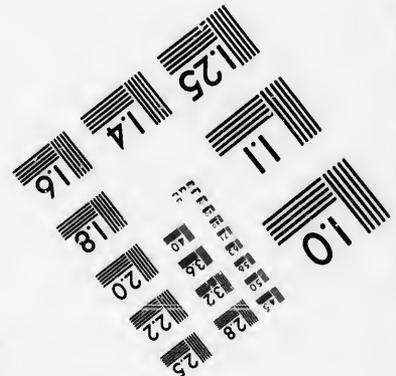
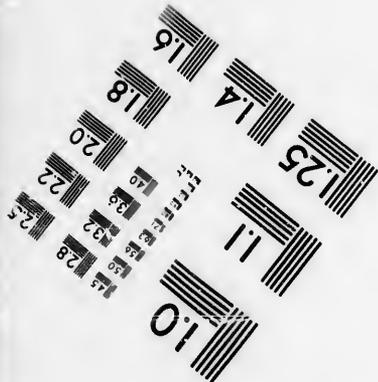
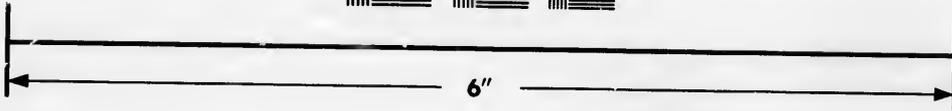
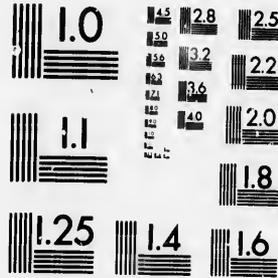


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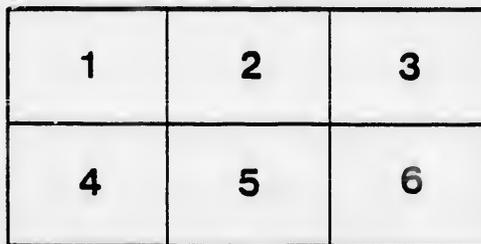
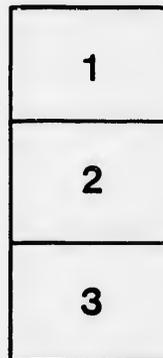
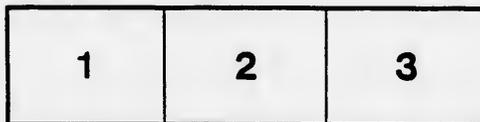
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GEORGIAN BAY

AND

NORTH CHANNEL PILOT

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TO THE
GEORGIAN BAY AND NORTH CHANNEL PILOT.

The following directions written by Staff Commander J. G. Boulton, R.N., under the orders of the Government of the Dominion of Canada, form the first seven chapters of the "Georgian Bay and North Channel Pilot," and are to be read in connection with the Admiralty Charts bearing the same titles as the chapters.

They cancel all pamphlets on the same subject hitherto written.

For a more detailed description of the light-houses, see List of Lights and Fog Signals published yearly by the Department of Marine.

Seamen are invited to transmit to this Department any errors or omissions they may detect in this work.

MARINE DEPARTMENT, OTTAWA, }
April, 1892. }

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GEORGIAN BAY AND NORTH CHANNEL PILOT.

CHAPTER I.

CABOT HEAD TO CAPE SMITH, AND ENTRANCE TO GEORGIAN BAY.—(CHART 906.)

VARIATION 4° WEST.

CABOT HEAD may be easily identified by its three limestone cliffs, known as Boulder, Middle and West bluffs, the last of which is 310 feet in height. The eastern one derives its name from the huge moss-covered stone, near the edge.

Wingfield Basin is the name given to a circular, well sheltered harbour, a quarter of a mile in diameter, with a depth of 12 to 21 feet over mud and rock, and situated between Boulder and Middle bluffs. The entrance, 350 feet wide, is obstructed by a bar of stones, over which is a depth of 5 feet. The width of this bar is about 80 yards, with deep water close to its northern side. The shallowness of this bar prevents its being available to any but fishing boats, but could the stones be removed to a depth of 18 feet it would be a valuable harbour of refuge for shipping generally.

Cabot head shoal, with $4\frac{1}{2}$ fathoms water, is the shallowest part of a rocky bank, extending from the entrance of Wingfield Basin, in a north-easterly direction, for $1\frac{1}{2}$ miles.

Rocky bay is situated $1\frac{1}{4}$ miles westward of West bluff, and derives its name from the shoal water, which extends 500 yards from the beach, with a depth of 9 feet.

Loaf rock is the name given to an immense block of stone, 50 feet high, lying at the water's edge, 2 miles eastward from Cave point. A conspicuous land-slide on the face of the cliff is situated nearly midway between Rocky bay and Loaf rock.

Cave point, so called from the number of small caverns in its cliffy face, is 140 feet high, presenting the most conspicuous coast feature between Cabot head and Tobermory. Nearly one mile westward of Cave point occurs another white patch in the face of the cliff.

Overhanging point is the name given to a cliff with a projecting apex, 90 feet high, 2 miles westward of Cave point. The water is especially deep close to this part of the coast, there being a depth of 80 to 90 fathoms at half a mile, and 40 fathoms 200 yards from the shore.

Driftwood, and **Little coves** are situated 2 and $3\frac{1}{2}$ miles respectively westward from Overhanging point, affording shelter for boats in westerly weather.

Dunks bay is divided into two parts, each of which contains shelter from west and north-west winds, in from 4 to 7 fathoms over sand. The bottom of the northern arm is distant half a mile from Tobermory harbour.

Dunks point is the name given to the north-west point of Dunks bay. It consists of two small islets, just separated from the main shore, and from them rocks extend north-eastward 100 yards. This point marks the western termination of the deeper water of Georgian bay. For nearly two-thirds of a mile west of this point, the shore is fringed with low, dry rocks, but which are steep-to.

North point forms the north-east entrance point of Tobermory harbour, and is steep-to on its north and west sides.*

TOBERMORY HARBOUR, as it is now generally called, is situated at the north-west extremity of the Sangeen peninsula, and contains perfect shelter from all winds. It consists of Eastern and South-west arms; the latter extending from Lighthouse point W. by S. $\frac{1}{2}$ S., 900 yards, with an average breadth of 100 yards. The low limestone shore sinks down almost perpendicularly to 7 or 8 fathoms, which depth, over soft mud, will be found all over this arm, excepting near the bottom, whence a muddy flat extends 120 yards to a depth of 18 feet.

The harbour being too narrow for vessels to lie at single anchor conveniently, they are compelled to make fast to the shores, to facilitate which the Government has had ring-bolts sunk into the rocks.

The narrowness of this arm, together with the prevalent westerly winds, render it difficult for a sailing vessel to get far in, but by keeping on a good press of sail she may fore-reach sufficiently far, to get temporary shelter, warping further up if so desirable.

Eastern arm.—From North point, shoal water extends 70 yards south-westward, and thence to Rixon rock in Shoal bight; vessels proceeding to Eastern arm should therefore give it the necessary berth.

* See plan on chart 906.

Middle Point is the name given to the land dividing the two arms, and on the eastern side of it is an indentation known as Fisherman cove. From this cove, shoal water extends half way across Eastern arm, but may be avoided by keeping the eastern shore on board.

LIGHT.—On the south-east extreme of Lighthouse point is erected a white hexagonal tower, which from an elevation of 40 feet above the water, exhibits a *fixed red* light, visible 8 miles.

As there are no dangers in the approach to Tobermory harbour, it may, when the light is visible, be approached with confidence day or night.

Storm Drum.—Tobermory being in telegraphic communication with Toronto, cautionary storm signals are displayed from a mast erected at Eastern arm.

BEAR'S RUMP is the name given to an island having somewhat the outline of that animal. Its north-east end is faced by a steep cliff 80 feet high, the summit of the island being considerably higher. The south-west side is low, and from it extends for a quarter of a mile, a reef known as

Bear's Rump shoal.—To pass south of this reef keep Cove island lighthouse shut in with the north end of Flower-pot island,—an especially good mark at night. With the wind scant from the southward, a sailing vessel may edge along the south side of this shoal, as long as Echo island is behind Flower-pot island, but on the first appearance of the former she should tack. The north-west side of Doctor island, touching the east side of Middle island, W.S.W., leads south-eastward of this shoal; and to pass north-westward of it keep the same part of Doctor island in one with the south-east side of Flower-pot island, S.W. by W $\frac{1}{2}$ W.

FLOWER-POT ISLAND derives its name from two remarkable isolated rocks, 250 yards apart, close to the east shore. The northern and taller one is about 50 feet in height, and both being much eroded at the bases, with a few small trees on their summits, much resemble gigantic flower-pots. They will probably, at no distant day, be undermined by the action of the waves, and suffer the fate of the third, which fell a few years ago.

The Castle is the name given to a detached clifty portion of this island at its north-east extremity, elevated 200 feet. A spit runs off the south point of the island for a distance of 200 yards, and a bar of rocks lies across the mouth of Beachy cove, on the south-east side of Flower-pot island. Elsewhere, the island may be approached to 100 yards, and in some places nearer.

Middle island, small and round, lies between Flower-pot island and Tobermory harbour, and is steep-to, on all sides.

Echo island, 140 feet high, situated $1\frac{3}{4}$ miles westward of Flower-pot island, has the same character.

Otter islands are separated from North-east point of Cove island by Otter island channel, which has deep water, with the exception of a small rock with 10 feet on it, lying 100 yards westward of North Otter, and nearly 200 yards northward from its south-west extreme. To pass through this channel, keep the east side of the Echo island in line with the north-west extreme of North Otter island, N.E.

Between the two Otter islands themselves, 18 feet can be carried by keeping the north-west fall of Flower-pot island, E. by N. $\frac{1}{2}$ N., in line with the south-east point of North Otter island (trees, not the shore). This mark leads close to the north extreme of South Otter in order to avoid the spit from the south-west point of North Otter island.

The remaining shores of Otter islands are steep-to. The south-east side of Cove island from North-east point, is fringed with low dry rocks, and some just covered, as far as the Gut into Cove island harbour. This fringe extends 100 yards from the shore, but is steep-to.

The Gut, through which a boat may carry 5 feet water, is the name given to a break in the shore 30 feet wide, communicating with Cove island harbour.

A rock, with 12 feet on it, lies 150 yards off the Gut, to clear which, keep the channel between North and South Otter islands closed. Hence to Turning island the shore is bold-to.

Doctor island, lying between the north extreme of Russel island and Tobermory harbour, has deep water close to all but its north-east side, whence a reef extends 100 yards.

Russel island is the largest of the three islands which lie between the Saugeen peninsula and Cove island. The passage between it and Doctor island is good, with the exception of a rock with 12 feet water on it, lying 200 yards off a projecting point in the middle of the south-east side of Russel island. This shoal may be avoided by keeping the east side of Flower-pot island closed with the west side of Doctor island. The north side of Russel island is steep-to, but from the two islets which form the western extreme a dangerous ledge of rock extends, named

Russel reef.—This reef runs off from the islets above mentioned in a westerly direction 800 yards, with depths from 6 to 18 feet. To clear the north side of it keep Dunks point in sight north of Russel island, E. $\frac{3}{4}$ S., and to pass westward of it keep the east sides of Otter islands touching N. E. On the east side of Russel island, is a well sheltered cove having a depth of 6 feet.

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Devil Island is the south-westernmost of the three islands before mentioned, and is surrounded by shoal water, leaving no passage for a vessel of any draught between it and Russel island.

Devil island bank is the name given to this extensive area of shoal water stretching off to the west-north-west for a distance of 800 yards, where there is a depth of 12 feet called the Spur. The bank extends 400 yards to the southward of the island with less than 6 feet water, and to the eastward it continues over three-quarters of a mile, with less than 18 feet water, and in some places dry.

Earl's patches is the name given to two spots, with 5 feet of water over them, occupying the eastern portion of Devil island bank. A vessel may pass eastward of these patches and the whole of the bank, by keeping the centre of Doctor island under the middle of Flower-pot island, N. E. $\frac{1}{4}$ E. The shore of the Saugeen peninsula, at three-quarters of a mile westward from Lighthouse point, takes a turn to the south-ward for one-third of a mile to Wreck point.

China reef extends in a south-west direction half a mile from Wreck point, with from 5 to 12 feet water over it, and narrowing the channel between it and the east edge of Devil island bank to 200 yards. The last mentioned range leads westward of this reef. From Wreck point, the coast trends in a south-easterly direction one-third of a mile, to the bottom of a small rocky indentation called China cove.

Bonnet island, so named from its clump of dark coloured trees, somewhat resembling a plume, is small, and with the point close off which it lies, divides China cove on the north from Ragged bight on the south.

Ragged bight is three-quarters of a mile long, about as broad, and full of sunken rocks. There is, however, between them, deeper water, through which a fishing boat may pick her way to two well sheltered narrow coves on the south shore.

Long point is the name given to a reef 2 feet above water, lying on the south side of the mouth of Ragged bight. Between the shoal water off this reef and that from Bonnet island there is a channel of 12 feet into Ragged bight. West, one-third of a mile from Long point, is a rock with 12 feet water on it. From Long point, the shore trends south-westerly $1\frac{1}{2}$ miles to cape Hurd, with shoal water extending from it an average distance of a quarter of a mile; to pass westward of which, keep the centre of Doctor island in line with the middle of Flower-pot island, N. E. $\frac{1}{4}$ E. (See page 10).

CAPE HURD, the west extremity of the Saugeen peninsula, is low, flat, and covered with small timber. Between Cape Hurd and Cove island there are four channels which may be navigated in the daytime with fine weather; directions for taking which will be found further on.

Turning Island is the most southerly part of the broken up portion of Cove island.

Two rocks, with 6 and 10 feet water over them, lie respectively W. $\frac{1}{4}$ N. 650 yards, and W. $\frac{3}{4}$ S., 400 yards from the south point of Turning island. To pass east and south of these rocks, keep the south extremity of South Otter island open south of Turning island, E. by N. $\frac{1}{4}$ N., in conjunction with White rock midway between the south end of Russel island and the north extreme of Devil Island, S. E. by S.

A rock, with 15 feet water over it, lies W. $\frac{1}{2}$ S., distant half a mile from the south point of Turing island.

White rock, so called from a collection of small white boulders on its summit, is 3 feet high, and has deep water close to it on all but its south-west side, whence a rocky spit makes off 150 yards.

Green Field is the name given to a circular reef, with 3 feet water on it, 200 yards in diameter, and situated S. $\frac{3}{4}$ W., nearly 600 yards from Turning island. To pass north of this shoal, keep the inner part of North point of Tobermory harbour in line with the north side of Russel island, E. S. E.; the east side of Echo island in line with the north west side of North Otter island, N. E., leads east.

Dunks point, in line with the north end of Russel island, E. $\frac{3}{4}$ S., leads both south of this shoal and White rock spit, but across a patch with 21 feet over it. There is deep water between Green Field and White rock.

Harbour island, round and conspicuous, is situated N. W. $\frac{1}{2}$ N., a little over half a mile from Turning island, and between them the shore is foul.

Harbour island reef, with 2 feet water over it, extends from this island in a north-westerly direction 500 yards.

Cove island harbour, the entrance to which bears due East 800 yards from Harbour island, is 350 yards long by 200 broad; 12 feet water may be carried in, and perfectly sheltered anchorage had, in from 15 to 18 feet, muddy bottom.

The approach is not inviting to strangers, on account of Harbour island reef and the shoal water which nearly meets it from Channel point, on Cove island.

Between these reefs, however, there is a passage 100 yards in width, through which 4 fathoms may be carried, by steering for Boat Passage just open, E. $\frac{1}{4}$ S., until the south end of Russel island is a little northward of the south and bare point of Turning island, S. E. by S. This range should be kept, with a least depth of 15 feet, until White rock is seen east of Harbour island. The shoal water will now be passed, and the entrance to the harbour steered for, keeping midway between the land on either side. Upon arriving at the narrows, keep in the middle

until the harbour begins to open, when to avoid a rocky spit with 9 feet water on the starboard hand, keep sufficiently near the north-west shore as to close Bar point.

Boat Passage is the name given to a narrow channel separating the group of islands containing the harbour from the main portion of Cove island.

South-west shore of Cove island.—This coast from Harbour island to Gat point (the narrow west extreme of Cove island,) is broken up into a number of bights and small islands, fringed with shoal water for a distance of 400 yards.

Gat point rock, with depths on it varying from 4 to 15 feet, extends S.S.W., one-third of a mile from the point of that name. A patch with 15 feet of water on it is situated S. by W. half a mile from Gat point. To pass westward of both these shoals, keep the whole of Yeo island open westward of Lucas island; and to lead southward of it, keep the north extreme of Russel island in line with the south end of Turning island, bearing S.E. by E. $\frac{1}{2}$ E. The outlying dangerous reefs between Gat point of Cove island and cape Hurd, with the four channels between them, will now be described.

North-west bank is the nearest to Cove island, being $1\frac{1}{2}$ miles long, east and west, by one mile in breadth, with depths on it varying from 7 to 15 feet. Its eastern extreme bears W. by N., and is distant half a mile from White rock.

Dunk's point touching the south side of Turning island E. by S. $\frac{1}{2}$ S., leads north of this bank. The summit of Lucas island, in line with the south-west extreme of Cove island (Gat point), N. $\frac{3}{4}$ E., leads westward of it.

North channel is the name given to the passage between north-west bank and Cove island, and if the directions now given are exactly followed, very good water may be carried through it; but on account of several isolated patches with 15 to 21 feet of water on them, one range only will not suffice to take a vessel in, unless she be of very light draught. These huge lumps of rock are situated between the eastern edge of north-west bank and Turning island, rising abruptly from the bottom, with deep water between them.

Directions for taking North channel from the westward:—When approaching Gat point of Cove island bring the north end of Russel island in line with the south extreme of Turning island, bearing S. E. by E. $\frac{1}{2}$ E. Keep this range on, which will lead south of Gat point shoals and north of North-west bank, until White rock comes exactly half way between the south end of Russel island and the north point of Devil island, S. E. by S.

Steer now for White rock on this range, until the south end of South Otter island appears in sight south-east of Turning island, E. by N. $\frac{1}{4}$ N., when a vessel may haul eastward into the bay.

Middle bank, on the eastern portion of which there are only 4 inches of water, lies south-eastward of North-west bank, being separated therefrom by a passage 200 yards broad, known as MacGregor channel. Middle bank is $1\frac{1}{4}$ miles long, W.N.W. and E.S.E., by three-quarters of a mile wide.

Directions for MacGregor channel:—This channel has 6 fathoms least water in it, and may be taken from lake Huron, by bringing White rock exactly under the centre of that part of Flower-pot island which is visible clear of South Otter island E. by N. $\frac{1}{2}$ N. This leading mark should be kept on, until Dunks point appears in line with the north side of Russel island.

The latter range will lead a vessel of light draught eastward into the bay; but as it crosses a patch with 21 feet on it, lying south, 400 yards from White rock, Dunks point should, as soon as seen, be again closed until this patch is passed, when it may be again opened, or kept in line with the north end of Russel island, E. $\frac{3}{4}$ S., to lead north of Russel reef Or, the White rock and Flower-pot range may be continued passing *westward* of White rock and its spit, by giving it a berth of 200 yards.

South-west bank is somewhat oval shaped, with its greatest diameter one mile in length, north and south. It has depths on it varying from 9 to 18 feet. Owing to the remarkably uneven character of the rocky bottom of this and all the other large reefs in this neighbourhood, and hence the possibility of there being in some places less water than here given, they should not be crossed by the smallest craft (fishing boats excepted), for in the event of a vessel grounding she would probably remain, owing to the almost daily prevalence of south-westerly winds and consequent sea.

South-west bank is separated from Middle bank by a channel having a depth of from 6 to 9 fathoms, and 500 yards wide in its narrowest part; but from the absence of any conveniently situated, conspicuous, natural features on the Sangeen shore, no leading mark can be given to guide a vessel through. The same remark applies to what is practically a continuation of this channel, viz.:—the deep water separating Devil island and South-east banks. North and south entrance points of Tobermory harbour in line, E. by N. $\frac{3}{4}$ N., lead to Devil island channel, southward of south-west bank.

Devil island channel is the name given to the passage separating Middle and South-west banks on the west from Devil island and South-east banks on the east.

Directions for Devil island channel:—In taking this channel from lake Huron, and from the south-westward, Baptist island (situated about $1\frac{1}{2}$ miles south-eastward of cape Hurd) should be kept closed with the point near which it lies, S. E. by E. $\frac{1}{2}$ E., until the south-east sides of Otter islands are in a line, bearing N. E., when they may be steered for on that range. As the Otter islands are close together, and much alike in shape and colour, it is worthy of note that when on the necessary range a single tree on the east extremity of North Otter becomes conspicuous.

Just before the north-west extremity of the Saugeen peninsula comes in line with the south side of Russel island the North Otter should be closed a little, to pass rather further westward of the Spur than this leading mark would do, although it does not pass over less than 5 fathoms if continued. When the inner side of North point of Tobermory harbour is in line with the south end of Russel island, the Spur is passed. The channel leading-mark should, however, be kept on, to lead westward of Russel reef, until Dunks point appears in sight north of Russel island, when a vessel may haul to the eastward.

South-east bank is the name given to a large area of shoal water lying southward and separated from Devil island bank by deep water. This bank, with only 3 feet water on it in places, is $1\frac{1}{2}$ miles long, north and south, being connected with the shoal water on the Saugeen shore by a disjointed bar of rocky patches, over which not more than 16 feet water can be relied on, when taking the channel now to be described.*

Directions for cape Hurd channel.—Between South-east and Devil island banks on the west, and the shoal water extending from the Saugeen peninsula on the east, there is a passage through which not less than 16 feet water may be carried.*

In taking this channel from the south-westward, Baptist island (before alluded to) should be kept closed with the point near which it lies, S. E. by E $\frac{1}{2}$ E., until the centre of Doctor island is in line with the middle of that portion of Flower-pot island seen clear of the Saugeen peninsula, N. E. $\frac{1}{2}$ E.

When the marks are *exactly* on, the highest tree on Doctor island will fit into the hollow near the middle of Flower-pot island, and a small portion of the latter will be behind the north-west extreme of the Saugeen peninsula.

Proceed past cape Hurd with this leading mark on, reducing speed and keeping the lead going. When one mile past cape Hurd the water will deepen to 6 or 7 fathoms. As soon as Gat point of Cove island comes in line with the south side of Devil island a vessel should haul to the west-

* It should be borne in mind that the depths herein given are for *mean water*. In the autumn of 1831 the water was fully two feet lower.

ward, to bring the same part of Doctor island under the centre of the *whole* of Flower-pot island, in order to lead more fairly between China reef and Earl's patches.

When Gat point touches the south side of Russel island, N. W. $\frac{1}{2}$ N., these dangers will be passed, and Doctor island may be left on either side. To lead westward of the whole of the shoal water lying between cape Hurd and Gat point of Cove island, keep the summit of Lucas island in line with, or open west of Gat point, N. $\frac{3}{4}$ E.

In thick weather, or at night, these reefs should not be approached to a less depth than 20 fathoms.

North-east shore of Cove island.—In marked contrast to the lake Huron side of this island, the former is entirely free from dangers.

Tecumseh cove is the name given to a snug little cove with a depth of 5 fathoms over clay, and situated three-quarters of a mile westward from North-east point. Either in this cove, or in the mouth of it, a small steamer may find temporary shelter from south-east to northerly winds, through west.

Eagle cove is the next small bay northward of Tecumseh cove.

Eagle point, bluff and steep-to, is situated half way between North Otter island and Cove island lighthouse. In the large bight formed between Eagle point and North Otter island sailing vessels may find shelter from southerly and westerly winds in 16 fathoms sand and mud, half a mile from shore. A sailing vessel should not anchor nearer Cove island than this distance, so that in the event of a shift of wind to the northward—a common occurrence—she may have good room wherewith to get under weigh; more especially as the water does not materially lessen its depth until within 200 yards from this shore. This remark applies equally to the soundings between Eagle point and Cove island lighthouse.

A very small boat cove, having $1\frac{1}{2}$ feet of water through a narrow entrance, is situated rather more than half a mile southward from the lighthouse.

LIGHT.—Cove island lighthouse stands upon the north-east extreme of Gig point, the north extremity of Cove island. The stone tower is circular shaped, coloured white, 85 feet high, and at the height of 90 feet above the water shews a *white flashing* light, visible 15 miles. The duration of the flash is *seven seconds*, and interval of darkness the same period.

Fog horn.—A steam fog horn giving blasts of *ten seconds duration* at intervals of 110 seconds between the blasts, stands about 200 yards westward of the lighthouse. North-eastward, 200 yards from the lighthouse, is a small rock, 2 feet high, which, as well as the remainder of Gig point, may be approached to 100 yards.

North-west shore of Cove island.—This shore, between Gig and Gat points, is fairly bold-to, being at the same time fronted by a large bank, known as Cove island ground, with depths varying from 5 to 10 fathoms, rocky bottom, and on which a sailing vessel might in calm thick weather find it convenient to drop a kedge. The lighthouse kept well open of Gat point, lends north-westward of the shoal water extending in a south-westerly direction, 300 yards from Gat point.

GREAT BARRIER.—Snake island is the name given to a narrow ridge of small boulders, elevated 5 feet above the bay, and forming the south-eastern terminus of an extensive rocky bank on the Georgian bay side of the entrance known as Great Barrier.

This narrow, dry ridge, called Snake island, is nearly 600 yards long, the south-east end being bare and white, while the opposite extreme has upon two conspicuous bushes. Scattered dry stones lie north-westward of the latter, a distance of 350 yards.

Snake island bank, under the depth of 18 feet, extends westward nearly one mile from this bare end of Snake island, with an average breadth of a little over one-third of a mile.

Confiance rock, with 18 feet water over it, lies with its nearest part distant 500 yards W.S.W. from the west extreme of Snake island bank. This shoal is rather more than one-third of a mile long, north-west and south-east, and 600 yards broad. The old chart gave us little as 13 feet upon this patch, but a close examination failed to discover anything so shallow.

The fall of Cabot head in the line with the south extreme of Bear's Rump, S. E. by E. $\frac{3}{4}$ E., leads south of Confiance rock. The south-west end of Fitzwilliam island in one with the north-east side of Yeo island, N. W. $\frac{1}{2}$ N., leads across the south end of it, with not less than 23 feet water.

White shingle is the name given to a collection of stones formerly 2 or 3 feet above, but now covered by one foot water. The centre bears from Cove island lighthouse N. E. by E. $\frac{3}{4}$ E., distant nearly $3\frac{1}{2}$ miles, and under the depth of 4 feet it is 500 yards long, N. N. W. and S. S. E. At this distance, due East from its centre, is another shoal spot with 5 feet over it.

The whole of White shingle bank under the depth of 12 feet is nearly half a mile long, east and west, by half that distance in breadth. A vessel may stand towards this bank, and to the whole of the Great Barrier from the south-westward, until the south-west extremity of Fitzwilliam island is in line with the north-east extreme of Yeo island, bearing N.W. $\frac{1}{2}$ N.

The Great Barrier may be crossed between Snake island bank and White Shingle, by keeping the east side of Echo island in line with the west fall (*not the extreme point*) of North Otter island, S. W. $\frac{1}{4}$ S., with not less than 21 feet.



The west side of Echo island touching North-east point of Cove island (Otter island channel), S. S. W. $\frac{3}{4}$ W., leads between the same two banks, with the least depth of $5\frac{3}{4}$ fathoms. Should necessity compel a vessel to beat through between these banks, the above will serve as tacking marks.

