition, American Coast Pilot, and Shipmaster's Assistant.

N. B. Sextants, Quadrants, Telescopes, Compasses for land or sea, faithfully cleaned and repaired by his own hands, having no confidence in *Boys*, where lives and property are at stake.

March, 1822.

ANDREW J. ALLEN,

WHOLESALE AND RETAIL STATIONER,

No. 66 State-Street, Boston,

Has constantly for sale, a complete assortment of *Stationary, Charts, Commercial Blanks, Merchants' and Shipmasters' Patent and Plain Account Books.* Also, *Bowditch's Navigator; Blunt's American Coast Pilot;* do. whole Coast of North America, on 15 sheets; do. Labrador; do. Newfoundland; do. Brazil; do. Bahama Bank; do. Mississippi; do. Coast Guayana; do. Atlantic or Western Ocean; do. South Atlantic Ocean; do. West Indies; do. Long Island Sound; do. Nautical Almanacs; with every article useful at sea.

March, 1822

PARKINSON & FRODSHAM,

CHRONOMETER MAKERS

To the Right Honourable the Lords Commissioners of the Admiralty, and Hon. East India Company Service,

No. 4 'Change Alley, opposite the South Gate, Royal Exchange,

LONDON.

NORTH-WEST POLAR EXPEDITIONS.

The object of the above expeditions being as much for the promoting of science as geographical discovery, they were furnished with the best and most useful instruments for that purpose, including a number of CHRONOMETERS, by the most eminent makers.

Considering it an excellent opportunity of entering into a PUBLIC TRIAL, we memorialized the Board of Admiralty to allow us to send one for that purpose. On the return of CAPT. ROSS, it was reported as the best, and purchased by government for its excellence, although two of the makers had received rewards of £3000 each. On the determination of government to send out CAPT. PARRY, we applied a second time, and sent three others at our risk, with the former one. These have decidedly established the superiority of our machines, as on returning to Leith Roads, after an absence of eighteen months, by comparison at Calton Hill Observatory, the greatest error was seven seconds in time, and the mean of four under two seconds, being much less error than any Chronometers for which PUBLIC REWARDS have been bestowed, and in more severe trials, the greater part being in the Polar Seas, and in a temperature of 50° below zero. For a more particular account, see Capt. Parry's Voyage to the Arctic Regions.

"The number of Chronometers embarked in the expedition amounted, altogether, to fourteen. No. 328, of Messrs. Parkinson & Frodsham, had been sent on trial in the voyage of discovery to Baffin's Bay, 1818, at the risk of its makers, whose property it then was. A favourable report having been made, on return, of its going, the Admiralty were pleased to order its purchase for the public service. In consequence of such encouragement, Messrs. Parkinson & Frodsham determined to send three chronometers on trial on the present occasion; accordingly, their No. 253 and 254 were delivered to Capt. Sabine in the beginning of April, 1819, and No. 259, a few days before the expedition sailed."

"In table No. 3 is shown the daily rate of the remaining of the Hecla's complement on mean Greenwich time, as shown each day at noon, by 259, with its correction applied to its rate and original difference.

"No. 259 has been selected for this purpose, because it is believed to have preserved the most steady and uniform rate throughout the season. This fact may be examined by a reference to the table closing the abstract of latitudes and longitudes determined in 1819, in which the daily longitude by each chronometer is shown separately, as well as by their mean. It is considered to afford a presumption of remarkable steadiness.

"The occasional stoppage of some chronometers, and the irregularity of others, show that, notwithstanding the precautions that were adopted, the cold which was experienced was greater than they were prepared to meet.

"The chronometers of Messrs. Parkinson and Frodsham appear to have been better prepared for the peculiar service on which they were employed than any other of the chronometers. No instance occurred of any one of them being stopped by the cold."

"On due examination of the going of the chronometers at Melville Island, exhibited in table 5, it was apparent that the four of Messrs. Parkinson & Frodsham's were principally to be relied on in the determination of longitude in the ensuing season."

"Their actual differences, ascertained by comparison at Calton Hill, being divided by 4, (the number of the chronometers) gives 1.813 fast, as the error of the Greenwich time, shown by the chronometers at the end of 104 days, on being allowed the average daily rates at which they had gone for the three months preceding the period.

"The longitude of the western parts of Melville Island, and of a considerable portion of the western coast of Baffin's Bay and Davis's Straits, which were surveyed in the season of 1820, have been accordingly determined by the mean of these four chronometers, being the rates. Table 7, containing a statement of their daily going in time since their return to London. The materials of their statement have been furnished by the makers, who had not received any intimation of the previous rate.

"Admirably as these chronometers have fulfilled the purpose for which they were employed, it is an additional satisfaction to find, that notwithstanding the change of circumstances attendant on their disembarkation and replacement in their maker's care, they are still retaining, almost without exception, their Melville Island rates."

It would almost be impossible to give higher testimony to the excellence of chronometers than is given here; and the Lords of the Admiralty were so convinced of their merits, that they purchased all of Messrs. Parkinson & Frodsham's, except No. 259, which

the officers purchased for Captain Parry, and presented to him, as a testimony of their esteem and respect for their commander.