The south end of Bear's Rump, in line with Snake island bushes, S. E. $\frac{1}{4}$ E., leads north-eastward of White Shingle bank, and of the Great Barrier generally, excepting, of course, Snake island bank itself.

A patch of $4\frac{1}{2}$ fathoms lies N. by E. 600 yards from the north end of White Shingle.

Tilton reef, with depths varying from 11 to 21 feet, is one mile long in a north-west and south-east direction, with an average breadth of half a mile. It is the next shoal north-west of White Shingle bank, being separated therefrom by a narrow lane of water, with a depth of 5 fathoms. To cross the Great Barrier over the western part of Tilton reef, with not less than 21 feet, keep the whole of North Otter island a little open westward of Echo island, S. $\frac{1}{4}$ W. The south-west extreme of Fitzwilliam island in line with the north-east end of Yeo island, N. W. $\frac{1}{4}$ N., leads south-west; and the south point of Bear's Rump, touching Snake island bushes, S. E. $\frac{1}{4}$ E., leads north-west of Tilton reef.

Gourdeau patch is the name given to a spot of $4\frac{1}{2}$ fathoms lying N. W. by N., one-third of a mile from the north-west extreme of Tilton reef, with 9 to 10 fathoms water between them.

Hardie rock.—With the exception of the last mentioned patch of $4\frac{1}{2}$ fathoms, Hardie rock is separated from Tilton reef by a depth of 7 to 10 fathoms, and a distance of one mile. The least water on Hardie rock is 19 feet, the whole area under the depth of 5 fathoms being half a mile in length by the same breadth. From the shoalest part, the south-west extreme of Yeo island is in line with the north-west end of Lucas island, W. by N. $\frac{1}{2}$ N., distant from the latter $2\frac{1}{4}$ miles. A vessel may cross the Great Barrier in fine weather on this range, with not less than 19 feet water.

Anderson ledge, the north-westernmost shoal on the Great Barrier, has a circular shape, and within the depth of $4\frac{1}{2}$ fathoms has a diameter of two-thirds of a mile. Its shoalest spot of 12 feet bears E. $\frac{1}{2}$ S., distant nearly $1\frac{1}{2}$ miles from the north-east part of Lucas island.

The south-west extreme of Yeo island in line with the north-west end of Lucas island, W. by N. $\frac{1}{2}$ N., leads south-east of this shoal spot. The south-west end of Fitzwilliam island, touching the north-east side of Yeo island, N. W. $\frac{1}{4}$ N., leads south-west of it. The south point of Bear's Rump, in line with Snake island bushes, S. E. $\frac{1}{4}$ E. (when visible), leads north-east of Anderson ledge. The south end of Long beach (Fitzwilliam island), touching the east side of James island, N. by E., leads three-quarters of a mile westward of this spot of 12 feet.

In thick weather or at night, the portion of the Great Barrier north-westward of Confidence rock should not be approached to a less depth than 10 fathoms. The north-east or Georgian bay side of the whole of the Great Barrier should not be approached under the same circumstances to less than 20 fathoms.

LUCAS ISLAND, 100 feet high, is situated N. by W. $\frac{1}{2}$ W., distant a little more than 4 miles from Cove island lighthouse. The west and south sides of this island are steep-to.

Lucas island reef, with depths under 6 feet, extends in an east-south-easterly direction from the north-east part of the island 450 yards. To pass eastward of this reef, keep the east fall of Fitzwilliam island open the breadth of James island, eastward of the latter, N. by E. $\frac{1}{2}$ E. The south-west extreme of Yeo island, touching the south end of Lucas island N. W. by W. $\frac{1}{2}$ W., leads south of Lucas island reef. To pass northward of it, keep the whole of Yeo island well open north-west of Lucas island.

Lucas channel is the name given to the passage between Lucas island and Anderson ledge (the north-west end of the Great Barrier), over three-quarters of a mile wide, with depths varying from 5 to 20 fathoms.

Directions for Lucas channel.—To pass through this channel from the southward, keep the south end of Long beach (Fitzwilliam island) in line with the east side of James island, N. by E., until the south-east side of Yeo island appears on end, bearing W. by S., when a vessel may haul to the north-eastward, being well clear of the Great Barrier.

MAIN CHANNEL is the name given to the principal entrance into Georgian bay from lake Huron. It lies between Lucas and Cove islands.

BAD NEIGHBOUR ROCK, with 3 feet water over it, is the worst danger in Main channel, lying N. N. W., nearly $2\frac{1}{2}$ miles from Cove island lighthouse, and S. $\frac{1}{2}$ E., nearly $1\frac{3}{4}$ miles from the south point of Lucas island.

In addition to this very shoal spot, there are two small patches (with 12 feet on each of them) lying S. W., 200, and S. by W., 400 yards from Bad Neighbour. In approaching this danger from the eastward, or southward, in thick weather or at night, great caution is necessary, as the whole reef rises abruptly from the bottom on those sides, there being over 40 fathoms at a distance of 400, and 30 fathoms within 150 yards.

To pass south-westward of this rock, keep Eagle point (Cove island) touching the north-east extreme of Gig point, S. E. $\frac{1}{2}$ S.

The east extreme of Yeo island, N. by E. $\frac{1}{4}$ E., touching the west side of Lucas island, leads west of Bad Neighbour. The same extreme of Yeo island, N. by W., in line with the other or north-east side of Lucas island, leads east of it.

From the top of the rock, Black summit of Yeo island is exactly over and in line with the south-west extremity of Lucas island.

Buoy.—A black spar buoy is moored near the south end of the shoal.

West Sister and **East Sister** are the names given to two rocky patches, on each of which there is a depth of 21 feet. They bear N. W., $3\frac{1}{2}$ and 3 miles respectively, from Cove island lighthouse. To pass between them and Bad Neighbour, keep Eagle point of Cove island in line with the north extremity of Gig point, S. E. $\frac{1}{2}$ S. To pass southward of the Sisters, bring the south point of Echo island to touch Cove island lighthouse, S. E. by E. Vessels of heavy draught in bad weather should use the latter range, as Echo island is more easily recognized than Eagle point, and the sea will probably be more regular.

At night, under the same conditions, Cove island light should not be brought to bear to the southward of S. E. by E., but on a fine night it may be brought to bear as far south as S. E. $\frac{1}{2}$ S., and a vessel still be not less than half a mile from Bad Neighbour.

Sailing vessels, in beating should bear in mind that the latter bearing does not lead them south of the Sisters, on which, even in smooth water, their centre-boards would probably strike.

It may be mentioned here, that no vessel should *rely* upon clearing a rock by the single bearing of a light, unless her *compass is correct*, or the error on that particular bearing *well known*. In this connection, it may be stated that an excellent opportunity is afforded by the correct compass bearings accompanying the many day-ranges given in these sailing directions, whereby the error of a ship's compass may be ascertained.

O'Brien patch, with 5 fathoms on it, lies N. W. by W. $\frac{3}{4}$ W., 2 miles from Cove island lighthouse; it is situated on the western part of a bank with $6\frac{1}{2}$ to 8 fathoms over it, two thirds of a mile long, east and west, by half a mile broad.

The range of Echo island and the lighthouse, given above, leads over the northern edge in $6\frac{1}{2}$ fathoms.

YEO ISLAND is $1\frac{1}{6}$ miles long, by half a mile in breadth. It has two summits, each about 100 feet high; the north-eastermost, known as Black summit, falling steeply to the bay. The north-east, east, and south-east sides of Yeo island are fairly steep-to, but from the north gravelly point, 200 yards north-west of Black summit, a rocky spit, with less than 6 feet over it, makes out in a N. by E. $\frac{1}{2}$ E. direction, 400 yards, under the name of

Yeo island spit.—To pass northeastward of this spit, keep Cove island lighthouse in sight (and at night, the light), S. by E.

From the gravelly point, the north-west shore of the island runs fairly straight, with deep water for three-quarters of a mile. The west or lake

Huron side of Yeo island is indented by two excellent boat coves. A rock, with 7 feet of water over it, lies 200 yards off the mouth of the northern cove.

The **Knob** is the name given to an almost isolated bushy lump, forming the south-west point of Yeo island.

Manitoba ledge is a dangerous reef, situated westward of Yeo island, being separated therefrom by a channel with a depth of 7 fathoms, but which should not be attempted by strangers.

This ledge, under the depth of 18 feet, is nearly two-thirds of a mile long, S. W. and N. E., by 700 yards broad. The north-east end, with only one foot water on it, usually breaks.

The south-west extreme, with 6 feet, bears W. by S. $\frac{1}{4}$ S., and is distant a little more than half a mile from the Knob.

The west edge of the bank, at the depth of 15 feet, bears N. W. by W. $\frac{3}{4}$ W., a little more than three-quarters of a mile from the Knob.

To pass south-west of this ledge, keep Eagle point in line with the north extreme of Gig point, S. E. $\frac{1}{2}$ S.; or if Eagle point be not easily distinguishable at this distance, keep the north end of North Otter island in line with the lighthouse, S. E. $\frac{1}{4}$ S. The latter mark will lead still further south-westward from Manitoba ledge.

Yeo channel, as the passage between Yeo and Lucas islands is called, has a depth of 6 to 9 fathoms, and for a vessel bound to the eastern part of the North Channel from the southern part of lake Huron, is the best and most direct passage into Georgian bay.

Directions for Yeo channel.—The range for clearing Gat point reef, viz. :—the east extreme of Yeo island open west of the west end of Lucas island, may be continued, bringing the points touching when past Gat point. This mark will lead between the Sisters and Bad Neighbour. On approaching Lucas island, pass westward of it—the water is good on that side—and a N. E. $\frac{1}{4}$ N. course will lead a quarter of a mile eastward of James island reef, hereinafter described. In approaching this channel from the westward South bluff of Lonely island in line within the south-east point of Yeo island, N. E. by E. $\frac{1}{4}$ E., leads south-east of Manitoba ledge.

FITZWILLIAM CHANNEL is the name given to the passage between Fitzwilliam and Yeo islands, the dangers in which will now be described.

Indian harbour point is the name given to the southern extreme of Fitzwilliam or, as it is usually called, Horse island. It forms also the eastern entrance point to Indian harbour—a boat cove, much resorted to by the Manitoulin Indians during the trolling season for trout, in the fall of the year. The point is at present well marked by a large stone cairn.

Indian harbour reef is a dangerous rocky ledge, extending in a south-westerly direction over three-quarters of a mile from the above mentioned point, with depths on it varying from 4 to 18 feet. To pass south-eastward of this reef, with 22 feet least water, keep the south extreme of Club island a little open south-east of Fitzwilliam island, N. E. by E.

McLelan rock, with 12 feet water over it, is the worst obstruction in Fitzwilliam channel. It is 300 yards long in an E. N. E. and W. S. W. direction, by 200 yards broad. The centre of the shoal bears S. S. W. $\frac{1}{2}$ W., distant a little more than a mile from Indian harbour point. The passage, between this rock and Indian harbour reef, is nearly one-third of a mile wide and 7 to 9 fathoms deep.

Smith rock is a small rocky patch with 3 fathoms over it, lying South, nearly $1\frac{1}{2}$ miles from Indian harbour point. A bank, with 6 to 9 fathoms, joins this and McLelan rock, from which it is separated by a distance of half a mile.

Directions for Fitzwilliam channel.—The best passage through Fitzwilliam channel is between Smith rock and Yeo island, by keeping South bluff of Lonely island in line with the north-west side of James island, N. E. by E. $\frac{3}{4}$ E. This mark also leads north-west of Manitoba ledge, but requires clear weather to discern Lonely island.

When the north end of Flower-pot island appears northward of Yeo island steer N. E. by E., midway between the south point of Club island and the north-east extreme of Lonely island. This course will lead between James island reef and McCarthy point ledge, a description of which will be found on page 20.

The south-west point of Flower-pot island open of the south west point of Yeo island, S. E., leads south-west of Smith rock, McLelan rock and Indian harbour reef.

South-west and west coasts of Fitzwilliam island.—This coast, from from Indian harbour point, takes a general north-westerly direction, nearly $2\frac{1}{2}$ miles to Perseverance island. It is broken up into several open, deep bights, studded with rocks, and offering no shelter to vessels.

Emily Maxwell reef is an extensive rocky shoal, extending one mile from the point nearly midway between Indian harbour and Perseverance island. This shoal has as little as 4 feet water upon it. The last range given above, viz. :—The west point of Flower-pot island in line with the south-west point of Yeo island, S. E., leads south-west of this shoal also. The west point of Perseverance island in line with the fall of Manitoulin island to lake Huron, N. $\frac{3}{4}$ E., leads westward of Emily Maxwell reef.

Perseverance island is nearly half a mile long, in an E. N. E. and W. S. W. direction, and quite narrow, and from the south-west extreme

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shoal water makes off a quarter of a mile. From Perseverance island, the coast of Fitzwilliam island trends north-eastward to Phebe point.

Phebe point, which may be considered as the south-east entrance point of Owen channel, bears from the south-west extreme of Perseverance island, before mentioned, N. E. by N., distant 2 miles. Between them is a large and shoal indentation, known as Wild bight. From Phebe point, the coast continues N. E. by E. $\frac{1}{2}$ E., nearly 2 miles to Beach point, the terminus of the shallow water of Owen channel on the Fitzwilliam island side.

OWEN CHANNEL is the name given to the passage into Georgian bay from lake Huron, between Manitoulin and Fitzwilliam islands, being in the narrowest part a little over a mile wide from shore to shore. A description of the dangers belonging to this channel, and directions for avoiding them, will now be given.

Little rock, with 13 feet water on it, as the name indicates, is a small patch lying N. by E. $\frac{3}{4}$ E., distant $1\frac{3}{4}$ miles from the south-west extreme of Perseverance island. A rock, with 18 feet water, lies N. by E., nearly $1\frac{1}{2}$ miles, and another, with 21 feet, N. N. E. $\frac{3}{4}$ E., a little more than that distance from the same island. These are the shoalest outlying spots between Perseverance island and Phebe point. Shoal water extends from the latter to the depth of 21 feet, W. by S. $\frac{3}{4}$ S., one-third of a mile.

Channel rock, 6 feet above the water, and sufficiently separated from the shore of Fitzwilliam island as to render it conspicuous, is situated one-third of a mile north-eastward from the north-west part of Phebe point. Between the latter and Channel rock, shoal water extends from the shore, 300 yards.

Stewart rock, with 4 feet on it, bears N. W. $\frac{1}{2}$ W., 600 yards from Channel rock. From Stewart rock the bank continues in a south-westerly direction half a mile, with a depth of from 12 to 18 feet.

Ship bank is the name given to an extensive piece of shoal ground, separated from Stewart rock by a narrow lane of 4 fathoms. The least water on Ship bank is 10 feet. The length of the shoal, under the depth of 18 feet, is rather more than half a mile east and west, by a quarter of a mile in breadth.

A patch of 4 fathoms lies N. N. W., 350 yards from the north-west angle of Ship bank.

Owen island is 200 yards long north and south, and separated from the Manitoulin shore by a similar distance. It is the only small island on this shore of Owen channel, and therefore easily recognizable.

Owen island bank, with depths varying from 12 to 18 feet, extends on all sides from Owen island; the depth of 13 feet being found at half a mile

due east of the south extremity, and the same depth S. by W., 400 yards. This bank renders the shore of Manitoulin island shoal for three-quarters of a mile from Owen island towards Georgian bay, and the same distance in the direction of lake Huron.

At half a mile N. E. by E. $\frac{1}{2}$ E. from the south end of Owen island, is the southern end of a rocky spit, having 7 feet of water on it, extending 500 yards from the shore abreast. The coast of Manitoulin island, $1\frac{1}{2}$ miles westward of Owen island, takes a more northerly turn, forming.

Hungerford point.—This most southerly extreme of Manitoulin island may be known by its small white stony beaches. Scattered stones and shallow water extend from this point and from the shore westward of it, a distance of a quarter of a mile, leaving a fairly steep shore between it and Owen island bank, for one-third of a mile.

Beach point, of Fitzwilliam island, derives its name from the fact of its being the north-easterly termination of a long stony beach, with four small sharp points of rock jutting out on it. The point is important, as being the boundary between the shallow and deep waters on this side of Owen channel.

Beach point flat is the name given to an extensive rocky bank, with from 12 to 15 feet over it, fronting the beach just alluded to. It commences at Beach point, and its north edge runs W. $\frac{1}{2}$ N. for half a mile. Thence under the name of the Ridge, it joins Owen island bank with not less than 17 feet water.* The north-east side of the Ridge rises abruptly from a depth of 10 fathoms. The edge of Beach point flat will be found stretching 400 yards off the south-west end of the beach whence it derives its name. Hence, it continues almost straight to Channel rock, before described.

Directions for taking Owen channel.—In approaching this channel from the westward or north-westward, in lake Huron, bring the north fall of Fitzwilliam island (near Rattlesnake harbour) in line with the eastern part of Beach point, bearing E. $\frac{3}{4}$ N. See view on chart. The range leads through North Passage (as the deep water between Ship bank and Hungerford point is called), as far as Beach point; with 7 fathoms in North Passage, 5 fathoms southward of Owen island bank, and across the Ridge with not less than 17 feet.

If wishing to proceed along the east coast of Manitoulin island: as soon as the south-west end of Perseverance island is in line with Phoebe point, bearing S. W. by S., the Ridge may be crossed on this range; or anywhere between this range and the original one, with not less than 17 feet water.

* See note on foot of page 9.

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South passage of Owen channel divides Stewart rock from the shallow shore of Fitzwilliam island; its least breadth being 350 yards and depth 4 fathoms.

To take this passage from lake Huron, bring the right or south extreme of Wall island trees in line with Beach point of Fitzwilliam island, N. E. by E. $\frac{3}{4}$ E. See view on chart. Keep this range, crossing the bank extending south-westward from Stewart rock, with not less than 21 feet water, until the south-west end of Perseverance island is in line with Phoebe point. Keep the latter marks on to cross the Ridge, as before directed.

In approaching the entrance to Owen channel from the south-westward, the south-west extreme of Perseverance island should not be brought to bear southward of S. S. E. until (if wishing to take South Passage) the mark for that channel comes on. Or (if preferring North Passage), until the west side of Owen island is open the least thing south-eastward of the Manitoulin shore, bearing N. E. by E. This range should be kept, to lead westward of Ship bank, until the regular North Passage leading mark comes on.

In thick weather, the west side of Fitzwilliam island should not be approached to a less depth than 20 fathoms.

South-east shore of Fitzwilliam island.—From Indian harbour point, this coast trends N. E. by E. $3\frac{3}{4}$ miles to McCarthy point, for the first half of which distance, the shore is steep-to. The remainder is shallow, caused by a rocky bank known as

McCarthy point ledge.—The eastern edge of this danger runs from the point of that name, in a general S. W. by S. direction, $1\frac{3}{4}$ miles, where it terminates in a small rocky isolated patch, with 13 feet water over it. To pass east of this danger, keep the east fall of Fitzwilliam island near (Rattlesnake harbour), in line with Pavement point, N. N. E.

James island, 9 feet high, is nearly 400 yards long north and south, by half that distance in breadth. Its north side is fairly steep-to, but a rocky ledge extends south-westward from it with any depth under 15 feet, for a distance of rather more than a mile.

James island reef, as this shoal is called, has a channel between it and Yeo island spit, three quarters of a mile in width and 4 to 8 fathoms in depth; to pass through which, keep the west extreme of Lucas island locked with the east point of Yeo island, S. by W. As before alluded to in connection with directions for entering Fitzwilliam channel, the N. E. by E. course, there given, should (if correctly steered for two miles), lead a vessel through between James island reef and McCarthy point ledge.

A vessel may haul to the northward from this course as soon as the east fall of Fitzwilliam island (near rattlesnake harbour) appears in sight

and in line with Pavement point, N. N. E.; and when the north end of Bear's Rump comes in line with the north point of James island she may keep to the eastward.

In proceeding *into* lake Huron from Georgian bay by this channel: from the intersection of the two ranges just mentioned, steer S. W. by W. for two miles. This course ought to bring the west side of James island in line with South bluff of Lonely island; and at the same time, the north end of Flower-pot island in line with the north extreme of Yeo island. Proceed into Lake Huron with the former of these marks on. The east coast of Fitzwilliam island from McCarthy point to the termination of the cliffs, may be approached to 200 yards.

North-east point reef.—From North-east point (as this extremity of Fitzwilliam island is called), a shoal, with from 6 to 15 feet water over it, makes off in the same direction 500 yards.

Wall island lies with its low, narrow south extremity, bearing N. N. E. $\frac{1}{2}$ E., and is distant nearly one mile from North-east point.

The Wall.—From the south end of Wall island, a reef, named the Wall (on account of the steepness of its eastern side), extends S. $\frac{1}{4}$ E. one mile. It is a very dangerous reef, having only 7 feet water near its southern end. A detached spot, of $3\frac{1}{2}$ fathoms, lies S. E. by E. $\frac{1}{2}$ E., 600 yards from North-east point. The east fall of cape Smith shore in line with the east extreme of Rabbit island N. by E. $\frac{3}{4}$ E., leads half a mile eastward of the Wall. On the west side of Wall island are two small islets, separated from the main island by a distance of 200 yards.

West flat.—From these two islets, sunken rocks and shoal water extend nearly a quarter of a mile, to pass northward of which, keep the whole of Club island open north of Wall island, E. by S. $\frac{1}{4}$ S. North-east point (Fitzwilliam island), touching any part of Flower-pot island (when visible), leads westward of this shoal. The north side of Wall island is steep-to, and the east side fairly so.

Wall island channel is the name given to the passage of 4 to 5 fathoms between the Wall and North-east point reef. As no conspicuous natural objects present themselves in the direction of this channel, no *single* range can be given by which a vessel can be guided through. The best *available* mark for a vessel taking this channel from the southward is (before passing northward of the high land, near Rattlesnake harbour), to bring Church hill (James bay), over the western extreme of Wall island (not the islets), N. $\frac{3}{4}$ E. Keep this mark on, until Little island (near the entrance to Rattlesnake harbour), comes in sight north of North-east point, W. by S. $\frac{3}{4}$ S., when haul to the westward. The vessel's speed should be reduced, and the lead kept going.

RATTLESNAKE HARBOUR.* The north entrance point of this excellent harbour is situated three quarters of a mile south-westward from North-east point. It contains shelter from all winds in from 3 to 5 fathoms over mud. Little island is a good mark in approaching the harbour. A narrow ridge of dry stones extends from the island E. N. E., 200 yards; from the end of these stones shoal water continues in a north-easterly direction 200 yards further.

The dry stones at the south-west extremity are separated from those lying off the shore of Fitzwilliam island by a narrow boat-channel, with a depth of not more than 6 feet. From Rattlesnake point a spit extends in a westerly direction, 200 yards, leaving a passage between it and the shoal water from Little island, before alluded to, 400 yards in width, through the middle of which not less than 18 feet may be carried into the harbour.

Little island, and the shore of Fitzwilliam island for half a mile westward of it, should not be approached nearer than 300 yards; thence to Beach point (previously described), the shore is steep-to.

Pope rock, with 4 fathoms least water over it, forms the north end of a bank one mile long within the depth of 10 fathoms, and bears from the north point of Wall island, W. $\frac{3}{4}$ N., distant a little over $1\frac{3}{4}$ miles.

CLUB ISLAND† is $1\frac{3}{4}$ miles long, N. N. E. and S. S. W., with a maximum breadth of three-quarters of a mile. The north-west, north and east sides are fairly steep-to, but from South point Club island ledge extends in a general S. W. by S. direction, three-quarters of a mile, at which distance there is a depth of $3\frac{1}{2}$ fathoms. To pass eastward of this ledge, keep the point of Club island which is north of the harbour well open east of South point, bearing N. N. E.

The east extreme of Rabbit island in line with the same side of Erie Shingle, N. $\frac{3}{4}$ W. leads west. The south end of White cliff (Manitoulin island) in line with North-east point of Fitzwilliam island, W. by N. $\frac{1}{2}$ N., leads one mile south of Club island ledge.

From South point of Club island the stony shore trends in a N. N. W. direction, nearly $1\frac{3}{4}$ miles to Back cove (a shallow indentation into which a boat may carry 6 feet of water). From this shore of Club island shoal water extends an average distance of one-third of a mile. From Back cove the coast trends north-eastward, and is steep-to.

Club Harbour, with its entrance on the east side of the island, contains excellent although limited anchorage in $3\frac{1}{2}$ fathoms. The entrance is obstructed by two rocky ledges, known as North reef and South spit, between which not less than 15 feet at mean water may be carried in.

* See plan on chart 906.

† See plan on chart 906.

North reef, with depths varying from 4 to 9 feet, extends 250 yards from the north shore of the entrance.

South spit, with the same depth, makes off 100 yards from the north east part of Fishery point (as the south entrance point is called). The western gravelly part of this point is steep-to close to the dry stones, and not less than 12 feet water will be had at a radius of 230 yards from this gravelly point, right round to North reef. At a greater distance, the water rapidly shoals to the shores. The anchorage under Fishery point is confined to a space of about 6 acres.

Day beacons.—On Fishery point are erected two white beacons, which in line, S. W. by W. $\frac{1}{4}$ W., lead south-east of North reef. On the western shore of the harbour stands a couple more, which in line W. $\frac{1}{2}$ S., lead between North reef and South spit, with the least water of 15 feet. In approaching the harbour, therefore, the back one of the fishery point beacons should be kept south of its fellow, until the West beacons are in line, when proceed in; turn sharp round Fishery point, and anchor in the middle of the cove, with the entrance points in line.

Erie Shingle, is the name of a narrow bank of small stones, elevated 7 feet above the water, 300 yards in length, N. W. and S. E.

The north-east side is steep-to, but shoal water extends in every other direction. Westward, it makes out one-third of a mile, where there is not more than 12 feet. Rather more than that distance southward, there is but 15 feet, with 5 feet 400 yards north-east of it.

A detached patch, with 16 feet on it, lies S. W. by S., a little more than a mile from Erie Shingle. To pass westward of Erie bank, keep Church hill (James bay) open westward of Rabbit island, half the breadth of the latter, N. $\frac{1}{2}$ W. The south end of Owen island (Manitonlin), touching the north-west side of wall island, W. by S. $\frac{3}{4}$ S., leads a quarter of a mile north-west of it. Lonely island lighthouse, open north of Club island, E. $\frac{1}{2}$ S., leads north.

Erie channel is the passage between Club island and Erie Shingle. Between the shoals on either side, it is a little over one-third of a mile wide, with a least depth of 4 fathoms, which will be found when Lonely island lighthouse is seen over Back cove of Club island. On account of no conspicuous natural objects offering themselves in the direction of this channel, suitable for a leading mark, it cannot be recommended to strangers. Should, however, a sailing vessel find herself between Club island ledge and Erie bank, on the clearing up of a fog, and unable to get to the southward, the following directions will take her through :

Bring the south ends of Lonely and Club islands in line, E. $\frac{1}{4}$ S., and at the same time, Horsburgh point in one with the east side of Rabbit island, bearing north; or, bring the east sides of Rabbit island and Erie Shingle

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bour touching North-east point of Fitzwilliam island. From either of
these positions a N. E. by E. course will take a vessel through.

RABBIT ISLAND, situated due south, 4 miles from the entrance
to James bay, may be approached on its north-west, north and east sides,
to 100 yards; but from the south-west low shore an extensive bank
spreads out, known as

Rabbit island bank.--W. by S. $\frac{3}{4}$ S., a little more than a third of a
mile from the west point of the island, there is only 7 to 9 feet of water,
while from the south-east extreme it runs off equally shoal, S. by W.,
nearly a quarter of a mile.

A patch, with 15 feet over it, is situated with its south end bearing
S. W. $\frac{1}{2}$ S., nearly a mile from the west extremity of Rabbit island.
Another spot, with $3\frac{1}{2}$ fathoms on it, lies S. W. by W. $\frac{3}{4}$ W., distant one
mile from the same. South point of Club island open south of Erie
Shingle, S. E. $\frac{3}{4}$ S., crosses Rabbit island bank, south-westward of these
shoals, with 4 fathoms. North-east point of Fitzwilliam island in line
with the very west extreme of Wall island, S. by W., leads westward of
these shoals, with $4\frac{1}{4}$ fathoms. Horsburgh point, well open east of Rab-
bit island, bearing north, leads eastward of this bank.

The coast of Manitoulin island trends from Little bluff, N. E. $\frac{1}{2}$
N., $4\frac{1}{2}$ miles to Red Cliff light (so called from a small, low earth cliff of
that colour); and for the first three miles is steep-to. Thence, across
the light above mentioned, to the south-west part of Tamarack point,
the shore is foul.

Tamarack cove runs in north of the latter point one-third of a mile,
but on account of there being only 6 to 7 feet water, and that over a
rocky bottom, it is only fit for boats. From the south-west part of
Tamarack point the coast is again steep-to, for a couple of miles, as far as
the south point of Shallow cove, from the north point of which a shoal
extends in a S. by W. direction, nearly one-third of a mile. From the
north point of Shallow cove the coast continues foul to the extent of 300
yards, as far as the last of these indentations, known as North cove.
Hence, to within one mile of the turn-in to James bay, the straight shore
may be approached to 200 yards. For a description of the remainder of
this shore to cape Smith, see page 27.

HALFMOON ISLAND, 12 feet high, is 650 yards long N. W. by
W. and S. E. by E., and about 100 yards broad. It is composed of small
stones, over which grow, in two clumps, a few small trees. The north
and east sides may be approached to 200 yards, but from the east and
west points (the horns of the halfmoon), and the shore embraced by them,
there spreads out to the south-westward, for a distance of two miles, a
large area of shallow water, with depths under 10 fathoms, known as
Halfmoon bank.

South ledge is the name given to the dangerously shoal portion, extending S. S. W., nearly one mile from the eastern horn of the island; there being, at this distance, a depth of $3\frac{1}{2}$ fathoms, and at a third of a mile nearer only 10 feet. The west side of Lonely island, open east of Halfmoon island, N. $\frac{1}{2}$ W., leads eastward of South ledge.

West ledge, composed principally of stones nearly awash, extends almost due West, nearly half a mile from the western horn.

In thick weather or at night, approaching from the south-westward, the gradual decrease of the soundings will give a good warning of the approach to these ledges, but from the south-east, round eastward to north-west, a vessel should not shoal to less than 40 fathoms, that depth being found at a little over half a mile from the ledges.

LONELY ISLAND is almost circular in shape, with its greatest diameter $1\frac{2}{3}$ miles. It lies in a direct line between Cabot head and cape Smith; the east extreme of the island bearing N. by W. $\frac{1}{2}$ W., distant $20\frac{1}{2}$ miles from Cabot head, and S. by E. $\frac{1}{2}$ E., 15 miles from cape Smith.

LIGHT.—The lighthouse stands on the edge of the cliff, 300 yards back from the north shore of the island. The building, with dwelling house attached, is painted white, and, from a height of 195 feet above the bay, exhibits a *fixed white* light visible 20 miles. Towards Cabot head the light is obscured by the south-eastern portion of the island, when bearing northward of N. N. W. $\frac{1}{2}$ W. The light is also cut off by the western portion of the island, but not so decidedly; not much of it, however, will be seen when it bears northward of N. E. by E.; it is thus obscured to the southward for nearly a quarter of the compass.

A **bank** extends from the north and north-east sides of the island, there not being more than 18 feet, at 400 yards distant. The bight in the south shore is shoal to the line of its points. The remainder of the island should not be approached nearer than 300 yards.

NORTH-EAST SHINGLE is the name given to a narrow bank, the shallowest part of which, 800 yards long, N. N. E. and S. S. W., is composed of boulders, on which there is only from 2 to 5 feet water. This northern portion bears from Lonely island lighthouse, N. E. $\frac{1}{2}$ E., distant 4 miles and generally breaks. Like White Shingle of the Great Barrier, it was formerly some 3 or 4 feet *above* the water. Lieutenant Bayfield, R.N., having, in 1822, observed on it for variation of the compass.*

In addition to this very shallow patch, dangerously shoal water extends from it in north easterly and S. S. W. directions, half a mile and one mile respectively, making the total length of the shoal $1\frac{1}{2}$ miles.

The southerly extreme, with a depth of 12 feet, bears N. E. by E., distant a little over 3 miles from the lighthouse.

* It does not follow that the level of Georgian bay was lower in 1822 than now; this bank is composed of boulders which in 1822 may have been piled up by ice.

North east Shingle is connected with Lonely island by a bank, with depths on it varying from 6 to 8 fathoms. The summit of Fitzwilliam island in line with the north-west extremity of Lonely island, W. by S., leads one mile southward of North east Shingle.

The south-east visible extreme of Fitzwilliam island, touching the north-west point of Lonely island, bearing W. S. W., leads a quarter of a mile south-east of it, with 5 fathoms. The north-west side of Fitzwilliam island in line with the same side of Club island, W. by S. $\frac{3}{4}$ S., leads north-westward of this shoal.

Buoys.—A red spar buoy at the south west extremity and a black one at the opposite end mark North-east Shingle.

In thick weather a vessel should not approach the south-east and west sides of North-east Shingle to a less depth than 20 fathoms. On the north and east sides she may shoal to 10 fathoms.

Grand bank is the name given to an extensive plateau, with a mixed character of bottom, having less than 20 fathoms of water upon it, spreading out from Lonely island in a general north-easterly direction to the north shore of the bay.

DAWSON ROCK.—Although not quite so shallow as the last mentioned danger (there being not less than 4 feet water upon the rock), yet from its greater distance from the nearest island, and lying nearly in the direct course from the south-eastern ports of Georgian bay to the North Channel, as well as being in the track from Tobermory to French river, it becomes one of the most formidable dangers in the navigation of the bay.

The whole patch of boulders and rock, under the depth of 21 feet, is pear shaped, with the stalk to the northward, and is one mile in length and three quarters of a mile broad. The shoalest water is on the eastern side of the reef, varying from 4 feet on the southern part, to 10 feet on the north extremity. The latter bears E. N. E. $9\frac{1}{2}$ miles from Lonely island lighthouse, and the southern extremity, E. by N. $\frac{1}{2}$ N., the same distance.

The north end also bears S. S. E. $\frac{3}{4}$ E., distant $14\frac{1}{3}$ miles from Young Squaw (the name given to the little islet, situated half a mile north-eastward from the entrance to Squaw island harbour).

Lion's Head (a conspicuous sharp peak falling down to the channel between Badgley island and the mainland shore), in line with North point of Squaw island, N. W. $\frac{3}{4}$ N., leads $1\frac{1}{2}$ miles north eastward of Dawson rock. The summit of Fitzwilliam island, in line with the north-west extremity of Lonely island, bearing W. by S., leads half a mile south-east of it. On account of the small elevation of Squaw island for *one* range, and the distance of Fitzwilliam island for the *other*, these marks will scarcely be discernible, but from the masthead, and then only in clear weather.

The soundings give very little indication of the approach to the east side of Dawson rock, there being 18 fathoms $1\frac{1}{4}$ miles from the shoal, and nearly the same water 400 yards from the depth of 9 feet. On the south-east side, 20 fathoms will be found half a mile from the rock; to the south-westward 10 fathoms at one mile; while west of the shoal, the latter depth will be found one quarter of a mile distant.

Buoy.—A black spar buoy is named moored near the north end of Dawson rock.

North, and north westward of Dawson rock, there are five rocky patches, with from $4\frac{1}{2}$ to $5\frac{1}{2}$ fathoms over them, which, in a heavy south-east sea, it might be well to avoid, more particularly as fishermen have recently reported as little as 18 feet in this locality; it is probably on Riley patch.

Tranch rock, the southernmost of these, has $4\frac{1}{2}$ fathoms on it and bears N. W. by W. $\frac{1}{2}$ W., W. $3\frac{1}{2}$ miles from the north end of Dawson rock.

Ben Back shoal, with $4\frac{1}{2}$ fathoms, lies N. N. W. $\frac{1}{2}$ W., 3 miles from the same.

Riley patch, with the same depth on it, lies on the same bearing, distant 4 miles from the north end of Dawson rock.*

Milligan rock, with $5\frac{1}{2}$ fathoms, is situated N. $\frac{3}{4}$ W., 2 miles from the same.

McNeil ledge, with 5 fathoms over it, lies N. by E., $4\frac{1}{2}$ miles from the north extreme of Dawson rock.

HORSBURGH POINT (Manitoulin island), is the name given to the southern point of James bay; it has good water on the north-east side, but from the east shore, for one mile southward of the turn-in to James bay, shoal water extends a distance of 300 yards.

James bay is a wide, open indentation northward of Horsburgh point, with a sandy beach nearly three-quarters of a mile broad; the shore of the bay is shallow, not more than 12 feet being found at 400 yards. On the northern side of the bay is snugly situated the Indian village of Wekwemikongsing. The church stands upon the rising ground, nearly half a mile back from the village, and is conspicuous from the bay.

Church hill.—North-westward, nearly three-quarters of a mile from the church, is a hill 300 feet high, rendered conspicuous by its steep fall to the north-eastward and long slope in the opposite direction.

From the eastern part of the point separating the two portions of the settlement, a shoal, with 9 feet on it, makes off in a S. S. E. direction, for 300 yards, to avoid which, keep South point of Squaw island open of the

* By information received from Alec Clark, of Collingwood, the 18 foot spot previously alluded to bears S. E. by S., and is distant about 9 miles from Squaw island.

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Manitoulin shore. A vessel may find a berth with S. W. and N. W. winds, in 4 fathoms, sand, in the middle of James bay, with Lonely island lighthouse a little open of Horsburgh point, and South point of Squaw island touching the Manitoulin shore. The bight north-eastward of the houses is foul, and from the north-east point of this bight the coast line is unbroken for two miles to the south low Clay-cliff, and may be approached to 200 yards.

Clay-cliff is the name given to a remarkable bank of white clay and gravel, 260 feet in height, which, with the lower cliffs of the same character on either side of it, presents a conspicuous object to the mariner.

From these cliffs, shoal water extends for a distance of 400 yards, and so continues $2\frac{3}{4}$ miles, until one-third of a mile from an isolated patch of dry stones, known as the Nest. Hence, to the north-east extreme of cape Smith, the shore may be approached to 200 yards.

CHAPTER II.

GEORGIAN BAY TO CLAPPERTON ISLAND.—(CHART 907).

VARIATION 4° WEST.

CAPE SMITH forms the south entrance point to the bay of that name, at the head of which is situated the Indian village of Wekwemikong. The cape is rendered conspicuous by the sudden termination of the clay bank previously described. The bank culminates here in a height (including the trees) of 370 feet. The north-east extreme of the cape bears N. by W. $\frac{1}{2}$ W., and is distant 15 miles from the east point of Lonely island, and S. S. W. $\frac{1}{4}$ W. $10\frac{1}{2}$ miles from Killarney east light-house. This part of the cape may be passed at a distance of 200 yards in a depth of 5 fathoms.

Campbell rock, with 12 feet water on it, lies N. E. $\frac{1}{4}$ E. 2 miles from the north-east point of cape Smith, and W. $\frac{1}{4}$ S. $2\frac{8}{10}$ miles from West rock of Squaw island. For a large draught vessel in a south-east sea—especially with a low stage of water—this is an ugly danger. The eastern part of cape Smith, bearing South, will lead $1\frac{1}{3}$ miles west of Campbell rock. No suitable range offers to pass closer westward of this rock, but if proceeding to Killarney an excellent mark is offered by keeping Horsburgh point just open of Clay-cliff, S. W. by S., which will lead a vessel half a mile eastward of Campbell rock. A vessel will be northward of this danger when Papoose island passes northward of Young Squaw, E. $\frac{1}{2}$ N. When the same island is touching North point of Squaw island E. by N., a vessel will be south of this danger.

From the north-west prong of Cape Smith the shore trends in a south-west direction two-thirds of a mile to East Red cliff, and $1\frac{1}{4}$ miles to West Red cliff.

Red cliff flat.—Between the north-east and north west prongs of the cape the coast is shoal 300 yards out, and westward of this it gradually increases its distance from the shore, attaining its greatest distance when N. W. $\frac{1}{2}$ N., nearly two-thirds of a mile from East Red cliff, with from 9 to 12 feet water over it.

Sturgeon point.—From West Red cliff the coast trends westward $1\frac{3}{4}$ miles to Sturgeon point, forming three long, shallow bights. Shoal

water extends 300 yards north-eastward from Sturgeon point, and thence continues eastward to the outer part of Red cliff flat. Good anchorage may be had half a mile off West Red cliff in from 5 to 6 fathoms muddy bottom, by bringing it to bear between S. by E. $\frac{1}{2}$ E., and S. E. by E., and keeping North point of Squaw island in sight.

Gold-hunter rock, with 6 feet water over it, is a very dangerous obstruction to the navigation of Smith bay, and lies N. W. by W. $\frac{3}{4}$ W., nearly $1\frac{2}{3}$ miles from the north-east extremity of cape Smith. It is a circular patch of small boulders, 200 yards in diameter. Cape Smith points in one E. by S. $\frac{1}{2}$ S. lead south of it. The top of Badgeley island, in line with the east side of Big Burnt island, N. by E. $\frac{1}{4}$ E., leads west of Gold-hunter rock. The north fall of the Spur in line with the middle of the high portion of William island N. N. W. $\frac{1}{2}$ W., leads north-eastward of this shoal. The west end of Bushy clump, open east of the east end of West Red cliff, S. by W., leads eastward of it.

From Sturgeon point, the southern shore of Smith bay runs in a direction a little south of west for 2 miles, when it turns north to the village of Wekwemikong, forming the bottom of the bay $1\frac{1}{6}$ miles broad. The southern portion of the latter should not be approached nearer than half a mile, nor the village to less than 400 yards.

Wekwemikong is situated on the rising ground in the north-west corner of Smith bay; a path connects it with James bay, and a carriage road communicates with Manitowaning. With the exception of the Roman Catholic missionaries and teachers, the population is entirely Indian, amounting by last census to 1,190. If anchoring off the town, the shore should not be approached nearer than a quarter of a mile. There is a small boat pier here, but no wharf suitable for a vessel.

From the village, the north coast of the bay trends in a north-easterly direction $2\frac{1}{2}$ miles to Nadeau point, and off the western half of it a bank extends one-third of a mile, at which distance there is but 10 feet water. To pass south of this bank, keep the south-east point of Big Burnt island closed with the north-west point of William island, N. E.

William, or Whiskey island as it is sometimes called, is situated on the northern side of Smith bay. It is 800 yards long in a north east and south-west direction, with greatest breadth of 200 yards at the south-west extremity. The shoals contiguous to it will now be described.

Pelkie rock, with 8 feet water on it, is perhaps the most important of these, being in the track of vessels entering the bay from the northward. It is an isolated shoal, one-third of a mile long north-east and south-west, and 200 yards broad, with its southern end bearing E. $\frac{1}{2}$ S., one mile from the south point of William island. The summit of Badgeley island well open east of Big Burnt island N. by E. $\frac{1}{4}$ E., leads east of it; the west fall of Broad hill in line with the south-east point of Big Burnt island bearing

N. by E. $\frac{3}{4}$ E. leads west of it and east of Nobles bank. The north fall of Wekwemikong hill, in line with the south point of William island, W. $\frac{3}{4}$ S., leads northward of Pelkie rock.

Frank ledge, with 5 feet water on it, corresponds very nearly in shape and size to the last mentioned danger. Its north end bears S. E. $\frac{1}{4}$ E., a little more than half a mile from West Mound, and due south rather less than that distance from the south point of William island. West fall of Leading-mark hill—Killarney—in line with the south-east point of Big Burnt island, N. N. E., leads eastward of this bank; West Mound, in line with the east fall of the Spur, N. by W. $\frac{1}{2}$ W., leads west of it; the top of Badgeley island in one with the north-west point of William island, N. E. $\frac{1}{4}$ E., leads north-west of this ledge.

West Mound is a gravelly bank, 3 feet high, lying 800 yards south-westward of William island, and from it shoal water extends in a southerly direction 600, to the eastward 250, and to the northward 400 yards, leaving a 4 fathom channel 350 yards broad between it and William island.

East Mound is a somewhat similar little bank, 2 feet above the water, and lying eastward a quarter of a mile from the north point of William island, with no passage between. Shoal water makes out 300 yards from this bank in a north-east direction almost joining a bank with 13 feet water over it, known as Nobles bank, the north-east edge of which is half a mile from East Mound, and rather more than three-quarters of a mile from William island. The north fall of the Spur brought in line with the south-west side of Hog island, bearing N. W. $\frac{1}{4}$ W., leads north-westward of this bank and Pelkie rock. Shallow water, with rocky bottom, extends a quarter of a mile south-eastward from the south point of William island and south-westward for 200 yards. The north-west side of William island may be approached to 100 yards.

John ledge, the shoalest part of which has only 3 feet on it, has a total length of half a mile in a north-east and south-west direction. Its south-west edge bears N. W. $\frac{1}{4}$ N., and is distant 450 yards from East Mound, the channel between being reduced to 200 yards wide, with least depth 21 feet. In addition to the bank which makes out northward of West Mound itself, two other shallow patches, almost joined, extend a total distance of two-thirds of a mile from it in a northerly direction. On the northern shoal there is less than one foot of water, and vessels should not proceed more than 400 yards northward, or north-westward, from the north-west point of William island.

From Nadeau point, on the Manicoulin shore, the coast trends N. N. E. $1\frac{1}{2}$ miles to Fishing island, behind which is Fishing island cove, a snug boat harbour. In addition to the two banks just mentioned, shoal water extends from the shore an average distance of 400 yards. From Fishing island cove, the stony, shallow and broken up coast trends in a general

northerly direction $1\frac{3}{4}$ miles to Prairie point, leaving to the eastward a group of islands known by some under the general name of Burnt islands. As an examination failed to discover a channel through them fit for any thing larger than a small fishing tug—and even she would require local knowledge—we shall confine our attention to the outside islands of the group, merely mentioning that the best water through them is westward of Hog, Elm and North-west Burnt islands.

Hog island is situated nearly midway and in a line between the southern point of Big Burnt island and Fishing island. A large bank of dry stone makes out 400 yards from its south-west side; while from the south point, shoal water extends a little more than a quarter of a mile.

Gooseberry island is small, with a few trees on it, and is situated E. $\frac{1}{4}$ S., nearly half a mile from the south point of Hog island. Shoal water extends 200 yards south-eastward of it.

Big Burnt island, the largest and easternmost of the whole group, is one mile long and half a mile in greatest breadth. An island 150 yards in diameter lies 300 yards from the south shore, being connected therewith by a shallow bar. From the latter island, a reef extends a quarter of a mile to the southward and 300 yards to the eastward. The east and north-east sides of Big Burnt island are steep-to.

Directions for entering Smith bay from the southward.

Follow round cape Smith about a quarter of a mile distant, in order to pass south of Gold-hunter rock, and when abreast of the north-west point of the cape bring the centre of the village of Wekwemikong about a point on the starboard bow, in order to get the points of cape Smith in line E. by S. $\frac{1}{2}$ S. This range should be on astern before the west end of Bushy clump and east end of West Red cliff are touching, but not before East Red cliff bears south. Keep the points of the cape in line until the summit of Badgeley island is in line with the east side of Big Burnt island, when Gold-hunter rock and the outer part of Red cliff flat will be passed. A vessel may anchor off West Red cliff on the last mentioned clearing mark as before directed, or proceed further up the bay. A vessel will find less than 10 fathoms over mud anywhere inside the line joining cape Smith and William island.

If entering the bay northward of Gold-hunter rock, the Spur should not be brought to the westward of the middle of William island until the summit of Badgeley island is over the east side of Big Burnt island, when a vessel may haul towards the cape shore and anchor, or proceed up the bay. In doing the latter, she will probably pass close to Doyle rock, the least water on which is 22 feet.

Directions for entering Smith bay from the North Channel.—When southward of Burnt island bank (alluded to further on), the east shore of Big burnt island may be approached within 200 yards.

After passing it, keep the summit of Badgeley island well open east of Big Burnt island N. by E. $\frac{1}{2}$ E., to lead eastward of Pelkie rock, and when East Mound comes in line with the Spur N. W. $\frac{3}{4}$ N., steer S. W. by W. $\frac{1}{2}$ W. up the bay, or if wishing to anchor under capo Smith, edge a little to the westward to bring the summit of Badgeley island in line, or closed with the east side of Big Burnt island, in order to lead westward of Gold-hunter rock.

If wishing to anchor under William island, keep the top of Badgeley island well open east of Big Burnt island to clear the bank southward of the latter, until West Mound bears S. W. by W., and ranges with the high bank on the north shore of the bay, as shown by the view on the chart. Proceed on this leading mark, and anchor off the north-west grassy point of William island, a berth clear of the shore in 4 or $4\frac{1}{2}$ fathoms clay. Or if wishing to proceed to the bottom of Smith bay, after passing the point of the island just mentioned, keep the top of Badgeley island in line with the same point N. N. E. $\frac{1}{2}$ E., which will lead between West Mound and Frank ledge. A vessel may proceed to the anchorage under William island from the south-eastward, if her compass is in good order, by steering for West Mound on a W. N. W. bearing, which will lead between William island bank and Frank ledge with $3\frac{1}{2}$ fathoms.

BERNARD ROCK, with 10 feet least water on it, lies N. E. $\frac{1}{2}$ E. nearly 3 miles from the south-east point of Big Burnt island; it is marked by a red and black horizontally striped spar buoy, but in case it should be displaced, its position in one direction may be known, from the fact of its lying with William island its own apparent breadth open south-east of Big Burnt island. To pass north-west of it, therefore, keep these islands touching, S. W. Summit of Heywood island in line with the south side of Partridge island, W. $\frac{3}{4}$ N., leads north of it.

The summit of Badgeley island over the south-west end of Kokanongwi island, N. $\frac{3}{4}$ W., leads west of it, and the same hill in line with the opposite end of Kokanongwi island, N. N. W. $\frac{3}{4}$ W., leads east of this danger. The south fall of Shegniandah hill, in line with Bold point, Manitoulin island, W. $\frac{1}{2}$ N., leads 200 yards south of Bernard rock.

North-west Burnt island is situated nearly half a mile north-westward from Big Burnt island, and hence its name. It is next in size to the latter, being a little more than three-quarters of a mile long by one-third of a mile in breadth.

Burnt island bank is a dangerous shoal extending northward and eastward from North-west Burnt island; the total length of the shoal in an east and west direction being $1\frac{1}{10}$ miles.

The western part is the shallowest, there being only one foot of water on it, and in consequence generally shows itself by breaking, but

the eastern part, with 6 feet on it, is the most dangerous, for being the turning point into the North Channel of lake Huron it is more likely to pick a vessel up.

To pass eastward of this bank, keep Lion's Head in line with the east end of High beach (on the south shore of Badgeley island), bearing N. $\frac{1}{4}$ W.; and to pass northward of it no better mark offers than to bring Ead's bush (Little Current) to the northward of the summit of Heywood island and in line with the south shore of Partridge island, W. by N.

Skull point is the English equivalent for an Indian name given to a point of Manitoulin island bearing W. $\frac{3}{4}$ N., and distant one mile from the north part of North-west Burnt island. Skull point is situated also nearly one mile north westward from Prairie point, previously spoken of, and the shore between them is foul.

Skull point reef extends in a direction a little eastward of north, half a mile; the least water on it being 3 feet. Between this reef and Burnt island bank there is a deep water space of half a mile. Indian Dock point, just in sight, W. S. W., leads north-westward of this shoal. The middle of Kokanongwi island, in line with the south point of Badgeley island, E. by N. $\frac{1}{2}$ N., also leads clear on the same side.

Bold point, so called from the fact of there being good water close to it, is two-thirds of a mile north-westward of Skull point, being the most northerly point of this peninsula. Between them a bight runs in a quarter of a mile, in the middle of which are dry stones and sunken rocks. From Bold point the shore turns to the south-west, and runs in that direction three-quarters of a mile to Indian Dock point. Between these points is situated the cove, which contains the wreck of a once fine wharf, or dock, whence the turning point into Manitowaning bay derives its name.

SQUAW ISLAND is situated with its south extremity bearing E. $\frac{1}{2}$ N., distant 5 miles from cape Smith. This island itself is low, but its thick and fairly high timber enables it to be seen at a considerable distance. It is one of the most important fishing stations in Georgian bay. The island has a total length of $1\frac{1}{3}$ miles and maximum breadth of 1,200 yards. The shoal water surrounding it will now be described.

Young Squaw is the name given to the wooded islet N. E. by E. half a mile from North point of Squaw island, and to which it is connected by a rocky bar, with 6 feet water on it. Young Squaw may be approached to 100 yards from the eastward only; in all other directions the water is shallow.

Annie rock, with 3 feet on it lies N. W. nearly half a mile from Young Squaw, while shoal water extends from the latter, the same distance in the opposite direction.

West rock is a small bank of limestone gravel, 5 feet high, situated W. S. W. nearly one mile from North point of Squaw island, and is separated from the latter island by a narrow channel from 4 to 5 fathoms deep, but which should not be attempted by strangers.

North spit extends in a N. $\frac{3}{4}$ W. direction half a mile from West rock, at which distance there is a depth of 13 feet. West rock should not be approached from the westward nearer than 600 yards, while S. by W. $\frac{1}{2}$ W., distant nearly half a mile from West rock, is the southern termination of the bank with a depth of 3 fathoms, rapidly shoaling as West rock is approached.

Ragged point is situated about the middle of the West side of Squaw island, the whole of which is fringed with boulders and shoal water for a distance of a quarter of a mile, while off this particular point a bank extends W. S. W. half a mile, with depths under 3 fathoms.

South point of Squaw island, as the name indicates, is the southerly termination of the island, and from it, shallow water extends 600 yards. Between the last two mentioned points is an open bight full of boulders. The east side of Squaw island, from the south-eastern entrance point of the harbour to a quarter of a mile north of South point, has a steeper character and may be approached to 300 yards.

The **bar** is the name given to the shallow rocky bank immediately eastward of the entrance of the harbour, and has depths on it ranging from 6 to 12 feet. To clear the north-east side of it, Lion's Head should be kept open north of Young Squaw N. W. $\frac{1}{2}$ N. To lead south-east of it keep Clay-cliff (cape Smith shore), open south-east of Squaw island S. W. by W.

Squaw island harbor is formed on the north-east side of Squaw island, and consequently contains good shelter from the prevalent south-westerly winds, as indeed from all winds. It is the principal fishing station on Georgian bay, being conveniently situated to the fishing grounds, on the Grand bank, between Lonely and Gull islands. The depth in the harbour itself ranges from 12 to 15 feet over mud, and were the entrance buoyed, as was temporarily done for shelter to the steamer *Bayfield* during the survey of that portion of the bay in 1885, 13 feet of water could be carried in. Without the assistance of buoys no vessel drawing more than 8 feet should attempt to enter; the larger vessels should anchor with the south-east entrance point bearing W. N. W., distant about a quarter of a mile; the smaller vessels may enter by the following directions.