From what has been advanced, it is presumed that the title of this article is rationally proved, and that to every purpose, in the hands of the careful and intelligent navigator, by such means as is here pointed out, the longitude is found, to an exactness and precision in all respects sufficient for the purposes of navigation.

WILLIAM DAVENPORT,

Mathematical, Optical, and Philosophical Instrument Maker.

No. 25 South Front-street, Philadelphia,

Has constantly on hand a general assortment of Mathematical and Philosophical Instruments, of the best quality, (warranted) comprising articles of almost every description in the Mathematical line, viz. Sextants of ebony and metal, with silver, brass, and ivory arches; Quadrants, with and without tangent and vertical screws; Day and Night Telescopes, with and without brass shades; and Telescopes of every description; Azimuth, Amplitude, Storm, Brass and Wood Binnacle, Hanging and Pocket Compasses; Binnacle Lamps; Time Glasses of every quality; Thermometers; Marine Barometers; Scales and Dividers; Parallel Rules; Protracters; Cases Instruments, &c. &c.

A very extensive assortment of the latest and most improved Charts and Pilots for every part of the world, among which are, Blunt's Chart of the Coast of North America, on 15 sheets; do. Western Ocean, extending from the equator to the North Cape; do. Coast of Labrador; do. Newfoundland and Gulf St. Lawrence; do. Long-Island Sound; do. West Indies; do. American Coast Pilot; do. Seamanship and Naval Tactics; do. Nautical Almanacs; Ship Master's Assistant; together with every Nautical Publication of merit, and a general assortment of Stationary.

Sextants, Quadrants, Compasses, Time Glasses, and other instruments, cleaned and repaired at the shortest notice, and on the most reasonable terms.

March, 1822.

HUSSEY & ALLEN,

Head of Rotch's Wharf, New-Bedford,

OFFER FOR SALE IN THE

Ship Chandlery and Grocery Line,

THE FOLLOWING ARTICLES—VIZ.

Sextants, quadrants, spy-glasses, charts, compasses, copper binnacle lamps, hand and log lines, marlines, twine, time glasses of every kind, bunting, scrubbing brushes, scrapers, flesh forks and ladles, stew pans, pump tacks, copper tacks, sheathing paper, sheathing nails, coopers' anvils, vises, adzes, dividers, and bitts; blacksmith's anvils, vises, and bellows; hand saws, wood saws; Cam's cast steel gouges, chisels, and plane irons; trunk locks and handles, padlocks, chest locks and hinges, butt hinges and screws, charley forest stones, sand stones, oil stones, scythe stones, hones, axes, hatchets, hammers, copper ladles, iron ladles, signal lanterns, horn ditto, cook's ditto, deck lights, gimlets, (all sizes) bung-borers, tap-borers, hand-pumps, wrought nails, (all kinds) cut nails, (all kinds) cut and wrought brads, scupper nails, boat clinch nails, ditto timber ditto, ditto shingle ditto, files, (all sizes) rasps, (all sizes) log paper, log glasses, palm irons, thimbles, marking irons, marline spikes, boat-hooks, can-hooks, saw-sets, nippers, spoke shaves, butcher knives and steels, bread knives, pocket knives, pen-knives, brass and japanned lamps, brimstone, sail needles, cordage, shaving boxes, ditto soap, razors, square and round-pointed shovels, frying-pans, lampblack, crosscut saws, English, German, and cast steel drawing knives, common ditto, powder and shot, blank journals, slates and pencils, black lead pencils, red do. ditto, patent cocks, brass ditto, hollow ware, tin ware, molasses, sugar, coffee, tea, pearlash, pepper, ginger, alspice, cloves, nutmegs, cassia, hops, lump and loaf sugar, vinegar, rice, tobacco, (manufactured) ditto leaf, ditto cut smoking, Spanish segars, American ditto, cherutes, sperm, elephant, and neatsfoot oils, figs, raisins, prunes, filberts, almonds, walnuts.

March, 1822.

HARRISON GRAY,

BOOKSELLER AND STATIONER,

No. 7 Exchange Buildings, PORTSMOUTH, New-Hampshire,

Keeps constantly for sale, a complete assortment of Charts, Nautical Almanacs, and Stationary

March, 1822.

GEDNEY KING,

MATHEMATICAL INSTRUMENT MAKER,

No. 29

State-Street, between Kilby and Broad-Streets, BOSTON,

Has constantly for sale, wholesale and retail, a general assortment of Mathematical and Philosophical Instruments, of the best quality, (warranted) comprising articles of almost every description in the mathematical line, viz. Sextants of ebony and metal, with silver, brass, and ivory arches; Quadrants, with and without tangent and vertical screws; Day and Night Telescopes, with and without brass shades: and Telescopes of every description; Azimuth, Amplitude, Storm, Brass and Wood Binnacle, Hanging, and Pocket Compasses; Binnacle Lamps, Time Glasses of every quality; Thermometers, Marine Barometers, Scales and Dividers, Parallel Rules, Protracters, Cases Instruments, &c. &c.