Directions for entering Squaw island harbour.—If from the south-ward, bring Lions head (a hill previously described) in line with North point of Squaw island N. W. $\frac{1}{2}$ N. Proceed to the south-east entrance point on this mark; round the latter closely, and anchor in the

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middle of the harbour as convenient, or proceed to the dock. If from the north-westward give the ground about Annie rock a good berth; after passing Young Squaw deep Lion's Head open north-east of it, until Clay-cliff is seen opening off South point of Squaw island: steer on this mark until the low south-east entrance point of the harbour bears N. W. by W. $\frac{3}{4}$ W., when the latter point may be steered for. Those in small craft who are locally acquainted, cross the bar with south-east entrance point in line with the willows in Killarney-mens cove (a small indentation on the west side of the harbour), carrying not less than 10 feet.

Alec Clark rock, under the depth of 3 fathoms, is a narrow bank half a mile long N. N. W. and S. S. E., and lies with the north extremity bearing N. E. $\frac{1}{2}$ E. two-thirds of a mile from Young Squaw, and in this position will be found the shoalest part of 13 feet. There is a depth of 4 to 6 fathoms between this rock and Young Squaw.

Matheson shoal, with $3\frac{1}{2}$ fathoms on it, lies E. $\frac{1}{2}$ S., nearly 2 miles from Squaw island.

AZOV LEDGES are very dangerous rocks lying S. W. by W. $\frac{3}{4}$ W., $1\frac{1}{2}$ and $1\frac{1}{4}$ miles respectively from South point of Squaw island, the former having 9 feet and the latter 6 feet water on it. These shoals are separated from Squaw island by a channel three quarters of a mile wide, with 5 to 7 fathoms water. The steamer *Bayfield* has run through this channel by keeping Frazer bay hill (a conspicuous hill on the north side of Frazer bay) in line with the north-east point of Kokanongwi island, but the latter being difficult of discernment, the leading-mark cannot be recommended to strangers.

The north-west side of Green island, touching the south-east extreme of Squaw island N. E. $\frac{1}{2}$ E., leads 200 yards south east of Azov ledges. The north extreme of cape Smith, in line with the south-west end of Wekwemikong clay bank W. by N. $\frac{1}{2}$ N., leads three quarters of a mile south of Azov ledges.

In thick weather do not shoal less than 10 fathoms round Squaw island and its shoals.

Papoose island, 10 feet high bears W. $\frac{3}{4}$ N., distant $3\frac{1}{4}$ miles from Gull island, and excepting that it is more wooded, has much the same physical character. The island is one-third of a mile long east and west, quite narrow, and divided into two portions by a boat channel, in which fishing boats occasionally rendezvous. A few huts are erected on the western and larger portion, and a small dock to facilitate the landing of crews during the fishing season. The east, north and north-west sides of Papoose island may be approached to 200 yards, but from the south side a dangerous rocky ledge extends a maximum distance of half a mile. To pass south-westward of this reef keep Broad hill in line with Killarney east light-house N. W. by N.

GULL ISLAND lies E. by S. $\frac{3}{4}$ S., distant 14 miles from the eastern entrance to the North Channel of lake Huron. It is 10 feet high and composed of fossilized limestone, is 350 yards long north-east and south-west, and 100 yards broad, the southern portion having on it a few stunted trees and bushes. Shoal water extends 200 yards from the south-east side and 250 yards from the south west extremity; it is otherwise bold-to.

Hamilton island, 57 feet high, is the name given to one of the most conspicuous features on the shore about to be described, the whole of which, however, has at best but very few natural characteristics to assist the mariner in his recognition of the coast. The survey has not been taken north-westward of the line joining the island and Smooth rock described later on. The south point of Hamilton island bears from Smooth rock N. E. by E. $\frac{3}{4}$ E., distant a little more than $2\frac{3}{4}$ miles.

A reef, with 9 feet water on it, extends in a W. S. W. direction 600 yards from the outer dry rock at the south-west extreme of Hamilton island.

A rock, with 12 feet on it, lies S. by W. $\frac{3}{4}$ W. 400 yards from the same.

Brassey island, 19 feet high, is, by reason of its bareness, a conspicuous object in making the eastern entrance to Collins inlet. It lies one mile eastward of Hamilton island and the same distance westward of Toad island. There are boat passages between it and the chain of islands connecting it with the shore. A rock with less than 6 feet water on it, lies 150 yards from its south-west extremity.

Sly-boots, a rock with 3 feet water on it, lies S. W. $\frac{1}{4}$ W., a little more than half a mile from the south-west point of Brassey island.

A rock, with 14 feet on it, lies E. by S. $\frac{1}{2}$ S., one-third of a mile from the same.

A rock, with 12 feet water on it, lies S. S. E. $\frac{3}{4}$ E., two-thirds of a mile from the same.

Moreland bank with 3 fathoms and **McDonald shoal**, with $3\frac{1}{2}$ fathoms on it, are situated S. by W. $\frac{3}{4}$ W. $1\frac{1}{2}$ miles, and S. $\frac{1}{4}$ E. nearly one mile respectively from the south-west point of Brassey island.

EASTERN ENTRANCE TO COLLINS INLET.—Hineks island bears E. by N. $\frac{1}{4}$ N., two-thirds of a mile from Brassey island; a rock, just covered, lies 200 yards south-eastward of its central part, and only 120 yards north-westward of the track into Collins inlet.

Toad island, a quarter of a mile in diameter, is situated rather more than that distance from Hineks island, and the channel into the inlet passes between these two islands. Toad island and the smaller one eastward of it, are conspicuous from the offing, and therefore serve to point

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out the eastern entrance to Collins inlet. A small bushy islet is just separated from the north point of Toad island and 15 yards off this islet is a stone just covered, while nearly 200 yards N. E. $\frac{1}{2}$ N. from this bushy islet is a small rock with 7 feet water on it, which should be carefully guarded against when anchoring under Toad island.

An extensive reef of dry and sunken rocks extends two-thirds of a mile from the south and south-west shores of Toad island.

North and South rocks are the names given to two bare rocks of a similar character, about 5 feet in height, lying northward of Toad island and between it and the shore of Phillip Edward island. These rocks are important, as the channel into the inlet is between them, and here will be found the shallowest water, viz., 14 feet. Once inside North and South rocks, the water suddenly deepens.

Midshipman point marks the limit of the survey on the east coast of Phillip Edward island, being two-fifths of a mile north-eastward of North rock.

Anchorage.—As far as this point and to a line due east of it, a depth of 8 to 10 fathoms over mud will be found, where a vessel may anchor while waiting for a pilot to take her to the mills.

Square rock is small, isolated, 4 feet high, and lies N. E. by E. $\frac{1}{2}$ E., one mile from North rock; it also bears N. W. by W. $\frac{1}{4}$ W., 250 yards from the south point of Pine Tree island, so called by reason of two conspicuous pines growing near the west end of this little wooded island, and which are a guide in picking up Square rock from outside.

Popham point bears S. S. E. $\frac{1}{4}$ E., and is distant two-thirds of a mile from the southern part of Toad island, and through the islands which lie between them are passages from Georgian bay fit only for boats in fine weather.

Hen Island is situated S. E. by E., one mile from Popham point, the intervening space being occupied by a group of small dry rocks, called the Chickens. From the Hen and Chickens a dangerous rocky bank makes out, the south-east extremity bearing S. S. E. $\frac{1}{4}$ E., distant nearly two-thirds of a mile from the Hen, and the south-west end bearing S. W. by W. $\frac{3}{4}$ W., rather more than that distance from the western dry stone of the Chickens. This extremity of the reef bears also S. by E. $\frac{3}{4}$ E., $1\frac{1}{2}$ miles from Brassey island. Southward and south-westward of this bank are several patches with from 3 to $3\frac{1}{2}$ fathoms only on them, which in a large draught vessel with a heavy sea, it would be advisable to keep outside of.

Directions for Eastern entrance to Collins inlet.—If from the North Channel of lake Huron, a vessel may pass north of Scarecrow island, and between Green island and Smooth rock; Scarecrow island kept astern open south of Smooth rock the breadth of the latter bearing

W. by S., will lead a vessel along for $3\frac{1}{2}$ miles clear of danger. At this distance from Smooth rock, Square rock (one mile inside Toad island and previously alluded to) should be seen midway between North rock and the rocks forming the west point of Toad island. This mark should be brought on bearing N. E. by E. $\frac{1}{4}$ E. and steered for, the speed being reduced, and the lead kept going until about 200 yards from North and South rocks.

Anchorage.—Passing midway between these rocks and taking a good sweep round the north end of Toad island, to avoid the seven foot rock already alluded to, a vessel may find a safe berth in 5 to 6 fathoms and close under the east side of Toad island, whence she may communicate with the mill by boat.

If the last mentioned leading-mark is recognisable, and faithfully adhered to, not less than 14 feet at mean water² will be found and that not until under the lee of Toad island and the rocks south-west of it.†

Vessels drawing less than 9 feet can with local knowledge proceed to the mill distant from the Eastern entrance about 6 miles. A clay bank with the above depth on it, stretches across from the north-east point of Philip Edward island to the east shore of the inlet near Beaver Stone river, about 4 miles above the entrance.

A description of Western entrance to the inlet will be found on p. 42.

Draper island is situated E. $\frac{1}{2}$ S., distant rather more than three-quarters of a mile from Hen island and half a mile westward of Grondine point; a reef extends southward from it 400 yards.

GRONDINE ROCK, $5\frac{1}{2}$ feet high, and about 50 yards in diameter, is situated nearly one mile S. by W. $\frac{1}{4}$ W. from the point of that name described on next page. It bears E. $\frac{3}{4}$ S. and is distant nearly $7\frac{1}{2}$ miles from the north point of Green island. A great many shoal patches lie about it but not less than 15 feet was found on them with the two following exceptions:—

Simpson rock, with 9 feet water on it, bears S. E. $\frac{1}{2}$ E., and is distant one-third of a mile from Grondine rock. A shoal with 12 feet on it lies W. by N. $\frac{3}{4}$ N. and 250 yards from the same.

GRONDINE POINT, (generally known by its English equivalent of Grumbling point), is low, flat, and shelving. Shoal water extends from it half a mile in the direction of Grondine rock, leaving a space of about the same breadth through which small craft occasionally pass by keeping pretty close to Grondine rock. Extensive and dangerous shoals make off eastward and south-eastward from Grondine point, the shallowest of which is Finnis rock.

²At low stages of the water there may be 2 feet less.

†A white beacon on Square rock to range with another on the east side of the inlet (as was temporarily done for the *Beagle* in 1886) is required here.

Finnis rock.—This rock level with the surface of the bay, and consequently generally shewing itself by breaking, is situated S. E. by E., nearly two-thirds of a mile from Grondine point.

A rock, with 4 feet water on it, lies S. S. W. $\frac{1}{2}$ W., a quarter of a mile from Finnis rock and N. E. by E. $\frac{1}{2}$ E. three-quarters of a mile from Grondine rock.

GREEN ISLAND is so called on account of its trees, in marked contrast to the bare rocks and islands of the Laurentian formation north and north-west of it. It is composed of limestone, from 10 to 15 feet in height, and is over a quarter of a mile in diameter. It bears S. E. by E. $\frac{1}{2}$ E., and distant nearly $7\frac{3}{4}$ miles from Killarney east lighthouse, and may be said to mark the northern limit of the deeper water in this locality. It is about 3 miles from the coast of Philip Edward island, and $5\frac{1}{2}$ miles from Western entrance to Collins inlet. Shoal water extends from the south-west and west sides of the island, a distance of 300 to 400 yards; the remainder of the island may be approached to 200 yards.

Steele rock, with 11 feet water on it, is a small spot situated W. $\frac{1}{2}$ N., two-thirds of a mile from the west point of Green island, and between them is a good passage of 10 to 11 fathoms.

Single rock, as its name indicates, is a solitary stone 4 feet high, lying E. $\frac{3}{4}$ S., distant nearly two-thirds of a mile from Scarecrow island, and it may be approached on all sides to 50 yards.

Scarecrow island, fairly wooded and 6 feet high, lies due West distant $1\frac{3}{4}$ miles from Green island; and S. E. $\frac{1}{2}$ E. $6\frac{1}{4}$ miles from Killarney east lighthouse. It is 200 yards in greatest length, and composed of limestone gravel. Its north side may be approached to 150 yards, but on its other side shoal water stretches off under the name of

Scarecrow island bank.—This rocky bank extends from the island 400 yards in a south-east direction, and to the south-westward half a mile. To pass westward of the latter, keep Red rock in line with Killarney peak, N. N. W. $\frac{1}{2}$ W., and to pass north-eastward of the bank keep Red rock in the second and lower gap westward of Leading-mark hill N. W. $\frac{1}{2}$ N.

Smooth rock is the southernmost of the rocks of the Laurentian formation, and derives its name from its almost polished surface; it is 18 feet high, and bears N. by E., a quarter of a mile distant from the north gravelly point of Green island. A rock with 4 feet water on it lies N. E. by E. $\frac{1}{2}$ E. 400 yards from Smooth rock; otherwise the water is deep close to the rock, on all sides. The passage is good between Green island and Smooth rock, but no stranger should attempt to pass through any of the channels between the islands north of Smooth rock, as they are unsurveyed. The present traffic along this part of the shore is not great, and it is doubtful whether the best chart and sailing directions would take a

vessel through this group of islands and sunken rocks without local knowledge. Besides, the passage northward of Smooth rock saves very little distance in traversing this part of Georgian bay.

We shall now describe the islands and dangers between Green island and Western entrance to Collins inlet.

South-west Hawk island is the name given to an island 38 feet high, situated N. N. W. $\frac{3}{4}$ W., a little over three-quarters of a mile from the north-west extremity of Green island. It is the most southerly and westerly of the group of islands north of Green island, and which some of the fishermen call Hawk islands. South-west Hawk island has a few trees on its summit, and is steep-to on its west and south-west sides.

Le Haye rock, small and just showing above the surface, lies N. W. $\frac{1}{2}$ N. $1\frac{1}{2}$ miles from the west point of Green island; the water is bold close up to its south and west sides.

The Triangle is the name given to the three sunken rocks with 4, 7 and 8 feet water over them. The south-western rock of the three, with 7 feet water on it, lies with the east end of Papoose island open westward of Scarecrow the breadth of the latter, and bears from the west point of Green island, N. W. by W. $2\frac{8}{10}$ miles.

West Fox island is the most westerly of a group of islands situated $1\frac{1}{2}$ miles north-westward of Hawk islands. It is from 70 to 80 feet in height, fairly wooded, and nearly a quarter of a mile long north and south: dry rocks lie 400 yards off its south and south-west sides. The west point of West Fox island bears N. W. by N., and is distant $2\frac{3}{4}$ miles from the west point of Green island.

Nicholson rock, with 5 feet water upon it, lies nearly half a mile south-westward from this island, and 700 yards north-eastward of The Triangle.

The Brothers are two small rocks, 5 feet in height, situated two-thirds of a mile west-north-westward from West Fox island. They bear E. by S., distant $1\frac{1}{4}$ miles from Red rock.

Harty patches are two small rocks, with 6 feet and 13 feet on them, lying nearly half a mile westward of The Brothers. The north-east and shoaler one bears E. by S. $1\frac{1}{3}$ miles from Red rock.

RED ROCK is the name given to a small bare islet of that colour, situated E. by S. $\frac{3}{4}$ S., $2\frac{8}{10}$ miles from Killarney east light-house, and N. W. $\frac{3}{4}$ N. $3\frac{3}{5}$ miles from Scarecrow island; it is 11 feet in height, and by its isolation is conspicuous. It is also a good guide to the approaches of Western entrance to Collins inlet.

A rock, with 10 feet on it, lies 150 yards north-westward of Red rock, and a spot, with 13 feet on it, lies N. by W. $\frac{1}{2}$ W. 250 yards from the same; Red rock is otherwise bold-to.

Alexander rock, with 9 feet on it, lies S. E., exactly one mile from Red rock.

Halkett rock, with 5 feet over it, lies E. by N. $\frac{3}{4}$ N., three-quarters of a mile from Red rock. To pass south-westward of all these dangers a vessel should not proceed farther eastward than to bring Red rock in line with the second and lower gap westward of leading-mark hill N. W. $\frac{1}{2}$ N. This mark leads but 200 yards south-westward of Alexander rock.

COLLINS INLET is the name given to the water which separates Philip Edward island from the main shore: the Eastern entrance has already been described, p. 39. A considerable lumber business is carried on here, by the Midland and North Shore Lumber Co. Vessels drawing less than 10 feet can proceed to the mill, which is situated about 8 miles from Western entrance. The latter lies $3\frac{3}{4}$ miles east-north-eastward from the East entrance to Killarney, where it would be better for a stranger bound to the inlet to pick up a pilot. After being assisted in and out once, the master of a vessel should be able to navigate by attending to the following directions:—

Dangers in the approach to Western entrance to Collins inlet.—The channel leading to Western entrance to Collins inlet would be extremely difficult to make were it not for an island slightly higher than the rest, with a single tree on it, and the remains of a beacon;* this island is called from this circumstance

One Tree island.—The summit of the island is 21 feet above the surface of the bay; it bears E. by N., and is distant 3 miles from Killarney east light-house, it is also nearly two-thirds of a mile from the entrance to the inlet.

A ledge, with less than 6 feet water on it, makes out in a W. by N. $\frac{3}{4}$ N. direction, 250 yards from the west extreme of One Tree island, and a small rock 3 feet high lies due East 300 yards from the east end of One Tree island. Between this small dry rock and South point of the inlet are several shoal spots with deep water between them, rendering the passage eastward of One Tree island impracticable for a stranger.

A rock, with one foot water on it, lies N. by E. $\frac{1}{4}$ E. a quarter of a mile, and another with 6 feet on it, lies N. N. E. $\frac{1}{2}$ E. 300 yards from the east end of One Tree island. A third rock, with 5 feet on it, lies N. E. by E. $\frac{3}{4}$ E., 450 yards from the same. The latter two shoals are southward of the track in.

Flat rock is the name given to a reef elevated 10 feet above the water, lying 300 yards W. N. W. from One Tree island, and between them is the narrow channel through which from 5 to 6 fathoms may be carried, Flat rock is divided into three parts, its total length being 350 yards; a

* There should be a large day mark erected on the island, and kept painted white.

single black stone, 2 feet high, lies 100 yards west of the west end of Flat rock. Deep water will be found close to the south side of Flat rock, with the exception of near the east extremity, where a shallow spur puts out into the channel about 50 yards.

Pinch island, about 15 feet high, is situated 200 yards north-eastward of Flat rock, and between them there is no passage. A chain of islets and rocks connects this island with the north shore.

South point is the name given to the western termination of the broken portion of Philip Edward island, and bears E. by N. $\frac{3}{4}$ N., two-thirds of a mile from One Tree island. It forms the southern entrance point to the inlet, which is here one-third of a mile wide, with a depth of 8 fathoms over mud.

The north-west extreme of a reef, with 3 feet water on it, lies W. $\frac{1}{2}$ S., a quarter of a mile from South point.

A rock, with 9 feet water on it, lies on the north side of the passage bearing N. W. $\frac{3}{4}$ W., a quarter of a mile from South point.

Mocking Bird island, 23 feet in height, and somewhat resembling One Tree island in appearance, is situated S. E. $\frac{3}{4}$ S., nearly two-thirds of a mile from the latter. From the north extremity, a reef extends in a north-westerly direction 100 yards. The east and west side of this treeless island are steep-to.

Celtic rocks are situated south westward of Mocking Bird island, and between them there is no passage. The southern rock of the two is 4 feet high, and bears from Red rock N. N. E. $\frac{1}{4}$ E., distant nearly three-quarters of a mile. The east and west sides of Celtic rocks are steep-to, but S. S. W., 200 yards from the southernmost one, there is a rock with 7 feet water on it.

Pond point (so called from a lake immediately at the back of it) is the first decided point north-eastward of Killarney east lighthouse, being $1\frac{1}{10}$ miles distant therefrom. Between this point and the entrance to Collins inlet the shore is much broken up with a number of small bays and islands, which offer good shelter for small boats, but being so very foul should not be approached by a vessel nearer than the line joining Pond point to One Tree island.

Rannie rocks, 2 feet high, lie N. E. by E. $\frac{1}{4}$ E., 400 yards from Pond point, and are steep-to. One third of a mile south westward of Pond point is the entrance to an excellent little boat harbour. Between this cove and the east lighthouse the coast is fairly straight, with a few small rocks lying close to it.

Directions for Western entrance to Collins inlet.—If from the south-eastward, steer for Seacrow island, until Red rock comes in the second gap westward of Landing-mark hill N. W. $\frac{1}{2}$ N.; this will lead be-

tween Single rock and the eastern part of Scarecrow island bank. If this leading-mark is not easily distinguishable, proceed further west, keeping a mile southward of Scarecrow island until Red rock is in line with Killarney peak (a sharp wooded mound at the back of Killarney). Either leading-mark kept on will lead south-westward of all the dangers between Green island and Red rock; the last mentioned mark will, of course, give them the wider berth.

Pass 200 yards or more westward of Red rock, and steer about $1\frac{1}{2}$ points to the westward of One Tree island, to bring the west end of Flat rock in line with the eastern summit of a double topped eminence on the back range, 955 feet in height, known as Gulch hill, bearing N. $\frac{3}{4}$ E.; this mark will lead west of the reef from One Tree island. Keep Flat rock on board, giving the east end of it a little berth to clear the sunken rocky spur already alluded to—in ordinary weather, the yellow water will show distinctly—and steer for the mouth of the inlet with the south side of Flat rock exactly under the highest part of Badgeley island, W. by S., which will lead between the one foot and seven feet rocks (they are only 150 yards apart) previously described, and anchor north of South point, or proceed to the mill.

In making Collins inlet from the westward, the south east coast of George island and the shore between the east lighthouse and Pond point will be found steep to. The bight between Pond point and One Tree island should not be entered northward of the line joining them.

George island, which may be said to be the north entrance point of the North Channel of lake Huron, is shaped like an equilateral triangle, the length of each of the sides being about $1\frac{1}{2}$ miles, the north-east side forming the south shore of Killarney harbour. The south-east coast from North-east point is bold-to.

Petley rock, with one foot water on it, lies 150 yards from the south extreme of George island, and shoal water continues from it 100 yards in a west-south-westerly direction. The shore here should receive a berth of one-third of a mile.

Sandy cove is a snug little indentation at the south-west point of George island; this point is surmounted on its northern side by a round bare hill, 60 feet high.

Sandy cove ledge, 2 feet high, lies 250 yards from the mouth of the cove whence it derives its name, and from it the water falls off deep to the westward and southward, but there is no passage between it and the shore. The west side of George island to Fish point—its north-west extremity—is rugged, and fringed with a rocky bank, extending for an average distance of a quarter of a mile from shore.

George rock, the top of which is just covered, lies N. by W. $\frac{3}{4}$ W., a little over three-quarters of a mile from Sandy cove ledge, being distant one-third of a mile from the nearest part of George island.

Gull roost, 11 feet high, is the name given to the highest of the granite rocks which skirt this shore.

Fish point is the north-west extremity of George island, and is composed of two low, bare islets, 5 feet high, between which and the main shore of George island there is a boat passage. It derives its name from being the place where the fishermen of Killarney formerly deposited their fish refuse.

Ann Long bank.—A depth of 7 feet will be found 500 yards in a westerly direction from Fish point, to lead west of which keep the west lighthouse in line with the very highest part of Leading-mark hill, N.E. $\frac{1}{2}$ N.

KILLARNEY HARBOUR (SHEBAONANING),* as its Indian name indicates, is a narrow strait dividing George island from the main shore, and affords excellent shelter from all winds, the least depth in the channel being 17 feet at mean water. The village itself in 1891 had a population of 502, subsisting mainly by the fishing interest. It contains an R. C. church, and stores where supplies can be obtained. There is postal communication with Sault Ste. Marie, Collingwood and Owen Sound almost daily.

LIGHTS.—The east light-house is situated on Red rock point (close to which the water is deep), on the north side of Eastern entrance to the harbour. It is a square wooden tower, painted white, and from an elevation of 42 feet above the water exhibits a *fixed white* light, visible 11 miles. The west light-house, of similar shape and colour to the above, stands upon the south point of an island, called by some, Partridge island, bearing N. N. W. $\frac{1}{2}$ W., a little more than three-quarters of a mile from Western entrance to Killarney harbour. It shows, from an elevation of 30 feet, a *fixed white* light, visible 10 miles.

The north shore of Killarney harbour is indented by three coves, the easternmost of which runs in immediately westward of the east lighthouse.

Thebo point separates the latter from Thebo cove, and this point although low, is quite steep-to. Flat point is the name given to the projection dividing Thebo cove from Cameron cove, the western one of the three. From Flat point shoal water extends 50 yards. Cameron cove has two islets in the west part of the entrance, from the western one of which a shoal extends towards the channel 50 yards.

Le Hayes point applies to the south-west extreme of the mainland shore, and forms the north point of entrance from the westward. This point has a rock 6 feet high, lying 40 yards off, together with a small dry stone 100 yards west of it, the channel here being only 70 yards wide.

*See plan on chart 397.

The south shore of the harbour, between North-east and Fish points, although straight on the whole, is broken by several inconsiderable coves.

Bayfield bluff is the name given to a low cliff forming the east side of one of these coves, situated half a mile from North-east point, and nearly opposite the eastern wharf. This bluff is so called from the circumstance of the surveying steamer *Bayfield* having occasionally tied up to it during the progress of the survey in this locality, so as not to be disturbed by vessels coming to the docks on the village side.

Entrance rocks, 6 feet high, lie 150 yards northward of North-east point; they are 100 yards in extent north-west and south-east. Not more than 8 feet of water can be carried between them and George island, but they are steep-to on the north side.

Pancake rock, just showing above the water, lies 130 yards eastward of North-east point, and between them the passage is only fit for a boat.

Jackman rock, a small lump with 8 feet water over it, is situated E. by S., 200 yards from Entrance rocks. Fish point closed with the docks on the north shore W. by N. $\frac{1}{2}$ N., leads northward of this obstruction.*

Directions for entering Killarney harbour from the south-eastward.—Bring the east lighthouse under the highest part of Leadingmark hill bearing N. $\frac{1}{2}$ E.—at night the light on this bearing—and proceed for it thus to avoid Jackman rock, until Fish point is closed with the wharves at the village bearing W. by N. $\frac{1}{2}$ N. This mark will lead northward of Jackman rock. After passing Entrance rocks, which can generally be made on a dark night, keep the George island shore on board to avoid a shallow stone lying 50 yards off a point on the north side of the harbour immediately opposite to Bayfield bluff.

Approach to West entrance to Killarney.—From Le Hayes point the mainland shore trends in a general northerly direction nearly one mile.

Lobster island, about 80 yards in diameter, and the same distance from the shore, lies N. by E. $\frac{1}{2}$ E., a little more than half a mile from Le Hayes point; the depth of 12 feet will be found 250 yards westward from Lobster island. The soundings on this shore are shallow, but as the water shoals very gradually, and the bottom is soft, sailing vessels in beating may stand in to very little more than their draught with confidence.

*The Government has in contemplation the erection of a pair of range lights to lead in northward of Jackman rock.

Sheep island, one-third of a mile long and nearly one-quarter of a mile in width, is the next one north-eastward of that on which the western lighthouse stands. A small rock, 3 feet high, lies 100 yards off its southern extremity.

The island, on the south point of which is situated Killarney west lighthouse, is 250 yards long north and south, by 150 yards wide.

A rock just showing lies S. $\frac{3}{4}$ W. 150 yards from the lighthouse; a dry rock 2 feet high lies S. W. $\frac{1}{4}$ W. 150 yards from the same, and another dry stone lies W. $\frac{1}{4}$ S. 170 yards from the lighthouse.

An islet lies W. $\frac{1}{4}$ S. 300 yards from the lighthouse, and north-westward 100 yards from this islet is a small rock with 3 feet water on it.

No vessel should proceed north of the line running east and west through the lighthouse, as the survey is not carried northward of this.

Double island is the name given to an island 17 feet high of this dual nature, lying a quarter of a mile southward of the lighthouse, and a small islet 3 feet high lies E. by N. $\frac{1}{2}$ N. 350 yards from the south point of Double island. There is no passage between Double island and the lighthouse; shoal water extends 200 yards in an easterly direction from Double island.

Double island ledges is the name given to a dangerous patch of rocks, one of which just shows, lying a little over two-thirds of a mile south-westward of Double island. The south end, where there is a depth of 14 feet, bears from Fish point due West, distant two-thirds of a mile. The west lighthouse kept under the highest part of Leading-mark hill, N.E. $\frac{1}{2}$ N., leads eastward of these rocks.

Directions for entering Killarney harbour from the westward.—If from the North Channel of lake Huron, the most direct track is between Kokanongwi and Badgeley islands; and the west lighthouse should be steered for in line with the highest part of Leading mark hill, being N.E. $\frac{1}{2}$ N., to lead east of Double island ledges and westward of Ann Long bank. The vessel's head may be turned more to the eastward, when Badgeley rocks (hereafter described) come in line with Lion's Rump W. $\frac{1}{2}$ S. Run on the latter mark until the north-east part of George island is touching, or slightly closed with Le Hayes point E. S. E. The most water that a vessel can carry into Killarney by the Western entrance is 17 feet at mean water. Entering from the eastward, 4 fathoms can be carried to the wharves.

At night.—On the darkest night, the black outline of Leading-mark hill is discernible with the aid of a glass, and the hill and lighthouse should be kept in line, as previously directed, until the east lighthouse has passed across northward of Le Hayes point, when a vessel may haul up for the entrance. A vessel should not be in a hurry to haul up, remembering that she would have to be within 200 yards of Double island

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before she could get ashore, and moreover a sheer to starboard would soon put her into deeper water. A stranger should not attempt either of the entrances to Killarney by night until he has had some experience by day.

Badgeley rocks, about 10 feet above the water, lie N.E. by N. half a mile from Maxwell point—the north-east extreme of Badgeley island. Between Maxwell point and Badgeley rocks are two sunken dangers, with 5 feet water on them; there is, however, deep water between these obstructions, but as the passage north-westward of Badgeley island, to which this leads, is not in its present state to be recommended, there is no object in giving directions to pass between Maxwell point and Badgeley rocks.

BADGELEY ISLAND has a total length of $3\frac{1}{2}$ miles, with a maximum breadth of nearly $1\frac{1}{2}$ miles; the highest part is situated two-thirds of a mile from its north-east extreme, and attains an elevation of 370 feet.

Twin islands, 31 feet high, consist of two high, bare rocks, situated a quarter of a mile south-eastward of Maxwell point. Three fathoms water may be carried through between Twin islands and Badgeley islands, and deep water will be found on their east and south sides. The south-east coast of Badgeley island, as far as High beach is steep-to.

Linter rock, with 14 feet least water on it, lies S. $\frac{1}{2}$ E., half a mile from the southern Twin island, and N. N. E. $\frac{1}{2}$ E. little more than that distance from the north part of Kokanongwi island. The west lighthouse and Leading-mark hill range, previously alluded to, leads westward of this shoal also.

Kokanongwi island.—The Indian name of a small fish—is exactly half a mile long north-east and south-west, and 400 yards broad. It lies three-quarters of a mile south-eastward from the centre of Badgeley island. Shoal water extends 300 yards south and west from its south-west point, leaving its north-west and north sides steep-to. A large rocky flat extends from the south-east side one-third of a mile, almost joining the shoal water from

Kokanongwi Shingle.—This is the name given to a bank of stones elevated 5 feet above the water, bearing E. by S. $\frac{3}{4}$ S., distant half a mile from the north point of the island of that name. A shallow spit extends from it in a north-east direction 200 yards, and a bank runs from it S. S. W. $\frac{3}{4}$ W. a quarter of a mile, leaving a channel 200 yards wide between it and the bank from Kokanongwi island. The summit of cape Smith, in line with Kokanongwi Shingle, S. by W. $\frac{1}{2}$ W., leads towards Western entrance of Killarney from Georgian bay.

Evans point is the name given to the south-west projection of Badgeley island, and off it shoal water extends 200 yards.

High beach cove lies between Evans point and High beach alluded to on page 34, and is very shallow.

Underhill point may be considered the north-west point of Badgeley island, and bears nearly north, distant three-quarters of a mile from Evans point. Between them is formed a deep bight, with fairly deep water in it.

Centre island is the next large island, immediately westward of Badgeley island. The east extremity is composed of three islets, the eastern of which, Harris island, is about 200 yards in diameter, and separated from Underhill point by a deep channel 300 yards broad.

Bayfield reef, inside the depth of 18 feet, is 800 yards long in a N. N. E. and S. S. W. direction, and 200 yards wide, and the least depth on it is 10 feet. The south extremity of the shoal bears W. by N. $\frac{1}{2}$ N. nearly two-thirds of a mile from Evans point. Bayfield reef is separated by deeper water from an extensive flat which makes off southward from the eastern part of Centre island.

Lion's Head, in line with the east side of Harris island N. by E. $\frac{3}{4}$ E., leads eastwards of Bayfield reef. The same hill in line with Underhill point N. by E. $\frac{1}{4}$ E. leads westward of the shoal water at Evans point.

CENTRE ISLAND BANK, with 6 feet least water on it, extends from the western portion of that island in a south-easterly direction two-thirds of a mile, narrowing the main channel to little over half a mile. The south-east corner of this extensive rocky bank bears W. by S. $1\frac{1}{4}$ miles from Evans point, and the south-western extremity bears E. by S. $1\frac{1}{4}$ miles from the western part of Partridge island. A small patch with 17 feet on it lies on the latter bearing, but 400 yards further west. The south extreme of Kokamongwi island open south of Badgeley island, E. $\frac{3}{4}$ N., leads south of Centre island bank and Bayfield reef.

Partridge, or as it is sometimes called **Round island**, is the western one of the three, being separated from Centre island by a narrow but deep channel, and its summit is elevated 190 feet above the water.

Partridge island rocks are too small rocky patches having 12 feet water on them, situated respectively S. E. by E., a quarter of a mile, and E. by S. $\frac{3}{4}$ S., nearly half a mile from the south-west point of Partridge island. In addition to these, shoal water fringes the south shore of Partridge island an average distance of 200 yards.

Lansdowne channel is the name given to the Sound which separates Badgeley, Centre and Partridge islands from the mainland peninsula, the north side of which forms the south-east shore of Frazer bay. The greatest depth of water that a vessel can carry through this channel is from 13 to 14 feet, at mean water, but there are so many rocky banks in it that it would be impossible for a vessel to expect to get

through without the assistance of several buoys. Should the amount of traffic ever warrant the authorities to buoy this channel a saving of $1\frac{1}{4}$ miles may be effected in the distance from Killarney to Little Current, with increased comfort to passengers, by escaping the heavy sea outside Badgeley island in south-easterly weather.

Snug harbour.—Although Lansdowne channel in its present state cannot be navigated from end to end, yet it can safely be entered between Centre and Badgeley islands, and access had to this excellent little harbour, by following these directions. Snug harbour is situated on the mainland shore, on the northern side of Lansdowne channel, and is $2\frac{3}{4}$ miles from the west entrance. The month is rather shallow, but not less than 11 feet may be carried in, by keeping rather on the western side,* beside the harbour a vessel will find good swinging room in 5 fathoms over mud.

Directions from the North Channel.—Bring Lion's Head in the gap between Harris Island and Underhill point, and so enter Lansdowne channel, and when inside steer N. N. W. $\frac{1}{4}$ W., for the entrance to the harbour; or a vessel of large draught may pick up a berth anywhere inside Harris island in from 6 to 8 fathoms muddy bottom.

Passage between Partridge and Centre Islands.—A small islet with trees on it lies in the south part of the narrow passage between these two islands, and is almost joined to Partridge island; and 150 yards northward of this there is a small bank of stones 2 feet high. These narrow the channel between them and Centre island to 160 yards. A rock with 7 feet of water on it, lies S. $\frac{1}{2}$ E., distant 40 yards from the bank 2 feet high just mentioned, and between the latter and Partridge island there is 12 feet of water.* To pass through between Partridge and Centre islands, open the passage and steer for it, bearing N. $\frac{1}{4}$ E., with not less than 3 fathoms.

Keep Centre island on board until past the bank 2 feet high, when bring the latter in line with the bushy hill on Maaitonlin island, a mile back of Indian Dock—known as the Spur—S. $\frac{1}{4}$ W. This will carry a vessel over the bar with not less than $3\frac{1}{2}$ fathoms. A vessel may anchor on the latter range in this depth over mud, when the south side of Heywood island is in line with the north shore of Partridge island bearing W. $\frac{3}{4}$ S.

A reef, with 9 feet water on it, lies 200 yards westward of the west extremity of Partridge island; the north-west and north sides are steep-to.

Creak island is the name given to the island at the south-west extremity of the peninsula which separates Lansdowne channel from

*At low stages there may be two feet less water.

† See note, p. 50.

Frazer bay. The island is divided from the peninsula by a boat-channel through which 4 to 5 feet may be carried by keeping the east shore on board.

A rock, with 2 feet water on it, lies 150 yards from the south point of Creek island, and between is a depth of 12 feet.

Richards reef, 8 feet high, is situated nearly 200 yards westward of Creek island, and between them $4\frac{1}{2}$ fathoms may be carried in an emergency.

Boat rock is the name given to a shoal spot with 6 feet of water on it, lying 350 yards westward of Richards reef; it is surrounded on all sides by deep water.

Steamer reef, with 13 feet of water on it, lies S.W. $\frac{1}{2}$ S., distant one-third of a mile from Richards reef. To lead westward of both these dangers, keep the east fall of Wekwemikong hill open of the south-west extreme of Partridge island S. $\frac{1}{2}$ E.

FRAZER BAY.—This fine sheet of water is entered from the south-west, between Mary point—the south-east extremity of Little Cloche island and Creek island already described. The absence of traffic did not justify the survey being pushed any further than to the east and west line, passing half a mile northward of Mary point. Since the survey of this portion of the coast, minerals have been discovered 35 to 40 miles inland, and no doubt but an extension of the survey two or three miles further northward would show that a suitable port exists for the shipping of ore which could be brought down by the branch line for which a charter has been granted to connect Little Current with the main line of the Canadian Pacific Railway along Cloche peninsula. The description will now be given of the coast of the peninsula forming the south-east shore of Frazer bay.

Gibson point.—From Creek island the shore trends in an east-north-easterly direction one mile to Gibson point, immediately westward of which a cove runs in 400 yards.

Boyle cove is situated east of Gibson point, and is a quarter of a mile in length by 300 yards in breadth, containing shelter in all but northerly winds, in 5 fathoms mud. A spot with not less than $3\frac{1}{4}$ fathoms lies a little north of the entrance. From this cove, the coast trends in a north-easterly direction, three-quarters of a mile to Mayes point, and is steep-to.

Limestone point is low and flat, and being composed of rock of this nature, contrasts strongly with the formation of the surrounding country. The east side of this point is steep-to, but on the west side is an extensive rocky bank with from 12 to 15 feet water over it, stretching 400 yards from shore.

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Deepwater island, 48 feet high, lies two-thirds of a mile north-eastward from Limestone point, and with the exception of a spur which makes out 100 yards from its south-west point, has deep water on all sides.

Quartz rock, small and bare, 9 feet high, is situated a quarter of a mile north-eastward of Deepwater island, and is fairly steep-to on all sides.

Lion's Head and Rump are two elevations 453 and 470 feet high respectively, which together form one hill in the middle of the peninsula in this locality, having from the southward somewhat the form of that animal when lying down. The Head serves the purpose of a leading-mark to clear various shoals.

HEYWOOD (RAT ISLAND) is $2\frac{1}{2}$ miles long east and west, with an average width of two-thirds of a mile, and rises to a height of 178 feet. The water on the south shore is good to the line of the points. South-east point, the name given to that point of the island, is also steep-to.

Powell cove is an indentation on the east side of the island northward of South-east point, and in which a vessel may find shelter from westerly gales in 5 fathoms mud and sand.

Watts rock, with one foot water on it, is a small obstruction lying between South-east point and Partridge island, and distant nearly half a mile from the former. A spur of 3 fathoms makes off from it in a north-east direction nearly 200 yards. A depth of 14 fathoms will be found between this rock and Heywood island. To pass southward of this danger, keep the summit of Badgeley island in line with the north side of Partridge island E. by N. $\frac{1}{2}$ N. Frazer bay hill, in line with Richards reef N.E., leads south-east, and the east fall of Cloche bluff, in line with Heywood rock N. by W., leads west of this danger.

Heywood rock, 3 feet high, is a white quartz reef, lying N. by E. two thirds of a mile distant from South-east point, and one-third of a mile from the nearest part of Heywood island. A rocky spit makes out from it N. by W. 100 yards; and a bar connects it with Powell cove bank, between which, however, a vessel may carry 3 fathoms by keeping the north end of North-west Burnt island exactly in line with the south side of Partridge island; Heywood rock is otherwise steep-to.

Powell cove bank, with 3 feet water over it, lies south-westward of Heywood rock, and a channel of 3 fathoms exists between it and Heywood island.

SPLIT ROCK is a very dangerous obstruction to vessels using this channel; it lies with Heywood rock, nearly in line with the north side

of the island of that name bearing E. by N., and distant from the former a little over half a mile. It has deep water all round it, and a vessel will pass south-westward of it by keeping Skull point (Manitoulin island) open of Partridge island S. E. $\frac{3}{4}$ E. The north shore of Heywood island kept well open north of Heywood rock will lead north of Split rock.

Shoal island is the name given to the island on the eastern side of the large bight on the north shore of Heywood island. Its north point bears W. by N. three-quarters of a mile from Heywood rock.

Shoal island spit extends from the island of that name one-third of a mile in a northwesterly direction. It has on it depths varying from 6 to 12 feet. The south side of Partridge island, in line with Heywood rock, S. E. by E. $\frac{1}{2}$ E., leads north-eastward of this reef.

Browning island is situated on the western side of the same bight, and nearly half a mile west of Shoal island, and between the two the water is shallow.

Browning cove.—This indentation contains excellent shelter from any wind in from 3 to 4 fathoms mud. The western shore of Browning island should receive a berth of 150 yards until inside the harbour. A mud bank extends about the same distance from the west side of the harbour. With these exceptions the shores are quite clean. On the western side, and south of the muddy flat just alluded to, an arm runs in 400 yards with a depth of 3 fathoms mud.

Stanley point, a quarter of a mile west of Browning island, is fairly steep-to, and from it the coast turns away to the south-west two-thirds of a mile to Oxley point, the bight formed between them being shallow.

Oxley point, the very western extremity of Heywood island, has a flat of 3 to $3\frac{1}{2}$ fathoms extending from it in a north-west direction 400 yards.

Wharton point is situated a little more than one-third of a mile southward from Oxley point, and from it a narrow shoal spit makes out 150 yards, at which distance there is a depth of only 8 feet.

MANITOWANING BAY, the next indentation westward of Smith bay, is a fine sheet of water 11 miles in length being clear of outlying dangers. At the bottom is pleasantly situated the town of Manitowaning, with a population of about 400, where reside the Indian Superintendent and Medical Officer, for Wekwemikong and other Indian reserves. Supplies can be obtained here, and almost daily communication had with Sault Ste. Marie, Owen Sound and Collingwood. There is also connection by coach with Michael and Providence bays. The east and shoal water in this bay will now be described, commencing at

Indian Dock point.—This low point may be said to be the eastern entrance point of Manitowaning bay. Shoal water extends from the shore on either side of this point for a distance of nearly 400 yards. South-westward, 800 and 300 yards respectively from the point, are situated Dufferin and Lisgar islands, small and wooded.

Rabbit island.—The north point of this low and wooded island bears S.W. $\frac{1}{2}$ W. $2\frac{1}{2}$ miles from Indian Dock point, and the broken coast between them has shoal water extending in some places a distance of half a mile. The highest part of Leading-mark hill, Killarney, seen over the eastern extreme of Centre island, N.E. $\frac{3}{4}$ E., leads north-westward of all these reefs.

Rabbit island, 600 yards long by 200 yards greatest breadth, is separated from the shore by a passage 350 yards wide, through which, by keeping nearer the island, a depth of 2 fathoms may be carried in an emergency.

Rabbit island rock, with 5 feet water over it, lies S. W., distant 800 yards from the west side of Rabbit island.

To avoid this rock, keep Indian dock point and Lisgar island open north-westward of Rabbit island N.E. $\frac{1}{2}$ E.

Monk point bears S.S.W. and is distant one mile from Rabbit island, and between them the shore is foul.

Pender islets is the name given to two small islands lying S. by W. $\frac{3}{4}$ W., half a mile from Monk point, and may be approached to 200 yards.

Ironsides rock 5 feet high is the name given to a small collection of boulders 100 yards from the shore, situated S.S.W. $\frac{1}{2}$ W., $2\frac{1}{2}$ miles from Pender islets. The coast between them, when not less than three-quarters of a mile southward of the latter, may be approached to 200 yards. From Ironsides rock, the coast trends in a south-west direction 2 miles to Phipps point and may be approached to 300 yards.

Phipps point shoal, a rocky patch with 9 feet least water on it, lies 400 yards westward from the southern part of Phipps point. The shoal within the depth of 3 fathoms is 400 yards in length, north and south by 200 yards in breadth, and is separated from Phipps point by a channel 250 yards broad and 6 fathoms deep. Strangers should pass westward of the shoal by keeping Fanny island in Manitowaning harbour touching Town point S. $\frac{1}{4}$ W. This mark leads one-third of a mile westward of the shoal; at night keep the light on the same bearing.

Buzwales cove is the indentation immediately southward of Phipps point, and is shallow.

Maccaset's landing is the name given to a small wharf on that part of the east shore $1\frac{1}{2}$ miles southward of Phipps point, and immediately opposite the town of Manitowaning. A sailing ferry-boat plies between the town and Maccaset's landing, and a road joins the latter, and the Indian village of Wekweinkong (Smith bay). The coast between Buzzwiles cove and Maccaset's landing may be approached to 200 yards.

Stephens cove.—The coast trends in a south-easterly direction nearly straight one mile to Stephens cove, into which flows a stream, and this part of the shore may be approached to 200 yards. From Stephens cove the coast turns to the south west, gradually shoaling as the beach at the bottom of the bay is reached. This part of the coast should not be approached nearer than 400 yards.

Fanny island is situated southward of the usual anchorage under the town of Manitowaning. Its north, north-east and north-west sides are fairly steep to, but shoal water joins its southern extremity to Narrow point on the main shore.

Narrow point, just alluded to, is situated 250 yards southward of Fanny island, and 800 yards northward from the western end of the beach at the bottom of the bay. This point should receive a berth of 200 yards.

Manitowaning harbour.—The southern portion of the bight formed between Narrow point and the wharves at the town is shallow, but as the latter are approached the water deepens, and good anchorage may be obtained between Fanny island and the wharves, in from 3 to 5 fathoms mud, the nearer the town the better the shelter. Although vessels anchor for convenience near the town, the whole space southward of the line joining the light-house and Maccaset's landing may be considered one excellent harbour, anchorage being obtainable in any depth under 10 fathoms.

Gibraltar cliff is the name given to a rather remarkable rocky bluff, half a mile back from the beach at the bottom of the bay, and as this cliff is just in sight when on Phipps point shoal, care should be taken when approaching or leaving Manitowaning that it is well open of the eastern shore.

LIGHT.—About 250 yards northward of the Government wharf and 50 yards from the shore is erected a square wooden structure, painted white, which from an elevation of 80 feet above the water shows a *fixed white* light visible 14 miles.

The Rock is the name given to an eminence 166 feet high, half a mile westward of the town, and which serves as a leading-mark to clear Loon island reef, hereafter alluded to. From Town point the west shore

of the bay trends in a north-westerly direction $1\frac{2}{10}$ miles to Springer brook, and is steep-to. Hence the coast runs nearly north $2\frac{1}{2}$ miles with the same character to Francis brook.

Sandy point, indicated by its name, is in itself steep-to. It is distant nearly 2 miles southerly from Ten Mile point, and $2\frac{1}{10}$ miles north-easterly from Francis brook.

Francis bank.—Fronting the coast embraced by Francis brook and Sandy point is a shoal rocky flat, which, at three-quarters of a mile from Francis brook, extends 600 yards from the shore. To avoid Francis bank when tacking, keep the whole of Heywood island in sight, N. by E. $\frac{1}{2}$ E.

Ten Mile point, the western entrance point of Manitowaning bay, derives its name from being nearly that distance from the town of Manitowaning. The coast between Sandy and Ten Mile points may be approached to 250 yards.

Five-fathom patch, with $5\frac{1}{2}$ fathoms on it, lies $1\frac{1}{2}$ miles eastward from the nearest part of Ten Mile point.

SHEGUIANDAH BAY is a large indentation between Manitowaning and Little Current. Strawberry island and Ten mile point may be considered its north and south entrance points respectively. A detailed description of its shores, islands and dangers will now be given.

Ten mile shoal extends northward 600 yards from the point of that name, at which distance there is a depth of 13 feet. South point of Strawberry island open north-east of King William island half the breadth of the latter, N. W. by W., leads north of Ten Mile shoal.

Loon island, low and wooded, 250 yards long and 100 yards broad, is situated N. by W., $1\frac{2}{10}$ miles from Ten Mile point. From the south point a shoal extends in a S.S.W. direction 100 yards. Its other sides are fairly steep-to.

LOON ISLAND REEF, with 7 feet least water on it is a dangerous obstruction, lying with its north edge bearing E. $\frac{1}{2}$ N., distant a little over three-quarters of a mile from the north extreme of Loon island. The south edge of the reef bears E. by S. from the same. To pass east of Loon island reef keep the south-east tall of Cloche bluff in line with the west point of Heywood island N. by E. $\frac{1}{4}$ E., but as this mark leads only 200 yards eastward of the reef, care should be taken not to open the bluff the least thing. To pass 200 yards westward of the reef keep The Rock (Manitowaning) in line or closed with Ten Mile point S. $\frac{1}{2}$ W. From the southward it should not be approached nearer than the line of the south extremes of King William and Loon islands in one, W. by N.

To lead northward of the reef, keep the foot of the Sheguiandah hill in line with South point of Strawberry island W. by N.

McGregor bank, 600 yards long north east and south west, and 300 yards broad, with least water 9 feet, lies with its north extremity bearing W. N. W., half a mile from the north point of Loon island; the line joining the south points of Loon and King William islands passes through its south extremity.

The leading mark previously mentioned, viz., South point of Strawberry island open north of King William island, half the breadth of the latter N. W. by W., leads south west of McGregor bank, as also the shoal water from the south point of Loon island before alluded to.

Boulton reef, with 9 feet of water over it, lies 300 yards north-westward of McGregor bank, its north extreme bearing E. by N. $\frac{1}{4}$ N., a little more than half a mile from the north point of King William island. The foot of Shegniandah hill, in line with South point of Strawberry island W. by N. leads 200 yards northward of Boulton reef.

King William island, 200 yards long and quite narrow, is low and wooded, and bears from Loon island W. $\frac{1}{4}$ N., distant $1\frac{1}{2}$ miles. It is almost joined to the south shore of the bay by a narrow bar, with from 7 to 9 feet water over it; 15 feet may be carried through by keeping nearer the south shore, but the passage is too narrow to be attempted by strangers. The east side of the island is shoal for 150 yards, and a rocky spit, with 7 feet water on it, extends 250 yards from its north extreme, to clear which keep the north end of Rabbit island (when visible) in line with the north point of Loon island, E. by S. $\frac{1}{2}$ S.

Leech island is the name given to a narrow bank of stones thickly wooded, separated from the south shore of Shegniandah bay by a rushy beat channel. The north extreme of this island bears W. by S. $\frac{1}{2}$ S., and is distant nearly one mile from the north end of King William island. The coast between Ten Mile point and Leech island consists of several slight indentations, having at an average distance of 200 yards a depth of 12 feet. A steep clay cliff, over 200 feet in height, follows this coast along, at a distance back of about 400 yards.

Leech island reef extends N. E. from the island of that name, 850 yards, at which distance the depth of 17 feet will be found, rapidly shoaling towards the island. The north points of Loon and King William islands in line E. $\frac{1}{4}$ S., lead northward of this reef.

Sims point is situated half a mile westward from Leech island, and may be approached to within 150 yards.

Public wharf—Between Sims point and the wharf (at which there is a depth of 11 feet) the coast gradually curves, forming the bottom of Shegniandah bay which vessels drawing more than 12 feet water should not approach nearer than a quarter of a mile.

Sheguiandah.—This village has a population of 421, contains a post-office, Methodist and Episcopal churches. Steamers from the south-eastern ports of Georgian bay to Sault Ste. Marie stop here when there is occasion.

Frost point (which with Sims point, before mentioned, may be said to enclose the bottom of the bay), is about one-mile north-eastward of the wharf; and the depth of 3 fathoms will be found 150 yards south and east of the point; hence to the wharf the shoal water gradually extends farther out.

STRAWBERRY ISLAND is $4\frac{1}{10}$ miles long in a nearly north and south direction, with a maximum breadth of $1\frac{1}{2}$ miles near the middle. Its coast line is indented by numerous large coves; its south-east side will only, however, at present be described as forming part of the north west side of Sheguiandah bay.

South point is—as its name indicates—the most southerly extremity of the island. The depth of 16 feet will be found 350 yards south of the point, and 15 feet at 150 yards. From South point the south-east shore of Strawberry island trends in a general north-east direction, nearly 3 miles to East point.

White's cove, shallow and full of rushes, is situated between them, and nearly three-quarters of a mile from South point; shoal water extends from its mouth nearly 300 yards.

Beaver island is a very narrow island, 1,200 yards long, low and thickly wooded. Its eastern shore may be approached to 200 yards, but from the sharp south extremity shoal water extends in a south-west direction, under the name of Beaver island bank, half a mile, with depths varying from 15 to 18 feet over it.

Beaver island harbour is formed by Beaver island on the east, and the large bight in Strawberry island on the west. It is entered from the south-westward, and anchorage in 3 to $3\frac{1}{2}$ fathoms may be obtained with the south point of the island touching Ten Mile point, and the north point of Beaver island in line with the southern part of East point. A bar with 9 to 10 feet water on it joins the north end of Beaver island to Strawberry island.

Directions for proceeding to Sheguiandah northward of Loon island.—Before opening Cloche bluff westward of Heywood island, take care that the top of Sheguiandah hill is not brought to the southward of South point of Strawberry island W. by N. When past King William island do not shut in the north point of Loon island behind the former, until Leech island reef is passed; then steer for the wharf, or anchor at the head of the bay as convenient.