Bowditch's Practical Navigator, Blunt's American Coast Pilot, do. Seamanship and Naval Tactics, do. Nautical Almanacs, do. Ship Master's Assistant—together with every Nautical Publication of merit.

Sextants, Quadrants, Compasses, Time Glasses, and other instruments, cleaned and repaired at the shortest notice, and on the most reasonable terms. May, 1822.

JOSEPH CLARK,

BLOCK AND PUMP-MAKER,

Bray's wharf, Second north of Long-wharf, Boston.

Keeps constantly on hand a complete assortment of well-season'd Blocks, Deadeyes, &c ALSO, Mast-Hoops, Gibb-Hanks, Handspikes, Wood Hand Pumps, and every article usually found in Block and Pump-Makers line.

House and Ship Pumps made and repaired, and at short notice. And all orders strictly attended to on as reasonable terms as any where in Boston. April, 1822.

J. M. ELFORD'S

CHART AND MATHEMATICAL STORE,

No. 119 East Bay, sign of the Quadrant, CHARLESTON, S. C.

OLD ESTABLISHED STAND.

FOR SALE—Charts, Nautical Books, and Mathematical Instruments of every description. Compasses, Quadrants, Spy-Glasses, &c. repaired and for sale. Chronometers rated.

Published and for sale, J. M. Elford's LONGITUDE TABLES, being the shortest and most simple method of working Lunar Observations of any in practice. Elford's Circular POLAR TABLES, for finding the Latitude at any time of night by an Altitude of the Polar Star. Elford's Universal and Perpetual Circular TIDE TABLE, for finding the time of High Water every day in the year, at all the principal places in the world, by inspection or at sight. Also—The UNIVERSAL SIGNAL BOOK, with Improvements, by J. M. Elford.

NAVIGATION taught in all its branches, including Astronomical and Lunar Observations.

N. B. An *EVENING SCHOOL* from 6 till 9—and private lessons given upon Lunar Observations at intervals. May, 1822.

CHRONOMETERS.

JAMES LADD,

No. 240 Pearl-street, corner of Burling Slip, New-York, has for sale, CHRONOMETERS of the most approved makers; whose daily rate of going is well ascertained by actual observation.

Chronometers adjusted and repaired, and all kinds of Watches.

N. B. Gold and Silver Watches, Chains, Seals, and Keys, Silver Tea Sets, Table and Tea Spoons.

Gold and Silver articles made to order. May, 1822.

BOOKS.

SAMUEL T. ARMSTRONG, has for sale at No. 50, Cornhill, Boston, a very large assortment of good Books at reasonable prices, among which are,

Blunt's American Coast Pilot, 10th edition.—Bowditch's Navigator, 5th edition.

Nautical Almanacs, Seaman's Journals.

Paper, Quills, Slates, Pencils, Pocket Books, Knives, &c.

ISAAC W. GOODRICH,

STATIONER,

No. 76 State-street——Boston, (Mass.)

Has for sale, Ledgers, Journals, Cash, Sales, Invoice, and Letter Books, ruled and bound, in the neatest manner; Paper, warranted of the very first quality, prices low; English, Italian, and American writing papers; Letter, do.; Dutch, English, and American Quills; Ink powder; Wax, Wafers; Red and Black Ink; Penknives, of Rodgers' manufacture, 150 different patterns, one to eight blades, 12 cents to $5 each: John Barber's Old English razors, warranted good, or money returned; Emerson's Razor-Strops, superior to any in use; Playing Cards, by groce, dozen, or single pack, at manufacturers' prices; Day & Martin's Real Japan Liquid Blacking, by cask, dozen, or single jug; Bowditch's new edition Navigator; American Coast Pilots; Nautical Almanacs; Ready Calculators; Sailor's Physician—this last book every seaman ought to possess; Seaman's Journals, printed forms, any size or thickness, bound.

Merchants will always find a complete assortment of blanks, such as Checks, Bills Lading, Entries, Manifests, Shipping Papers, &c. &c. Charts and Account Books, in sets, ruled and bound to any pattern. Old books re-bound.

I. W. G. has a manufactory of *Calf-Skin Pocket Books*, and can furnish them in a style superior to any manufactured in the United States, and as low. Purchasers are invited to call and examine for themselves.

*** Sea-faring persons can be supplied with Stationary, Nautical Books and Charts, by sending their orders, and on as good terms as can be purchased for in Boston. Store open till 9 o'clock evenings. Goods sent to any part of the town, gratis.

April, 1822.

UMBRELLA AND PARASOL MANUFACTORY,

236 *Pearl-street, directly opposite Beekman-street, New-York.*

Merchants, Shippers, agents and others, interested in the Southern trade, are respectfully informed, that the subscriber (who is a regular Manufacturer,) has on hand a complete assortment of *UMBRELLAS* and *PARASOLS*, embracing a fanciful and elegant variety of seasonable articles, suited not only to the above, but also to the Spanish Market. From the long experience in business and the general satisfaction that he has given to those who have honoured him with their commands, he indulges a belief that those who deal in the above goods, will find his assortment at all times equal, if not superior, to any offered for sale in this country, all which he will dispose of Wholesale or Retail, at a small advance for cash or approved paper.

May, 1822. SAMUEL REDMOND.