If entering Shlegniandah bay south of Loon island, keep South point of Strawberry island open north of King William island, half the breadth of the latter N. W. by W., until within a quarter of a mile of King William island, when haul to the northward to clear the spit from the north point of this island. After passing it the wharf at Shlegniandah may be steered for, taking care to avoid Leech island reef by the mark previously given. If proceeding through Strawberry island channel steer to pass not less than 300 yards southward of South point of Strawberry island, until the mark for entering that channel comes on. A strange sailing vessel should not enter the bay without a leading wind.

LIGHT.—Strawberry island light-house stands upon the very northern-most extremity of that island; the point itself being bold-to. The white square wooden tower is attached to the keeper's dwelling, and from a height of 40 feet above the water shows a *fixed white* light, visible 11 miles.

The coast of Strawberry island between East point (before alluded to), and the light-house, is indented by three shallow bays; the nearest one to East point being named Bowell, the middle one Chapleau, and Plummer cove which almost joins the water on the west side of the island.

Langevin rock, with 11 feet water on it, is the termination of a reef with less than 3 fathoms water, which extends N. by E. 650 yards from the east entrance point of Bowell cove. To clear this patch, keep the whole of Loon island open east of East point of Strawberry island, S. $\frac{1}{2}$ W.

Chapleau point, the north point of the cove of that name, is one mile distant in a north-west direction from East point. It may be approached from the eastward to within 150 yards.

Caron point is the name given to an anvil shaped point three-quarters of a mile south-eastward of the light-house. To the south-east, shoal water extends 400 yards, while due East 600 yards from Caron point rocky ground stretches still further out under the name of

Caron reef.—This shoal has depths on it varying from 9 feet on the inner to 17 feet on the outer part. To pass eastward of it, keep the east point of Loon island open of East point of Strawberry island bearing due South. The north point of Beauty island in line with Strawberry island light-house, N. W. by W. $\frac{1}{2}$ W., leads north-eastward of the reef.

Camp cove, the second indentation south-eastward of the light-house, is one-third of a mile distant from the latter. A vessel communicating with the light-house may find excellent anchorage here in 3 to 4 fathoms clay.

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STRAWBERRY ISLAND CHANNEL is the name given to the passage westward of the island of that name, and did the traffic warrant the expense of buoyage, 4 fathoms might be carried through. At present, with the assistance of four leading-marks or ranges, 20 feet will be found. A description of the shores of the channel will first be given.

Gow point.—From Strawberry island lighthouse the coast trends first in a south-westerly and then in a south-easterly direction, forming that extensive but open shallow bay known as Melvin bight. Gow point is the name given to the southern portion of the coast which extends in a south-west direction $1\frac{2}{3}$ miles from Melvin bight. Of the coast embraced between the lighthouse and Gow point, the first 600 yards from the lighthouse is steep-to; thence southward shoal water extends a long way out.

Middle bank, as the furthest out portion of that shoal water is called, has 12 feet of water near its northern extremity, bearing S.W. by W. $\frac{3}{4}$ W., one mile from Strawberry island lighthouse, and E. by N. half a mile from Long point on the main shore. To pass north-west of this bank keep the lighthouse in line with the south-east tall of Cloche bluff E. N. E.

Gow shoal, with 13 feet of water over it, lies west 1,200 yards from Gow's house (a conspicuous summer residence on Strawberry island), and S.E. by S. the same distance from Long point.

Costigan point is situated three-quarters of a mile southward of Gow point, and the coast between them forms a long shallow bight. The remainder of the coast of Strawberry island trends from Costigan point in a general S.S.W. direction, $1\frac{3}{4}$ miles to South point, the termination of Strawberry island previously spoken of. For $1\frac{1}{2}$ miles from Costigan point the three fathom line skirts the shore at the distance of 300 yards. As South point is approached the deep water comes a little closer in, the same depth being found 200 yards west of South point.

Snake island, 33 feet high, lies north-westward of South point, being distant therefrom 450 yards. The island is 400 yards long by 200 yards broad, and is joined to Frost point (before alluded to), on the main shore, by a bank over which not more than 6 feet can be carried. Shoal water extends 500 yards northward from Snake island.

Thompson point, on the main shore, bears N. by E. $2\frac{1}{2}$ miles from Frost point. The coast consists of a double curve, off the middle portion of which shoal water extends a little more than half a mile. The western edge of the channel is distant 550 yards from the south part of Thompson point, 100 yards from which there is a small islet, but the deep water approaches the narrow north extreme of the point within 150 yards.

Long point is a remarkably narrow peninsula, with its outer and north-east extreme bearing N. $\frac{1}{2}$ W., nearly one mile from Thompson point; the shore of the bight between them should not be approached west of the line joining these points, midway between which is a group of dry stones, 2 feet high, and sunken rocks. A narrow shoal spit makes out from the extremity of this point in the continued direction of the latter 200 yards.

Gibbons point, which may be called the south entrance point to Little Current, from the eastward, bears N. W. $\frac{3}{4}$ N., distant one mile from Long point. Nearly midway in the deep bight between them, and 300 yards from shore, is a low wooded islet. The shore between Gibbons and Long points should not be approached nearer than a quarter of a mile.

South shore of Cloche islands.—The south-eastern portion is known as Little Cloche island, being divided from Great Cloche island by a narrow boat channel named South west Gut, through which there is a perceptible current. Little Cloche island is about $1\frac{1}{2}$ miles in diameter, its low south-eastern extremity being known as

Mary point.—This point, which may be called the western entrance point of Frazer bay, can be approached from the south eastward to 300 yards, but a quarter of a mile north of the point shoal water extends eastward the latter distance, where there is a depth of 15 feet. From Mary point, shallow water extends in a S. by W. direction nearly 800 yards.

East Mary island, low and wooded, is 300 yards long north-west and south-east, by 200 yards broad, and lies in a south westerly direction 1200 yards from Mary point. Its north and east sides are steep-to, but a bank extends in a southerly direction 800 yards with depths varying from 12 to 18 feet. The west and south-west sides of this island should not be approached nearer than 400 yards.

West Mary island, low and less wooded than the last mentioned, has a maximum diameter in a north-east and south west direction of 800 yards. Like East Mary island, its north-east, north and north-west sides are steep-to, but from the south shore and south-west point, a rocky bank extends to the southward 600 yards, and to the south-westward nearly two-thirds of a mile. A patch of stones, one foot high, lies S. by W. $\frac{3}{4}$ W., 600 yards from the south west point of West Mary island. No natural features offer for a clearing-mark for the banks south of the Mary islands; care should be taken, therefore, when standing towards them, to tack in 6 fathoms. A passage 500 yards broad exists between the banks from these islands by keeping rather nearer East Mary island.

A channel of the same breadth exists between those islands and the shoal water from Little Cloche island by keeping the north shores of the Mary islands on board.

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Anchorage may be had either in or off the mouth of the cove on the north side of West Mary island.

From Mary point, the coast of Little Cloche island trends N. W. by W. $\frac{1}{2}$ W., $1\frac{1}{2}$ miles to the island in the entrance to South-west Gut, on either side of which there is a passage for a boat. Shoal water extends off this coast for an average distance of a quarter of a mile, and off the entrance to the Gut the flat extends 800 yards.

Cloche bluff, 220 feet high, is a rocky eminence on the south extremity of Cloche peninsula, the south-east fall of which serves for the clearing-marks already alluded to.

Stony point, the most southerly point of Great Cloche island, is the name given to the termination of the peninsula nearly a mile long and half a mile broad, $2\frac{1}{2}$ miles westward of Mary point and $1\frac{1}{4}$ miles eastward of Strawberry island light-house. As the name indicates, scattered boulders lie off the shore for 100 yards, and a shallow rocky bank extends southward a quarter of a mile.

Shoal bight, as the deep bay between South-west Gut and Stony point is called, is foul and shallow for more than half a mile. The east side of Stony point itself, however, is fairly steep-to. A depth of 6 to 7 fathoms, with a breadth of two-thirds of a mile, will be found between the shoal water south of Stony point and West Mary island bank.

English point, on Great Cloche island, bears N. W. $\frac{3}{4}$ N., and is distant a little over a mile from Stony point, and between them a very shallow cove runs in one-third of a mile. Shoal water fringes the shore an average distance of 400 yards.

An isolated rocky bank, with 12 feet water on it, is situated nearly midway between Stony point and McKenzie island.

McKenzie island, 3 feet high, with a few small trees on it, lies E. by N. $\frac{1}{2}$ N., one mile from Strawberry island light-house. A detached dry reef of stones, 2 feet high, lies N. by W. $\frac{1}{4}$ W., 400 yards from the island. From McKenzie island shoal water makes out 300 yards in a southerly direction. The east and west sides are fairly steep-to, leaving a channel with from 5 to 6 fathoms water, a quarter of a mile broad between it and English point, and another between it and Garden island, nearly two-thirds of a mile wide, with a depth of 7 fathoms.

Garden island—as the barren limestone island, 9 feet high, lying 800 yards northward of Strawberry island light-house, is rather inappropriately called—is nearly 600 yards long by 250 yards broad.

Garden island bank is a dangerous rocky flat, extending from the south shore of Garden island to within 350 yards of Strawberry island light-house. There is as little as 3 feet on the south-eastern part of this bank, but the north-east, north and north-west sides of Garden island are steep-to.

The coast of Great Cloche island, west of English point, runs generally in a westerly direction as far as Beauty island, and is indented by several rocky coves and inlets; and the whole shore is fringed with boulders and shallow sunken rocks. For two miles westward from English point a bank extends off from the shore an average distance of one-third of a mile, while from this to Beauty island there is only a depth of 12 feet at three-quarters of a mile from the shore.

Beauty island, elevated 70 or 80 feet at its northern extremity, is situated northward of the eastern approach to Little Current, and north-eastward half a mile from Gibbons point. It is separated from Goat island on the west by a boat channel nearly 200 yards broad, and has an average diameter of one-third of a mile. Its south-east point is fairly bold-to, but from its southern shore a rocky bank extends a quarter of a mile from the island, to avoid which in approaching or leaving Little Current, keep the inner or southern light-house at that place in line or closed with Shut-in point, W. by N. $\frac{1}{2}$ N. This mark will serve for day or night, leading over not less than 17 feet at mean water.

LITTLE CURRENT occupies an important position as being situated on the south side of the narrow channel through which all vessels must pass when navigating this part of the North Channel of lake Huron. This passage lies between the north shore of Manitoulin island and Goat island, the western part having been excavated to a depth of 17 feet.*

The town contains good stores and hotels, wharves with ample water alongside them, and has daily steamboat connection with the south-eastern ports of Georgian bay and Sault Ste. Marie. Several mills are established on the shore and islands westward of the town, but at present it has no telegraphic communication. This convenience, however, will come with or before the railway connection with Sudbury, for which a charter has been granted.

The eastern entrance to Little Current may be said to be formed by the east point of Goat island on the north, and Gibbons point on the south. The western entrance points are Magazine point (the west end of Goat island) and Spider island.

Gibbons point †.—From this point the south shore of Little Current trends in a west-north-westerly direction, nearly $1\frac{1}{2}$ miles to the north light-house on Spider island.

Griffiths point, the nearest projection to Gibbons point, is 600 yards distant therefrom, and between them a shallow bank extends 100 yards from the shore. The remainder of the south shore is fairly steep-to, excepting

* At low stages there may be 2 feet less water.

† See small plan on chart 307.

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Eleven-foot rock.—This small lump, with a depth on it indicated by its name, is situated with the eastern wharf in line with the southern light-house, and eastward of the former 250 yards, with deeper water between it and the south shore.

Bird rock, one foot high, is the name given to a cluster of stones lying 100 yards from the south-east part of Goat island, and not more than 3 fathoms will be found 200 yards south of it. Mallard cove is situated 800 yards westward of Bird rock; and from this cove to Magazine point the south shore of Goat island runs straight, with the exception of a small indentation close eastward of Magazine point, known as Indian cove. Westward of this cove 150 yards, are some dry stones extending 50 yards from the shore.

Magazine point is the west extreme of Goat island, and the coast between it and Bird rock has a shallow bank extending from it an average distance of 100 yards. At Magazine point itself, shoal water extends in a south-westerly direction 250 yards. A channel with 17 feet water—(See foot note)—has been excavated through this rocky bank.‡

Current.—The stream through this cutting runs in either direction very strong at times, requiring, when contrary, a good head of steam and a careful helmsman. Unless a sailing vessel has a commanding breeze she should wait at one of the wharves for a favorable direction of current, which will usually be found running with the wind.

LIGHTS.—These are two in number, bearing from each other N. $\frac{3}{4}$ W. and S. $\frac{3}{4}$ E., 450 yards apart. They are white square wooden towers, each exhibiting a *fixed white* light visible 6 miles. The north lighthouse is situated on the east point of Spider island. The southern one stands near the shore between the wharves.

Directions.—In proceeding through Little Current from the eastward; after passing Gibbons point, keep rather nearer the Manitowlin than the Goat island shore; pass close to the wharves, keeping in the line of the lights, and give the northern light a berth of 50 yards. When the buoys are in position keep the red buoys on the starboard and black on port hand when proceeding in this direction.

Directions from Manitowaning to Little Current.—Pass west of Phipps point shoal by keeping Fanny island, touching Town point S. $\frac{1}{4}$ W.—*at night*, keep the light on the same bearing. This course may be continued to Ten Mile point, when, if going eastward of Strawberry island, bring the clearing-marks on to pass east or west of Loon island reef. On a clear night the light of Manitowaning, just open and shut with Ten Mile point, will lead between Loon island reef and Loon island; after passing this shoal steer for East point of Strawberry island, giving it a berth of

‡ Operations for the widening and straightening of this channel are still going on.

200 yards, and take care, as Langevin rock and Caron reef are approached, to have, in the first instance, the whole of Loon island open of East point of Strawberry island; in the latter, the east point of Loon island open of the same will suffice.

A vessel may turn to the westward when the north extreme of Beauty island appears in sight touching Strawberry island lighthouse N. W. by W. $\frac{1}{2}$ W. The light should be rounded fairly close, in order to avoid Garden island bank alluded to on page 63, and the entrance to Little Current brought half a point on the starboard bow. Before Beauty island is abeam, see that the southern lighthouse at Little Current is in line with Shut-in point, on the south shore of Little Current, W. by N. $\frac{1}{4}$ N. At night, the light may be kept opening and shutting to ensure this range. Upon arrival at Gibbons point, proceed by the directions for Little Current, previously given.

Taking Strawberry island channel—after arriving at Ten Mile point—keep The Rock at Manitowaning open of Ten Mile point until South point of Strawberry island comes northward of King William island half the breadth of the latter, N. W. by W., when haul to the north-westward: this mark kept on will lead north of Ten Mile shoal and south of McGregor bank. When a quarter of a mile from King William island, steer to the northward to avoid the shoal water from the north end of the latter before alluded to. Round South point of Strawberry island a quarter of a mile distant, to bring Gow point (the north-west extreme of the latter island) touching the east point of Snake island, N. by E. $\frac{1}{4}$ E.

This mark leads close west of the shoal water from the west shore of South point. Pass 150 to 200 yards east of Snake island and bring South point in line with the west side of Leech island, S. $\frac{3}{4}$ W., which range, if carefully kept on, will lead a vessel over not less than 20 feet water, until past Thompson point; and as soon as the west low extremity of Beauty island is in line with Long point, N. by W. $\frac{1}{2}$ W., steer for it. On nearing Long point see that the east side of Snake island is open of Thompson point, S. $\frac{1}{2}$ W., to clear the spit from the latter. The eastern entrance of Little Current may now be steered for, which reached, proceed as before directed.

Directions from Killarney to Little Current.—Continue with the west light-house in line with the highest part of Leading-mark hill. N. E. $\frac{1}{2}$ N.; give High beach near the south-east extreme of Badgeley island a berth of 200 yards or more, and keep the south end of Kokanongwi well open of Badgeley island to lead south of Centro island bank. When the north side of Heywood island comes open of Partridge island, haul to the northward to pass a quarter of a mile westward of the latter—steer thence for Heywood rock, and after passing 200 yards

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north-east of it bring it in line with the south-west extremity of Partridge island to clear Shoal island spit. When the north point of Shoal island bears S.S.E., Strawberry island light-house may be steered for N. W. by W. $\frac{3}{4}$ W. On reaching the light-house proceed as directed from Manitowaning.

At night and even in daylight, a stranger is recommended to pass south of Heywood island, as the south shore is bold, with the exception of Wharton point, which should receive a berth of not less than 300 yards; Strawberry island light should now be kept on the port bow, the vessel steering N. N. W. $\frac{3}{4}$ W. to clear Carou reef, until the light bears N.W. by W. $\frac{1}{2}$ W., when the latter may be steered for.

From Killarney to Manitowaning.—After passing High beach at Badgeley island keep about half of Kokanongwi island open of Badgeley island, E. by N. $\frac{1}{2}$ N. for $3\frac{1}{2}$ miles, which should lead a vessel between Centre island bank and Skull point reef, and a quarter of a mile northward of Indian Dock point. When the south-east point of Centre island is in line with Leading-mark hill, N. E. $\frac{3}{4}$ E., keep it so to avoid the shoals between Indian Dock point and Rabbit island; and when the latter is abeam a S. S. W. $\frac{3}{4}$ W. course for $6\frac{1}{2}$ miles should bring a vessel abreast of Phipps point shoal, to lead west of which keep Town point in line with the west side of Fanny island, S. $\frac{1}{4}$ W.

On a dark night these clearing-marks will not be visible, and more liberal courses must therefore be steered.

Goat island channel is the name given the rocky passage fit only for boats, situated north of Goat island; and not more than 6 feet can be carried through. From Goat island channel, the coast of Great Cloche island trends to the north-westward in a series of long and shallow bights, fronted by islands and rocks, $2\frac{1}{4}$ miles to Flat island, which may be looked upon as really the south-west extremity of Great Cloche island. The whole of this shore is shallow for a long way out, and should be carefully avoided by keeping the islands on the Manitoulin shore on board. To avoid that portion of the bank westward of Picnic island, a vessel should keep the north end of Low island in line with or hidden behind the north extremity of Picnic island, E. S. E. This mark will lead south of this portion of this bank.

Spider island (on the eastern extreme of which the northern light-house stands) is low and flat; it is 250 yards in length east and west, by about 70 yards in width, and shoal water extends 100 yards into the channel from the west end. A saw mill belonging to Messrs. Potter & Co. is erected on this island and the lumber piles prevent the lighthouse being seen until nearly abreast of it.

Low island, of the same character, lies next west of Spider island, being separated therefrom by a passage 200 yards broad. This island is used as a piling ground for lumber, is nearly 400 yards in diameter, and its north point is steep-to. The ship channel here is about that number of yards broad.

Picnic island lies with its west extremity nearly one mile north-westward from Spider island lighthouse; it is one-third of a mile long, by nearly 400 yards in breadth, and partially wooded. Conlon Brothers have a saw mill on this island and docks with good water for vessels loading. The channel here is less than 400 yards wide, and the deepest water that a vessel can carry past the north-west point of Picnic island is 21 feet.

A **low islet**, 4 feet high with stones about it, lies rather over a quarter of a mile W. by S. $\frac{3}{4}$ S. from the north-west point of Picnic island, and from it a spit makes out to the north-westward 300 yards.

Narrow island is nearly one-third of a mile long east and west, and as its name indicates has very little breadth. The lighthouse on the north-west point of this island bears W. $\frac{1}{4}$ N., and is distant a little more than $1\frac{1}{2}$ miles from the corresponding extremity of Picnic island, and no vessel should go southward of this line.

LIGHT.—On the west extremity of Narrow island is erected a white wooden tower, with dwelling attached, showing at an elevation of 34 feet above the water a *fixed white light*, visible 11 miles.

Narrow island light is important as marking the south entrance point of the western approach to Little Current, and unlike Flat island on the opposite side, the channel shore of Narrow island may be approached to 150 yards.

Two rocks, with 6 feet of water on them, lie 400 yards westward of Narrow island lighthouse, the northern one bearing due West from the light. To lead north of this danger the whole of Picnic island should be kept open northward of Narrow island, E. by S. $\frac{1}{4}$ S.

The Manitoulin shore inside Low and Picnic islands trends in a general westerly direction, $1\frac{1}{2}$ miles to Miller point, forming a sheltered bight, in which (were not Little Current so near) craft drawing less than 9 feet might find good anchorage by entering between Miller point and the cluster of stones previously alluded to.

Mackay point is situated three-quarters of a mile westward of Miller point and 400 yards southwestward from Narrow island. The channel between it and the latter is fit only for boats. From Mackay point the shore turns abruptly to the south-westward, and runs in that direction $1\frac{1}{2}$ miles to a little indentation sheltered from the westward, and known as Turner cove.

Freer point.—From Turner cove the shore runs fairly straight $2\frac{1}{2}$ miles to Freer point, and although not dangerously shallow, is so shelving that a vessel drawing 12 feet of water should not approach nearer than a quarter of a mile.

WEST BAY is $7\frac{1}{2}$ miles long, the breadth between Wabos island on the east, and Francis point on the west being $5\frac{1}{2}$ miles. Like Manitowating bay, this is a fine sheet of water, with very few dangers. As much as 32 fathoms water will be found in the centre of the bay, and more than 20 fathoms within 100 yards of the east shore of the southern part. Anchorage may be had at the bottom of the bay in from 6 to 8 fathoms over mud. Here is situated the Indian village, containing an R. C. church and general store. Its shores will now be described commencing at.

Wabos island.—This island lies two-thirds of a mile west of Freer point, and marks the east entrance point of West bay. It is low, narrow and wooded, and a quarter of a mile long in a north-east and south-west direction. Its northward coast may be approached to within 100 yards, but from its south-west end a shoal makes off in the same direction over a third of a mile. In addition to this an extensive flat connects it with Freer point and the shore one mile south-westward of Freer point.

Wabosons (Little Rabbit) island is a low wooded islet 400 yards eastward of Wabos island, and between them there is a passage through which 16 feet may be carried by keeping the south-east point of Mink island (near East Rous island) midway between Wabos and Wabosons islands, N. E. $\frac{3}{4}$ E. Sunken rocks and dry stones connect Wabosons island with Freer point. From the latter the coast trends in a general south-west direction for $3\frac{1}{2}$ miles to Tamarack point, and off which coast a vessel may obtain temporary anchorage in from 8 to 5 fathoms sand and mud.

Tamarack point, the southern part of which is $4\frac{1}{2}$ miles from the bottom of the bay, may be coasted at the distance of 150 yards.

Sounding cove.—At the south part of Tamarack point the coast turns abruptly to the eastward, forming a bay known as Sounding cove, in which vessels may find good shelter from northerly gales in from 5 to 7 fathoms over mud, by not approaching the north shore of the cove nearer than 300 yards. From the cove, the east shore of West bay trends in a general S. S. W. direction to the bottom of the bay, and is bold-to.

Corbier cove.—One mile from the Indian village the west shore of West bay turns to the westward, forming a bight known as Corbier cove but which, on account of its exposure to north winds and its deep water, does not afford a secure anchorage. From this cove the shore trends in a N. by E. $\frac{3}{4}$ E. direction, $1\frac{1}{2}$ miles to Honora point, under the southern

hook of which is an excellent little boat harbour into which 4 feet water may be carried by keeping close to the west shore.

Dutchman's Head is the name given to a steep bluff 180 feet high, nearly 6 miles from the bottom of West bay, and the whole of the shore of West bay between them may be approached to 200 yards. At Dutchman's Head the coast turns abruptly to the westward, forming the southern shore of an extensive and shallow bight, in the southern part of which, however, a vessel may find shelter in westerly gales in from 4 to 7 fathoms, with The Tooth touching the eastern part of Francis point.

The Tooth is the name given to a small sharp rock 3 feet high, situated two-thirds of a mile northward of the shore under Dutchman's Head, and a quarter of a mile from the west shore of the bight; it should receive from the eastward a berth of 150 yards. From The Tooth the bight continues foul to

Francis point.—This is the name given to the narrow, north-eastern extremity of the promontory dividing West and Mudge bays. It may be also considered as the south entrance point to Clapperton channel from the eastward. The east side of the point is tolerably steep to, but shallow water makes off the extreme of the point a quarter of a mile in a N. E. direction, and for nearly a third of a mile to the northward under the name of Taché island reef; care should therefore be taken in rounding the point to give it the necessary berth.

McRae patch, with $3\frac{1}{2}$ fathoms over rock, lies N. E. $\frac{1}{4}$ E. nearly one mile from Francis point.

Gooseberry island, 250 yards long north and south, low and quite narrow, is situated with its north extreme bearing N. W. by W. $\frac{1}{4}$ W., distant a little more than one mile from Francis point, previously described. Its north end should receive a berth of 200 yards.

Martin reef lies on the same bearing from Francis point and is distant therefrom two-thirds of a mile. It is composed of dry stones, 2 feet high, and should not be approached from the northward nearer than 300 yards.

Taché island is the first island westward of Francis point, being distant therefrom a quarter of a mile; and from it extends in a northeasterly direction for one-third of a mile a patch of dry and sunken rocks known as Taché island reef, alluded to on previous page.

Trudeau point is nearly one mile west of Francis point, and from it the coast trends abruptly to the south-westward, forming the south-east coast of Mudge bay. A good passage 650 yards broad, through which $3\frac{1}{2}$ fathoms may be carried, exists between Gooseberry island on the west, and Trudeau point and Martin reef on the east, by keeping Ross house at Kagawong its breadth open of the east shore of Mudge bay, S. S. W. $\frac{1}{2}$ W.

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MUDGE BAY,* between Gooseberry island and Maple point, is 3 miles wide; it has about the same length, and the whole space, with two exceptions hereafter mentioned, has a depth of 6 to $8\frac{1}{2}$ fathoms over mud, making it one of the finest anchorages possible to conceive. The village called Kagawong is situated near the stream in the south corner of the bay. It possesses a saw mill, wharf, post office and church, with a population of about 250. The Collingwood and Owen Sound steamers call here occasionally.

LIGHT.—There is a depth of 16 feet at the wharf, to which vessels are guided at night by a *fixed white* light, 100 feet west of wharf, exhibited on a mast 40 feet high, and visible 11 miles.

Gray point is the name given to a slight projection on the west shore of the bay nearly 2 miles from the village of Kagawong. Sextant point is situated $1\frac{2}{3}$ miles further north, with a deep cove on its west side. Between Gray and Sextant points the shore is shoal for 400 yards; all other shores of the bay may be approached to half that distance.

McInnes bank, with 12 feet over it, lies N. W. by W., nearly one mile from Gooseberry island; it is composed of gravel, and is about 200 yards in diameter; for a description of Sutherland shoal, (*see page 87.*)

West and north-west coasts of Great Cloche island.—From Flac island (its south-west extremity) the coast of Great Cloche island turns abruptly to the northward, forming the east side of Wabuno channel, the whole low limestone shore of which may be approached to 100 yards.

North-west point has an open cove on its south-east, and an excellent boat harbour, known as Boat cove, on its north-east side.

Halfway islands, two in number, and 15 feet high, lie 400 yards westward of North-west point, and the channel between them and the latter is deep.

Neptune island.—From North-west point the coast of Great Cloche island alters its direction and character, now running nearly east and being more indented. Neptune island is situated $1\frac{1}{3}$ miles from Halfway islands, being separated from the main shore by a boat-channel. The islet situated midway between Boat cove and Neptune island should receive a berth of 150 yards.

Bell cove is the name given to a wide indentation immediately eastward of Neptune island, and contains anchorage in 7 to 8 fathoms over mud.

* This bay will be found on chart No. 908.

Sturgeon cove is a well sheltered bay situated eastward of Beli cove and divided therefrom by a narrow peninsula, the northern extremity of which should not be approached nearer than 200 yards.

This cove has excellent shelter, and from 2 to 3 fathoms muddy bottom, but its narrow entrance is so obstructed by a rock with 7 feet water on it, as to render it unsafe without buoys for the entry of any but very small craft.

Alert point forms the east entrance point of Sturgeon cove, the dry rock off the point being 3 feet above the water; and shoal water extends from the little dry rock 150 yards.

Two open coves lie a quarter and a half a mile eastward of Alert point, and from these coves the shore runs in an easterly direction in three slight curves to

Hunt point.—The survey is not taken eastward of a line joining Hunt point of Great Cloche island, and Eastern island on the north shore, the north-east extreme of which bears N. W. by W. $\frac{3}{4}$ W. distant nearly $3\frac{3}{4}$ miles from Hunt point, as it may be said that navigation without local knowledge is here at an end, on account of the many sunken rocks to be met with eastward of this line. A vessel bound to White fish river should not proceed without a pilot any farther east than the point a quarter of a mile west of Hunt point, as between these two, shoal water extends from the shore 200 yards.

An island lies 300 yards northward of Hunt point, and a rock with 12 feet water on it lies 250 yards southward from the island.

Carpmael island, 17 feet high, lies nearly $1\frac{1}{2}$ miles north-westward of Hunt point. Two dry rocks lie close west of it, the south side of which, as well as the island, may be approached to 100 yards.

Gordon rock, a group of stones 5 feet high, lies one-third of a mile W. by N. $\frac{1}{2}$ N. from Carpmael island, and the passage between is shallow.

Luard rock, with 12 feet of water on it, lies N. E. by E. nearly $1\frac{1}{2}$ miles from the northern Halfway island.

Moberly rock, with 9 feet of water over it, is situated W. $\frac{1}{4}$ N. nearly $1\frac{3}{4}$ miles from Carpmael island.

Oliver rock, with 15 feet water on it, lies W. $\frac{3}{8}$ N. nearly $1\frac{1}{4}$ miles from the same island.

East Rous island is the name given to the next large island west of Great Cloche island; it is more than $1\frac{1}{4}$ miles long and has a maximum width of one mile, being separated from West Rous island by a boat passage known as Rush channel.

Schreiber island, 54 feet high, lies 400 yards northward of East Rous island, and its north and north-east sides are steep-to. A rock, with

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3 fathoms on it, lies 250 yards westward of Schreiber island; and less than 100 yards from its south-east point is an islet 6 feet high, from which shoal water extends to the southward and eastward 100 yards.

A reef with 4 feet on its north extremity stretches off 250 yards from the north point of East Rous island in the direction of the west side of Schreiber island, narrowing the channel with a depth of 3 fathoms, to less than 100 yards. With the assistance of temporary buoys this passage was used a great deal by the *Bayfield* in the course of the survey, as a short route to the excellent anchorage under Bedford island, a description of which will be found further on; but without such aid it should not be attempted. The whole east side of the East Rous island as far as Palliser point, is bold, and may be approached to 100 yards.

Mink island is the name of the largest and easternmost of a group of islands situated south of East Rous island, and between it and Palliser point a vessel will find good anchorage in 5 to 6 fathoms mud.

A small islet, 2 feet high, lies 300 yards south-eastward from Mink island, and may be approached to 200 yards.

Blake island, 10 feet high, is the southernmost of this group, but the timber with which it is at present covered, gives it, as well as many more of the islands—which otherwise would be scarcely discernible at night—a much greater apparent height. The south side of Blake island may be approached to 200 yards.

Some small islets lie 300 yards northward of Blake island, and between these and Mink island a depth of $3\frac{1}{2}$ fathoms may be carried in an emergency by keeping midway between them.

West Rous island is fairly steep-to on its northern side, but on all others has shoal water.

Fish Creek point is the name given to the west extremity of the island, and contains on its north side a snug little boat cove. Two-thirds of a mile south-eastward of Fish Creek point are two small islands, with a bank extending from them to the southward 400 yards. A very shallow rocky spit makes out westward from Fish Creek point, and a bank with 9 to 13 feet on it extends southward from it one-third of a mile. A vessel standing in to this part of the shore should not lose sight of Elm island. The passage between West Rous and Bedford islands is fit only for large boats, there not being more than 6 feet.

BEDFORD ISLAND is the next large island westward of the Rous islands, its greatest diameter being $2\frac{1}{10}$ miles.

Straubensee point is the name given to its south-west extremity, and from it a dangerous reef extends nearly two-thirds of a mile in a south-west direction, with as little as 3 feet water on it.

FOSTER BANK, with 6 feet least water on it, lies with its eastern and shorter end bearing S. by E., distant one mile from Straubenzee point: from this position the bank runs westward nearly half a mile. A vessel may stand towards Foster bank from the eastward until Bourinot island is just touching Bedford island, N. N. W. $\frac{1}{2}$ W.

Eleven-foot rock, with that depth of water on it, is situated 400 yards westward of Foster bank. It bears S.S.W. $\frac{1}{2}$ W., a little more than one mile from Straubenzee point.

James Foote patch, with $3\frac{1}{4}$ fathoms on it, lies one-third of a mile southward of the last mentioned shoals, but with this depth on it can hardly be considered an obstruction, excepting to the centre-board of a sailing vessel. This patch, however, has been especially mentioned, because an idea seems to have pervaded the minds of many of the navigators of this locality that dangerously shoal water exists farther south than really is the case.

A channel nearly two-thirds of a mile wide, having from 4 to 8 fathoms water in it, lies between these shoals and Bedford island, but the lack of conspicuous natural objects in positions suitable for making a range or leading-mark to guide a vessel through, renders it useless without the aid of buoys. Vessels must, therefore, pass south of these two shoal banks, by keeping the north end of Picnic island in line with, or south of, the south side of Narrow island bearing due East. Narrow island lighthouse in line with the South fall of the Kullarney mountains (Fraser bay hill) will also clear.

The north-east side of Elm island touching the south west shore of Amedroz island, N. W. $\frac{1}{2}$ N., leads south west of Eleven-foot rock, North west fall of the spur from Mt. McBean, in line with the south-west point of Bear's Back island, N.N.W. $\frac{1}{2}$ W., leads west of Eleven-foot rock.

Strange bay is a shallow open indentation, half a mile in diameter, immediately northward of Straubenzee point.

Strange point is three quarters of a mile northward of Straubenzee point, and from the southern part of it shoal water extends nearly half a mile. At the northern part of Strange point the deep water comes close the shore, and so continues along the north-west coast of Bedford island for $1\frac{1}{4}$ miles. At one mile in this direction from Strange point will be found a snug little cove, called Landing beach, where a boat can land in heavy south-westerly weather.

Bedford island reef is a dangerous piece of rocky ground, extending nearly two-thirds of a mile from the north-west side of Bedford island. There are four separate spots, the shallowest being nearly level with the

surface*. The western and outer rock, with 3 feet of water on it, bears N. by E. $\frac{1}{2}$ E., distant $1\frac{1}{2}$ miles from Strange point. No vessel should attempt to pass inside this extensive reef, but if from the south-westward, a vessel will pass north-westward of all these patches by keeping the north point of Elm island touching South point of Clapperton island, S. W. by W. $\frac{1}{2}$ W. The west end of Wabos island just open of the west side of Bedford island, S. by W., is also a safe mark for clearing the west side of this shoal, and the south side of the Five islands in line with MacPherson ledge, E. by S. $\frac{1}{2}$ S., leads a quarter of a mile northward of the whole of these patches.

MacPherson ledge consists of two dry rocks—the eastern and higher of which is 4 feet high—200 yards apart, and a rock, with 3 feet water over it, lying the same distance further west. The ledge has good water all round it.

Five islands are composed of that number of islands, great and small, and are situated midway between the north points of East Rous and Bedford islands. They cover a distance of three quarters of a mile in a nearly east and west direction, leaving a good passage between them and MacPherson ledge into Bedford harbour, described later on.

Ten-foot rock, with that number of feet water over it, lies N. by W. $\frac{1}{2}$ W., 450 yards from the east point of the eastern island of the Five islands group. The south sides of the islands should receive a berth of 300 yards.

Bedford harbour is contained between Five islands on the north, Rous islands on the south-east, and Bedford island on the west, and contains excellent anchorage in any depth under 9 fathoms. The best berth is under Wise point of Bedford island, and 100 yards off shore in 3 to 4 fathoms. The harbour is entered between MacPherson ledge and Five islands, taking care to pass 300 yards eastward of Wise point, off which a bank extends in a north-easterly direction nearly that distance.

Bear's Back island lies midway between the southern portions of Bedford and Amedroz islands. It is rather more than half a mile long and broken up by several indentations, particularly on the south side, where there is an excellent little harbour for boats or small tugs drawing less than 7 feet. Its east and south-east sides are steep-to, but from the west low side of the island

Bear's Back shoal makes out one-third of a mile, to the depth of 3 fathoms, but at half this distance there is a spot with only 3 feet water on it. The north-east extremity of Clapperton island, in line with the south-west side of Amedroz island, N. W. by W. $\frac{1}{2}$ W., leads south of this reef.

* At low stages of the water this rock will be dry.

Tilley rock, with 8 feet water on it, lies N.W. $\frac{1}{4}$ N., 400 yards from the north-east extremity of Bear's Back island.

A rock, with 3 feet on it, lies 150 yards from the north point of the same.

Sullivan patch, with least water of $3\frac{1}{2}$ fathoms, is situated N. by W. $\frac{1}{4}$ W., half a mile from the north-east point of Bear's Back island. South point of Clapperton island, in line with the north extremity of Elm island. S.W. by W. $\frac{1}{2}$ W., leads north-westward of Tilley rock and Bear's Back shoal.

Elm island, so called from a single tree of that nature, which it still preserves, is a narrow bank of stones, 7 feet high and 200 yards long, distant one mile south-westward from the west extreme of Bear's Back island.

Elm island bank, with 6 to 12 feet water over it, extends 400 yards in a N.N.E. and N.W. direction from Elm island; its other sides may be approached to 200 yards.

Lansdowne and Lorne rocks, with 17 feet water on them, lie respectively S. E. by E. half a mile, and E. $\frac{1}{2}$ N., two-thirds of a mile, from Elm island. A vessel may carry 5 fathoms between Bear's Back and Elm islands, by keeping the north-east side of Clapperton island touching the south-west point of Amedroz island, N. W. by W. $\frac{1}{4}$ W. The bare rocky summit of Wilson point (Croker island) open west of Amedroz island, N.W. $\frac{3}{4}$ N. leads south-westward of Elm island bank.

AMEDROZ ISLAND lies eastward of Clapperton island; its greatest diameter is nearly $2\frac{1}{2}$ miles.

Todd shoal extends from Todd point (the eastern extremity of Amedroz island), 700 yards in a north-east direction, where there is the least depth of 13 feet. The same depth will be found 300 yards eastward of Todd point, while from the south-east sharp extremity of the peninsula a reef makes out in a south-east direction 200 yards.

Middleton islands.—From the last-mentioned locality the coast of Amedroz islands trends three-quarters of a mile in a south-west direction, forming a bight with good water in it, to Middleton islands, which are two in number, the western one being the larger. A rock with 13 feet water on it lies 200 yards eastward of these islands. A passage 200 yards wide, with least water of 11 feet, separates these islands from the main shore of Amedroz island. From Middleton islands the coast continues in the same direction one mile to

Carleton point.—This low south extremity of the island, and the shore eastward of it, for two-thirds of a mile, are fringed with shoal water for a distance of 300 yards.

Magee point is situated three-quarters of a mile north-westward from the last mentioned, enclosing between them a long shallow indentation, known as Reedy bay, in the mouth of which are two islets. Between them and Magee point a small craft may find temporary anchorage in 10 or 12 feet water.

Magee bank is the name given to the rocky flat extending nearly a quarter of a mile from the islets and Carleton point. Croker island open westward of Amedroz island, N.N.W., leads west of this bank. The central and gravelly projection of Magee point should receive a berth of 200 yards. From the north part of this point the north-west side of Amedroz island runs in a north-easterly direction to Robinson point—the most northerly projection of Amedroz island. This coast is fairly steep-to, and may be safely approached to 200 yards.

Bourinot island is situated three-quarters of a mile eastward of Robinson point; it has an average diameter of one-third of a mile, and its coast is indented by several small coves.

Bourinot reef, with 9 to 12 feet water over it, extends 600 yards north of Bourinot island, and great care should be taken in passing this shoal, as no clearing-mark could be obtained to lead a reasonable distance northward of this dangerous reef.

A **bank** extends the same distance south and south-east from Bourinot island; but the east and west shores of the island may be approached to 200 yards. A vessel of not more than 10 feet draught may pass between Amedroz and Bourinot islands from the south-eastward, by giving Todd point a berth of from 200 to 300 yards, keeping Robinson point a little on the starboard bow, to bring that point in line with the north-east side of Croker island, N.W. $\frac{3}{4}$ W. This mark kept ahead will lead south of the shoal water from Bourinot island, which being past, the shore of Amedroz island may be approached to 100 yards.

FLEMING BANK, with 9 feet on it, is a dangerous shoal, situated N.W. by W., $1\frac{1}{4}$ miles from the north west point of Bourinot island. The bank lies north-west and south-east, and is one-third of a mile in length.

The south fall of White mountain, in line with the west end of Hog island, E. $\frac{1}{2}$ N., leads north, and the same hill in line with the east end of that island, bearing E. $\frac{1}{2}$ N., leads south of Fleming bank. Todd point (Amedroz island) touching the south-west extreme of Bourinot island S. E. $\frac{1}{4}$ E. leads 150 yards south-west of this reef.

East side of Clapperton island.—This island is one of the longest in this part of the North Channel of lake Huron, being $4\frac{1}{2}$ miles in greatest length from the light-house to South point, and may be said to form part of the eastern boundary of the open water of the North Channel.

LIGHT.—This white, square, wooden structure is situated on the north extremity of the island, and from a height of 30 feet above the water, shows a *fixed white* light, visible 10 miles. From the south-eastward, this light is not visible until bearing W. $\frac{1}{2}$ S.

ROBERTSON ROCK is a very dangerous obstruction lying in Main Passage, as the channel between Clapperton and Croker islands is called, and is just at that distance from the former which a stranger would be apt to keep.

The reef extends over a space nearly one-third of a mile long in a north-west and south-east direction, the shoalest pinnacle, with only 8 feet water on it, being in the middle and bearing from Clapperton island lighthouse N. E. by E. $\frac{1}{2}$ E., exactly half a mile.* At the north-west extremity of the reef there is a second lump, with 12 feet on it, and at the opposite end a third, with 13 feet over it. A depth of 30 fathoms will be found on the north side of Robertson rock, 20 fathoms between the reef and Clapperton island, and 10 fathoms 50 yards distant from the shore of the latter. To avoid this obstruction vessels should keep close to the Clapperton island shore, or when passing it, the south end of Amelroz island should not be open northward of Cartwright point, bearing S. E. by E. $\frac{3}{4}$ E. Cartwright point is situated $1\frac{1}{4}$ miles eastward of the light-house, and this portion of the island coast has very deep water close to, there being 20 fathoms 50 yards distant. Half a mile eastward from the light-house is a small wharf, at which supplies for the former are landed.

Logan island lies one mile south-eastward from Cartwright point, being separated from the main island on the north west by a barrier of sunken rocks. The north side of this island is shoal for 300 yards, and its eastern side for 150 yards, while one-third of a mile in the latter direction is a spot with a depth of $3\frac{1}{2}$ fathoms falling down suddenly to 20.

Logan bay is a double indentation at the the back of the island of that name, and although the water is shallow, the sandy bottom is fairly level, and temporary anchorage may be had in 15 to 18 feet between the outer part of Logan island and the south entrance point of the bay, known as,

Carling point.—This point is situated nearly 600 yards south-westward of the islet on the south side of Logan island, and may be approached from the eastward to 250 yards.

Carling bay is contained between Carling and Baker points, and should not be entered further west than the line of these points.

* At low stages of the water there may be 2 feet less. Operations are being carried on by the Government to increase the depth of water on Robertson rock.

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~ **Baker point** is situated $1\frac{1}{2}$ miles northward of South point of Clapperton island, and to within half a mile of South point the coast may be approached to 300 yards.

South point.—A very shoal rocky spit makes off from the end of this point in a southerly direction 400 yards and a bank terminating in a rock with 9 feet on it, extends a quarter of a mile east of this point. (See page 84.)

Croker island, East side.—This island is a little over a mile in diameter, and is separated from Clapperton island by a channel $1\frac{1}{4}$ miles wide called Main Passage.

Wilson point is the name given to the southern extremity of Croker island, being surmounted by a bare peaked rock 125 feet in height; and the water is deep close to it.

Gisborne point is the eastern projection of Croker island, and may be known by a round bare rock 13 feet high, lying about 50 yards from it, and which is steep-to. From Gisborne point the coast trends north-westward two-thirds of a mile to

Ritchie point.—Nearly midway between this point and the last mentioned is a group of stones, 2 feet high, and bold-to. The water in the bight inside these stones is also fairly deep.

The description of the remaining portion of Clapperton and Croker islands will be found in Chapter III., written in connection with chart 908. We shall now proceed to describe the chain of islands which practically form, as far as ship navigation is concerned, the northern coast line of the part of the North Channel we are dealing with on chart 907.

Eastern island derives its name from being the most easterly island of this group extending eastward from the Indian village of Sagamuk. The eastern extremity of this island bears N. N. E., distant 2 miles from Halfway islands of Wabuno channel.

High island, so called from its high wooded summit, elevated 186 feet, is situated 200 yards westward of Eastern island. A bare rock 10 feet high lies about 50 yards south of its west extremity, and is steep-to. The remainder of the south coast of both these islands may be approached to 150 yards.

Perley island, one-third of a mile long and 200 yards in breadth, is the next island westward of High island, being separated therefrom by a channel a quarter of a mile broad, in the southern part of which there is a depth of 6 to 9 fathoms. A rock with 6 feet on it lies 150 yards north-westward from the west extremity of Perley island, but its south shore is steep-to.

Kirkpatrick island is the name given to the larger and western-most of the two small islands west of Perley island, and which are almost

connected by dry stones. The south-east shore of Kirkpatrick island, as well as the south shore of the little island eastward of it, may be approached to 150 yards.

Louisa island has a maximum length of half a mile; it is situated nearly that distance westward of Kirkpatrick island, and both may be recognized by the two small dry rocks lying to the southward of the passage between these islands, the eastern rock being 6 feet and the other 3 feet high, and known as

Louisa rocks.—The eastern one is connected to Kirkpatrick island by a bank, and 150 yards south-westward of it is a rock with 13 feet on it. The water is shoal between the western one and the south-east point of Louisa island, but with these exceptions the water is good between them.

Tupper and Galt islands lie next westward of Louisa island. The former and southern island has a stone which just shows above the water, lying 200 yards south-east of it.

Barren island, the western one of this sub-group we have been describing, is situated one mile eastward of the Hudson Bay Company's wharf on Hog island.

Channel island, about 30 feet high, and the easternmost of the group lying off the H. B. Co. Post Fort La Cloche, and which we are about to describe, derives its name from the fact of its being the little island that vessels pass close round the north side of, when approaching from the eastward the Company's wharf on Hog island.

Channel island is separated from Barren island to the eastward of it by a passage a little over three-quarters of a mile broad, and on the line joining Channel island to the south point of Barren island from 12 to 15 fathoms will be found right across. Vessels should not proceed further north than this line, as a reef with as little as one foot of water on it lies with its south edge bearing E. $\frac{1}{2}$ S., rather more than a third of a mile from the east end of Channel island; another sunken rock, with less than 6 feet water on it, lies E. by N. $\frac{1}{2}$ N., 400 yards from the same.

Nisbet rock, 3 feet high, lies N. E. 350 yards from the east end of Channel island, and between them is *the channel* by keeping rather nearer the island.

Hog island lies immediately westward of Channel island, and is a little more than half a mile long, with an average breadth of 150 yards; on its eastern extremity is situated a small wharf belonging to the H. B. Co., on which goods are landed for the Post at Fort La Cloche, distant therefrom $1\frac{3}{4}$ miles. Small tugs can proceed to the mouth of the stream which flows past the Post, anchoring in the shallow but well sheltered bay into which this stream empties itself. At the present time a consid-

able quantity of logs is brought down this stream and rafted to the saw mills at Little Current. At the wharf on Hog island 12 feet water will be found, with perfect shelter from all winds, and good water may be had all along the north side of Hog island, and between it and McRae island, distant from its centre 300 yards.

Jenkins rock, 2 feet high, lies 200 yards north-eastward of the west end of Hog island.

Round island, 150 yards in diameter, lies 300 yards north-westward of Hog island, and although 12 feet may be carried between them by keeping nearer the former, the extensive bank of shoal water south-westward of it (a description of which will be given further on), nullifies the use of this passage.

Lampey rock, 7 feet high, lies 150 yards northward, and Mann rock, 3 feet high, lies 200 yards north-westward of Round island. Both these rocks lie on the north side of the channel leading to Hog island wharf from the westward.

A **small islet**, 4 feet high, is situated W. by N. $\frac{1}{2}$ N., 200 yards from the centre of Round island, and between them there is from 3 to 4 fathoms water, but by reason of the shoal bank above alluded to, this passage serves little purpose.

Chatwin rock, round, smooth and 7 feet high, marks the entrance to the back channel to Hog island wharf; it is 200 yards westward of the small islet last described, the two being joined by sunken rocks.

A **rock** with only one foot of water on it lies N. W. $\frac{3}{4}$ W., distant nearly 200 yards from Chatwin rock, and between them is *the channel* in which a vessel will find 18 feet water, passing about 100 yards from Chatwin rock.

Matheson island is situated rather more than three-quarters of a mile west-north-westward from Hog island, its south-east point being marked by a dry stone, and a sunken rock 50 yards south-east of the same.

Hog island bank takes its name from the island off the south-west extremity of which it extends two-thirds of a mile in a south-westerly direction, and to the westward for three-quarters of a mile. Near its most southern extremity is Belcher rock, with only 4 feet water on it, bearing S. W. $\frac{1}{4}$ W., exactly half a mile from the south-west point of Hog island.

Pacific rock, with 5 feet water over it, and situated near the western extremity of this bank, lies S. W. by S. 600 yards from Chatwin rock. To pass southward of the whole of this bank, keep the entrance to McBean channel open southward of Solomon point, W. N. W.

McTavish island may be recognized as being the most outstanding island in this neighbourhood; it is nearly half a mile in length, and its south and east sides are steep-to. Its south-east point bears E. by S. $\frac{3}{4}$ S.,

and is distant $1\frac{2}{3}$ miles from Solomon point, and West rather more than $1\frac{1}{3}$ miles from Chatwin rock. There is a passage for boats and possibly small tugs between this island and the chain of islands 400 yards north of it.

Solomon point is the name given to the south-west point of the peninsula on which the Indian village of Sagamuk is situated; a sand bank extends 200 yards from Solomon point and the same distance from the western extremity of McTavish island, and a vessel should not stand into the bight northward of a line joining these two positions.

Directions for proceeding to Hog island wharf from the westward.—Steer to pass about half a mile southward of the east end of McTavish island, at which position the gap in Norech hill will be over and in line with Chatwin rock, E. by N. $\frac{1}{2}$ N. This mark will lead 200 yards north-westward of Hog island bank, and 150 yards south-eastward of the spit from the east end of Matheson island. Leave Chatwin rock on the star-board hand distant 100 yards, and steer about E. by S. $\frac{3}{4}$ S., passing southward of Mann, Lampey and Jenkins rocks; 70 yards north of Round island and 100 yards from the north shore of Hog island, until the wharf at the extreme east end of the island is reached; the shoalest water of 18 feet will be found while rounding Chatwin rock.

If wishing to pass south of Hog island bank and Beleher rock, pass about half a mile northward of Bourinot island, and bring the north side of Barren island to touch the distant north shore, E. $\frac{1}{4}$ N.; this mark will lead a quarter of a mile southward of Beleher rock and 300 yards from Channel island; give the east side of the latter berth of 100 yards, when, if necessary, the north shore of Channel island may be approached to a less distance (the water being good), for the convenience of taking the wharf.

Sagamuk the Indian village situated on Solomon point, is 3 miles westward of the Hudson Bay Co., post, Fort La Cloche. A small vessel of 6 or 7 feet draught, may find anchorage near the village, in 9 to 12 feet of water over a sandy bottom.

Stewart island is small and wooded, having a dry reef 50 yards west of it, and a dry rock close to its east side. It lies one-third of a mile north-westward of the south part of Solomon point, and between them there is a depth of 12 to 15 feet over sand. A bank extends 300 yards southward from Stewart island.

Linter island is slightly smaller than the above, and situated 300 yards west of it. A dry reef lies 100 yards north-west of the island and two other dry rocks lie between it and the shore. The deep water of the channel approaches close to the south side of Linter island.

Bacon island is close to the shore and situated one mile westward of Sagamuk, and is fairly steep-to. From this island the coast trends

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northward a quarter of a mile, and then north-westward for two-thirds of a mile in a series of small coves, and should not be approached nearer than 250 yards. The coast is now broken up into a number of small islands and rocks.*

McBEAN CHANNEL is the name given to the passage leading from Fox island to Air island. The eastern entrance to this channel may be said to lie between a point on the south and a round bare rock on the north, called from its appearance,

Bald rock.—This loat like looking rock is 15 feet high, and bears from the east end of Fox island, N. by W. 800 yards.

East rock.—From Fox island (the easternmost large island on the south side of McBean channel) a string of dry rocks extends in a south-easterly direction one mile, terminating in East rock. This rock, 6 feet high, with a few stunted trees on it, lies one mile westward of Solomon point and 800 yards south-west of Linter island, between which is the passage of from 13 to 14 fathoms water leading to McBean channel.

A rock awash lies S. by W. $\frac{1}{2}$ W. a quarter of a mile from East rock; a dry stone 150 yards north-west of it, and a rock with 7 feet water over it lies S. E. by S., 300 yards from East rock.

West rock is the name given to a rock of a similar character lying a quarter of a mile south-eastward from Fox island. Between West and East rocks are two other dry rocks, with shoal water about them. Besides West rock itself, which is 6 feet high, a stone lies 250 yards south-east and another 100 yards west of it.

A rock, with 6 feet water on it, lies S. E. by S., a little more than a third of a mile from West rock.

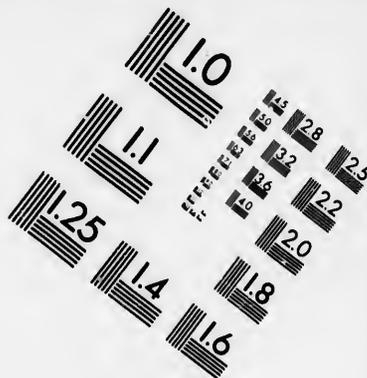
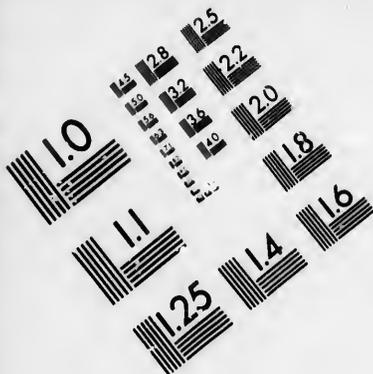
Ritchie rock, with 11 feet water on it, is situated S. by W. $\frac{1}{2}$ W. half a mile from West rock, and N. by E. one mile from Gisborne point.

A passage exists between West rock and Fox island, to lead to which from the south-eastward, bring Bald rock open its breadth east of Fox island N. by W., and steer for it, leading east of Ritchie rock and giving Fox island a berth. This mark leads to the passage with not less than 21 feet.

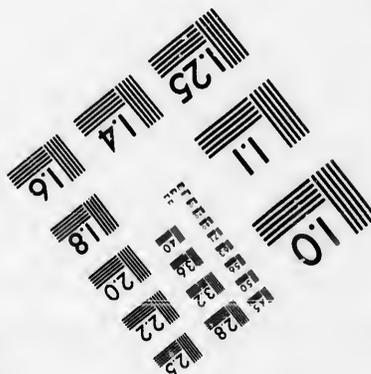
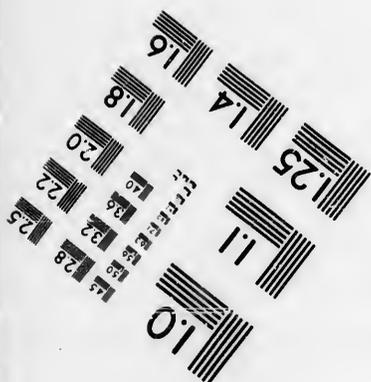
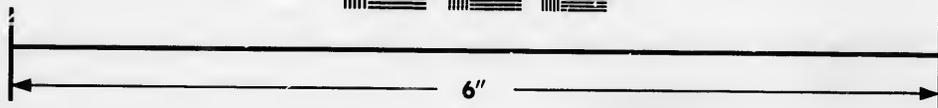
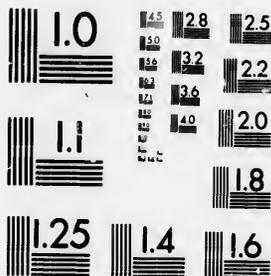
Directions from Little Current to Clapperton island light-house.—Give Spider island a berth of 150 yards, pass 100 yards north of Low island, 50 to 100 yards northward of Picnic island and 200 yards north of the light-house on Narrow island. Then steer W. $\frac{1}{2}$ S. to bring the south side of Narrow island in line with the north side of Picnic island bearing due East (the south fall of Frazer bay hill will be seen also on this range).

* See page 89, chapter III.



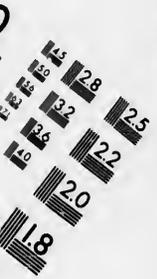


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At night steer W. $\frac{3}{4}$ S. from Narrow island light for $4\frac{1}{2}$ nautical miles before hauling up for Cartwright point.

This leading-mark leads south of Eleven-foot rock and Foster bank. When Elm island touches Amedroz island N.W. $\frac{1}{4}$ N., a vessel may steer for Cartwright point of Clapperton island, taking care to avoid Elm island bank by keeping the rocky summit of Wilson point—Croker island—open west of Amedroz island. Cartwright point may be rounded close to, and the coast kept on board, as far as the light-house. When up to the bluff point, half a mile eastward of the latter, see that Amedroz island is closed with Cartwright point to avoid Robertson rock.

From Little Current to McBean channel.—After passing Picnic island keep the north extremes of it and Low island in line E.S.E. to lead south of the shoal water from Great Cloche island; when Narrow island light-house bears S. $\frac{1}{2}$ W., a vessel may haul to the northward and run through Wabuno channel. Give the islet close to the south-east side of Schrieber island a berth of 100 yards, and from the north point of the latter steer N. W. by W. $\frac{3}{4}$ W., $8\frac{3}{4}$ miles to East rock. Pass 200 yards north of it, and steer for Bald rock, which leave on the starboard hand.

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CHAPTER III.

CLAPPERTON ISLAND TO MILDGRAM POINT.—(CHART 908).

VARIATION 3° 20' W.

CLAPPERTON CHANNEL* separates Manitoulin island from Clapperton island. It is contained between South point of Clapperton and Francis point on the east, and Courtney island and the western part of Maple point on the west; and may be navigated in daylight and clear weather by vessels drawing less than 12 feet of water.† The north shore of the channel between South point and Courtney island will first be described:—

South point derives its name from being the southern extremity of Clapperton island; it is low and narrow, and from it extends in a southerly direction for 400 yards a shoal with less than 6 feet water over it. (*See* page 78.)

Mowat island lies with its south-west extremity bearing W. by N. ½ N., nearly three quarters of a mile from South point. From this extremity, shoal water extends in a south-westerly direction 200 yards to a depth of 15 feet. The passage between Mowat island and the main shore of Clapperton island is fit only for boats.

Meredith island is the name given to the next island north-westward of Mowat island. It is the largest of the five islands in this locality, being separated from the coast of Clapperton island by a shallow boat-channel full of rushes. From the western point of this island a rocky ridge extends in a S. W. by S. direction, nearly three-quarters of a mile, terminating in a bank of boulders with only one foot of water on it and called.

Meredith rock.—This bank of boulders has deep water close to its south-west and eastern sides. The south-west point of Courtney island touching the northern Spilsbury island, N. W. ½ N., leads southward of Meredith rock. The east side of Harbour island touching the west side of Burbidge island N.N.E. ¾ E. clears the west side of the whole of The Ridge.

Sailing vessels may stand towards Meredith rock and The Ridge from the eastward until the west side of Meredith island touches the east side of Harbour island, N. ¾ E.

* See plan No. 910.

† At low stages a vessel may find as little as 10 feet.

Burbidge island lies nearly 400 yards westward from Meredith island, the passage between them containing a depth of 9 feet. A bank extends westward from Burbidge island a distance of 350 yards with as little as one foot of water in one place.

Clapperton harbour.—The shore of Clapperton island at Panet point, $1\frac{1}{2}$ miles from South point, trends abruptly northward and by recurving westward and southward forms a semicircular bay in which is excellent anchorage and shelter from the heaviest gales.

Sandfield point forms the western point of this bay, and 350 yards south-eastward from this point lies

Beverly island.—This low, round little island of less than 150 yards in diameter is separated from Sandfield point by a boat-channel. The eastern side of this island is fairly steep-to, there being a depth of 21 feet at 150 yards. A patch with 2 feet water on it lies W. $\frac{1}{2}$ S., 600 yards from Beverly island.

Harbour island is the northernmost of the group. Its north and west sides are bold, but from its south-east extremity a bar extends across to Panet point with depths on it varying from 4 to 10 feet. The best anchorage in Clapperton harbour is under the north-east point of and about 200 yards from Harbour island in 5 fathoms over clay.

Vankoughnet island is the larger of the two islands situated at the south-west extremity of Clapperton island. Its length is nine-tenths and greatest breadth nearly two-thirds of a mile. Between it and Clapperton island there is a passage known as Indian channel, through which 6 feet may be carried.

Secord point is the most western point of Clapperton island, being situated north-westward nearly $1\frac{1}{2}$ miles from Sandfield point, previously described. Nearly half a mile south-eastward from Secord point is a good boat harbour, known as Snug cove.

Secord bank is the name given to the shallow rocky bank stretching southward from Secord point to within 150 yards of Vankoughnet island, leaving a passage of 12 feet at mean water close to the latter.

Spilsbury islands, two in number, and small, lie nearly a quarter of a mile from the south shore of Vankoughnet island, and are joined together by boulders. A narrow and crooked channel, with a depth of 12 feet water, exists between these small islands and Vankoughnet island. The water is fairly good on the west sides of Spilsbury islands, 12 feet being found at 200 yards, but in a south-easterly direction extends a dangerous rocky bank known as

Boulder bank.—This shoal extends in the above direction for very nearly one mile, with depths ranging from one to seven feet.*

*At low stages some of these stones will be seen out of water.

Courtney island forms the north entrance point to Clapperton channel from the westward, and with the exception of its north-east side, is surrounded with shoal water and joined to Vankoughnet island by a bank of dry stones.

Courtney bank.—This dangerous and extensive bank of boulders is situated at a maximum distance of half a mile westward of Courtney island. It is over a third of a mile long north-east and south-west by a quarter of a mile broad, with depths varying from a few inches to 6 feet. (See foot note, p. 84.)

Griffin bank, the least depth on which is 8 feet, lies north of the latter and N. W. by W. rather more than half a mile from the north-west extreme of Courtney island.

Miall patch, with least depth of 12 feet, is situated W. by S. $\frac{1}{2}$ S., distant very nearly three-quarters of a mile from the south-west point of Courtney island, being separated from Courtney bank by slightly deeper water.

WESTERN REEF, so called from being the westernmost of all the patches lying near the west entrance to Clapperton channel, lies W. $\frac{1}{4}$ N. a little more than $1\frac{1}{4}$ miles from the south-west point of Courtney island. It is about 100 yards in diameter and has 11 feet water over it. It has more than a local importance because of its lying in the track from Clapperton island light-house to Gore bay. A good channel 8 to 9 fathoms in depth, and three-quarters of a mile broad, separates it from the nearest of the shoals previously described.

Clapperton island light-house, in the hollow of the hills at Fort La Cloche, N. E. by E. $\frac{3}{4}$ E., leads 400 yards north-west of this shoal. The south-west point of Innes island touching the north point of Darch island, N.N.W., leads half a mile south-westward of Western reef.

North shoal, so called from its being the northernmost of the three banks which immediately front the west entrance to Clapperton channel, is a rocky bank over a third of a mile long in an E. by N. and W. by S. direction, and 200 yards broad, with least depth 4 feet, its western extremity bearing S. W. $\frac{1}{4}$ W., and distant nearly one mile from the south-west extreme of Courtney island.

Middle bank, with 4 feet water on it, is perhaps the most dangerous obstruction in the west entrance to Clapperton channel; it is 300 yards long east and west, by 200 yards in width, and is composed of boulders. Its south side bears W.N.W. one mile from the north extremity of Maple point. It is separated from North shoal by a five-fathom channel 400 yards broad, but in its present unbooyed state should not be used. To pass westward of Griffin bank, Courtney bank, Miall patch, North shoal, and Middle bank, keep the north-west end of Mt. McBean over the west extremity of Benjamin I. N.N.E. $\frac{3}{4}$ E.

The principal features on the north side of Clapperton channel having been described, we shall now take up those on the south side, commencing from the westward.

MAPLE POINT is the name given to the promontory, which may be considered as the south entrance point from the westward. From its northern extremity the shore trends in a general west-south-westerly direction, three quarters of a mile to Johnson point, and thence the same distance to Burgess reef consisting of dry stones extending 250 yards off shore.

South spit extends one-third of a mile northward from Johnson point at which distance there is a depth of 12 feet. A dry stone also lies 350 yards north-eastward from Johnson point. Between South spit and Middle bank is *the channel*, a quarter of a mile wide and depth 5 fathoms, and to lead between these two shoals keep South point of Clapperton island in line with the north fall of Manitoulin island E. by S. (*See view on plan No. 910.*)

Little island is the name given to a low, narrow, wooded islet 80 yards in length lying 800 yards eastwards of the east shore of Maple point.

Little island bank, taking its name from the above, is a large flat sand-bank extending $1\frac{1}{2}$ miles from the east shore of Maple point, at which distance there is only 8 feet. This bank averages half a mile in breadth; its northern edge is tolerably straight and may be avoided by keeping on the leading-mark last mentioned. Between this bank and Boulder bank, previously described, and northward of the fairway leading-mark, are four small rocky patches, the least water on which is 10 feet. The mark which leads south-west of Meredith rock also clears the east end of Little island bank.

Maple bluff, 262 feet in height, is the name given to the rising point of the high bank which follows the coast round from Mudge bay to Gore bay.

Sutherland shoal, with 15 feet water on it, lies S. by E., nearly half a mile from Little island.

Directions for taking Clapperton channel from the westward.—Before the west end of Mt. McBean comes over the west extremity of Benjamin I., bring South point of Clapperton island under the north fall of Manitoulin island, E. by S., which range will be open a little of Maple point as depicted in view on plan No. 910. This mark kept on will lead between South spit and Middle bank in not less than 4 fathoms water.

As Maple point is approached, bring the north fall of Manitoulin island sufficiently to the northward of South point of Clapperton island to

clear the flat which extends 100 yards from Maple point. After the northern part of this point is passed, the leading-mark should again be brought *exactly* on, and kept so until nearly abreast of the eastern extreme of Little island bank, which position will be indicated by the northern Spilsbury island touching the south-west point of Courtney island bearing N. W. $\frac{1}{2}$ N.

The latter mark should now be kept on astern until Meredith rock is passed, of which a vessel will be sure when Meredith island touches Harbour island, N. $\frac{3}{4}$ E. From the intersection of these ranges an E. $\frac{1}{4}$ S. course will take a vessel in the direction of Little Current, or if proceeding to West bay she may continue with the Spilsbury island mark astern, which will also clear the shoals off Francis point. If proceeding to Mudge bay, a vessel may turn to the southward off the last mentioned leading-mark, when Barbidge island appears *its own breadth* east of Harbour island.

Taking Clapperton channel from the eastward.—If from Little Current, a W. $\frac{1}{2}$ S. course from Narrow island should carry a vessel nearly half a mile south of Foster bank—*see* the clearing-mark for this shoal page 73—and nearly two-thirds of a mile from the shoal off South point of Clapperton island. Bring the northern Spilsbury island to touch the south-west point of Courtney island, N. W. $\frac{1}{2}$ N.; this mark kept ahead will lead between Meredith rock and Little island bank. As soon as South point of Clapperton island comes in line with the north fall of Manitoulin island, E. by S. (*see* view on plan No. 910,) keep it so astern.

As Maple point is approached bring the north fall of Manitoulin island northward of South point of Clapperton island sufficiently to pass 200 yards from the northern part of Maple point; when past it, starboard again so as to bring the leading-mark *exactly* on, which will lead out between South spit and Middle bank. If a vessel wishes to haul to the northward she may do so on the Mt. McBean spar range, which kept on ahead will, as before remarked, lead west of all the shoals excepting Western reef, which it passes more than half a mile eastward of.

Entering Clapperton harbour.—If for any reason a vessel wishes to enter the harbour from the eastward, she should keep on the Spilsbury island range, until the east side of Harbour island touches the west side of Barbidge island, bearing N.N.E. $\frac{3}{4}$ E. From this position a N. $\frac{1}{2}$ E. course will lead west of Barbidge island shoal. After passing the latter, the course may be altered more to the eastward, rounding Harbour island at a distance of 200 yards, and anchoring under its north-east point at about that distance therefrom.

If from the westward:—When upon the leading-mark—South point of Clapperton island in line with north fall of Manitoulin;—as soon

as the Spilsbury island range comes on, steer N. E. for the north-west point of Harbour island; give it a berth of 200 yards, and anchor as before directed. A vessel may cross The Ridge with 13 feet water,* by keeping the north fall of Manitoulin island its own apparent height north of South point of Clapperton island.

M'BEAN CHANNEL, as mentioned in chapter II., page 82, is the name given to the passage from Fox island to Aird island, of which the mainland shore forms the north side. This passage is a little over 7 miles in length with least water 7 fathoms.

McBean harbour, lying at the foot of the mountain of that name, has a depth of from 15 to 28 feet muddy bottom, and is land-locked by Anchor and Lee islands on the west, and the mainland on the east. The entrance to the harbour bears N. by E. nearly two-thirds of a mile from Bald rock, the east entrance point being known as Beaudry point; the width of the entrance is 120 yards.

Black island, so called on account of its timber, lies N. by E. $\frac{1}{2}$ E. nearly a quarter of a mile from Bald rock, and is left on the starboard hand in proceeding to the harbour.

Irwin island is the name given to the largest of a group, the nearest of which (a rock 2 feet high) to Bald rock, bears from it N. W. $\frac{1}{4}$ N. 400 yards, and which is left on the port hand when steering for the harbour.

Another group, the largest of which is called Helen island, lies midway between Irwin island and the entrance to the harbour; a vessel passes east also of this group.

Directions for entering McBean harbour.—Pass from 100 to 150 yards west of Bald rock, and steer about N. N. E. for the entrance, passing midway between Black and Helen islands. In the narrows at Beaudry point there is a depth of 6 fathoms, and when through them a vessel may anchor in $4\frac{1}{2}$ fathoms, or she may proceed further up letting go in $2\frac{1}{2}$ fathoms, abreast of Anchor island. At the bottom of this harbour will be found an Indian trail leading across to Spanish river, passing west of McBean mountain. In the event of any metaliferous discoveries in this region, McBean harbour will be found a very useful port.

Fox island, the easternmost of the islands which form the south side of McBean channel, is from 30 to 50 feet high and sparsely wooded, having an extreme length of $2\frac{1}{4}$ miles east and west and an average breadth of half a mile. The north shore has an irregular outline but no decided points, excepting Jones point, a little more than a quarter of a

* At low stages of the water there may be 2 feet less.

mile westward of Bald rock, narrowing the channel between it and Irwin island to 200 yards, in which, however, there is a depth of 15 fathoms.

Bower rock, 4 feet high, lies 230 yards off the middle portion of Fox island, and $1\frac{1}{4}$ miles westward of Bald rock; the channel is between it and Fox island having not less than 7 fathoms; shoal water extends 200 yards westward of Bower rock, and nearly a quarter of a mile eastward.

Hotham island, about 50 feet high and $1\frac{1}{2}$ miles long, is situated on the north side of McBean channel, with its south-east extremity bearing N. N. E. $\frac{1}{2}$ E., distant 600 yards from Bower rock, to which it is connected by a shoal bank; this point is also nearly $1\frac{1}{4}$ miles westward of the entrance to McBean harbour.

Pardee islands, is the name given to two small islands, the southern of which lies 300 yards from Hotham island, is 15 feet high, and bears N. W. $\frac{3}{4}$ N. nearly a quarter of a mile from Bower rock.*

Frechette island is the next one west of Fox island, being separated therefrom by deep water nearly three quarters of a mile broad; the island is triangular in shape, over a mile in length, and about 50 feet high; its north-east extremity being known as Gillmor point. This point occupies nearly the centre of McBean channel, being $3\frac{1}{3}$ miles from the east extreme of Fox island, and 4 miles from the same end of Aird island. The channel here is 350 yards wide, with a depth of 20 fathoms.

Hood island, the centre of which is opposite the last mentioned point, is about $1\frac{1}{4}$ miles in length, being almost joined to Hotham island on the east. The water is deep close to the shore of both these islands, excepting a rock with 11 feet on it, lying 150 yards off Hood island, and bearing N.W. 800 yards from Gillmor point.

Graham point is the name given to a projection of the mainland 150 yards westward of Hood island; hence the main shore—elevated about 150 feet, and sparsely timbered—continues in a general N.W. by W. direction for $2\frac{1}{2}$ miles to Houghton bay, an indentation one third of a mile square, with dry rocks at the mouth, called Houghton rocks, the highest of which is 6 feet high.

Shoe-pack bay is a broad and deep arm, the bottom of which is formed by the south shore of the long and crooked peninsula dividing the waters of McBean channel from those near the mouth of Spanish river. In the western corner of the bay there is from 7 to 8 fathoms mud.

* A shallow rock was reported to lie about 400 yards westward of Bower rock, but half a day's special search for it under very favourable circumstances, failed to find anything of the kind.

Haggarty, Hawkins, Crooks and Boyd islands with the small islets and rocks between them, are situated on the south side of McBean channel, Boyd island being nearly 2 miles west of Fréchet island. The water is deep close to the north side of this chain.

LIGHT.—This aid to navigation stands on a small rock, 80 yards south-west of Boyd island, and serves as a guide to vessels to or from Little Detroit at night. This white, square light-house shows at a height of 41 feet a *fixed red* light visible 6 miles.

Hiesordt rocks.—The western one, 5 feet high, bears N. $\frac{1}{4}$ E. and is distant half a mile from the light-house. The eastern rock one foot high lies N. N. E. $\frac{1}{2}$ E. distant nearly half a mile from the same. A flat makes out 150 yards westward of the western Hiesordt rock. The water is deep between these rocks and the light-house.

Directions for McBean channel.—Having arrived at Bald rock by the directions given page 84 and wishing to proceed to Little Detroit, or Aird island, keep the coast of Fox island on board, until a quarter of a mile west of Bower rock, when steer for Gillmor point, the north-east extremity of Fréchet island; keep mid-channel here, and steer for the mill which will now be in sight.

Clapperton island light-house to Little Detroit.—A description of the coast and rocks passed on this route will now be given.

The channel between Clapperton island and Croker island is called Main passage, by reason of its being the broadest of the three and the one generally used. For description of the light-house and Robertson rock see page 77.

Secrétary island is separated from the western extremity of Croker island by a boat-channel 200 yards wide, and 10 fathoms will be found 100 yards from its south side.

Sow and Pigs is the name given to a group of bare and steep sided rocks, the highest of which (31 feet) is situated near the south-west end of the group, and called the Sow, bearing N. by W. exactly one mile distant from Clapperton island light-house.

Benjamin island, the next largest westward of Croker island, attains an elevation of 160 feet, being nearly divided in two by a long bay running in on the south side; the islets and dry rocks on the south side should receive a berth of 300 yards.

Hook island, of limestone formation, about 20 feet high, and quite flat, is easily distinguishable by its contrast to the rough Laurentian formation of the islands north of it; its south side bears N. W. $\frac{1}{4}$ W., $2\frac{2}{3}$ miles from Clapperton island lighthouse.

Symes rock, with 14 feet water over it, is a flat reef situated south, 400 yards from the south point of Hook island, leaving a depth of 5 fathoms between them. At the north-east extremity of Hook island it is shoal for 200 yards, continuing to the west point of the island, at a distance of 150 yards. The remainder of the coast line of Hook island is clear.

Eagle island is the largest of the group of which we have been treating, being $2\frac{1}{4}$ miles in length and nearly $1\frac{1}{2}$ miles in greatest breadth; a large bay indents the north side, near the bottom of which is a dark wooded summit, 198 feet high, the highest part of the island. The water is deep between Eagle, Hook and Benjamin islands, and free from shoals.

Gull rock, 13 feet in height and bare, lies N. W. $\frac{1}{2}$ W., distant $4\frac{1}{10}$ miles from Clapperton island lighthouse, and S. by E. $\frac{3}{4}$ E., $1\frac{9}{10}$ miles from Boyd island lighthouse; shoal water extends from the east side 100 yards, the other sides being steep-to. Gull rock is separated from Proudfoot point, of Eagle island, by a deep channel 800 yards wide.

Armour island is the name given to a small island situated 100 yards off the north-west extremity of Eagle island, the shore between it and Proudfoot point being indented by several coves.

Mazeppa rock, with 11 feet on it, lies N. W. by N., three-quarters of a mile from Gull rock.

Banshee rock, with 12 feet of water over it, bears S. S. E. $\frac{1}{2}$ E., eight-tenths of a mile from Boyd island lighthouse.

A rock with 4 feet water on it lies S. E. one-third of a mile from the same, and 350 yards from Crooks island, and from the rock, the mill chimney is open a little south-west of the lighthouse. Pass west of these three dangers by keeping Boyd island lighthouse in line with the western Hiesordt rock bearing N. $\frac{1}{4}$ E.

Between the lighthouse and Aird island, is a labyrinth of islands and rocks, the eastern group being known as

Hoskin islands.—The eastern dry rock of the group bears N. W. by W. $\frac{3}{4}$ W., half a mile from the light-house.

The only channel to be recommended is that close west of the light-house, and the following dangers will be left on the port hand in proceeding for Little Detroit.

A reef, with 15 feet on it, is situated S. by W. $\frac{1}{4}$ W., one-third of a mile from the light-house.

Arnold rock, with 12 feet, lies S. W. $\frac{3}{4}$ S., nearly that distance from the same.

A patch, with 15 feet on it, bears W. S. W., a quarter of a mile from the light-house.

A rock, with 6 feet on it, is situated W. by S. nearly half a mile from the same.

Lumsden rock, with 7 feet water on it, bears N. W. $\frac{1}{2}$ N., a quarter of a mile from the light-house, and is the most awkward rock in this locality. A vessel will pass north-east of it by keeping the south-west side of Hook island in line with Boyd island light-house S. E. by S.

A rock, with one foot water on it, lies 370 yards in a south-easterly direction from the east extremity of Aird island, half a mile from the mill, and 250 yards south-westward of the track from the light-house to the mill wharves, at which there is water enough for the largest vessels.

Directions for Little Detroit by Main Passage.—After rounding Cartwright point, keep the north shore of Clapperton island on board, or sufficiently near to have the south point of Amedroz island closed with Cartwright point, to clear Robertson rock, for description of which, see page 77. When the light-house bears S. by W. a vessel will be westward of the rock, and Gull rock, which will be seen nearly in line with the south extremity of Hook island, may be steered for, giving both a berth of 200 yards, excepting the vessel draws over 13 feet, when Hook island should not be approached nearer than one-third of a mile.

When past Gull rock, keep the south side of Hook island open south of Gull rock S. E. by E., until the western Hiesordt rock comes in sight west of Boyd island light-house, bearing N. $\frac{1}{2}$ E. Proceed on this range for the light-house, and passing 150 yards westward of it steer for the mill or Little Detroit, taking care to keep the south-west side of Hook island in line or closed with the light-house, to pass northward of Lumsden rock.

To Gore bay by Main Passage.—From the light-house, the coast of Clapperton island trends south-westward three-quarters of a mile, with deep water to Black-stone point; hence the shore trends a point more to the south-ward for the same distance to Senecal point, and off the bight formed between these two points, shoal water extends a quarter of a mile, the edge of the bank being very abrupt.

Beattie bay is the name given to the shallow bight between Senecal and Secord points.

Lewin island, 5 feet high, is situated at the south-west extremity of this bay, being separated from Secord point—(described in connection with Clapperton channel, page 85) by a boat passage 300 yards wide. A bank extends westward from this island a quarter of a mile, where there is a depth of 13 feet. The north edge of this bank extends eastward nearly a third of a mile to a small wooded islet called Power island.

The remainder of the south coast of Clapperton island, the islands in the western entrance to the channel of that name, as well as the shore of Maple point as far west as Burgess reef, have already been described, pp. 84-88.

From the latter reef the coast of the Manitoulin island trends in a general west direction a little over a mile to Jessie point, to and off which shoal water extends 400 yards.

East bluff is the name given to a clay bank 254 feet high, over the eastern entrance point to Gore bay. The shore between this bluff and Jessie point rises at a quarter of a mile back to a height of about 200 feet, and may be approached to 200 yards.

Gorrel point is the name given to a slight projection of the coast at the south end of East bluff, and the shore for one mile northward of this point is fringed with a bank under 6 feet water extending off 250 yards, and on which in westerly gales the sea breaks with great violence.

GORE BAY.—This bay (called by Bayfield Janet cove) is two miles long and $1\frac{1}{4}$ miles wide at the entrance, gradually narrowing to the bottom and affords good anchorage in from 4 to 10 fathoms over mud, the latter depth being found half a mile outside, and the former 400 yards inside Town point.

The town is the county seat for Manitoulin island, and contains a population of 472; meat and supplies can be obtained here, and postal communication had almost daily with the south-east ports of Georgian bay, and Saint Ste. Marie. There are two wharves here, at the principal and northern of which a depth of 18 feet will be found.

LIGHT.—A white square building is erected near the shore of Janet head, showing at an elevation of 43 feet above the water, a *fixed white* light, visible 11 miles.

From the lighthouse the west shore of Gore bay runs straight nearly $1\frac{1}{4}$ miles to Town point, off which a spit with 9 feet water on it extends 150 yards, and should be avoided when proceeding to or leaving the wharf.

In proceeding to Gore bay through Main Passage, Innes island will be observed on the starboard hand, and a description of its coast line will now be given, the island itself being $2\frac{1}{4}$ miles long in a north and south direction with an average width of half a mile, and about 30 feet high.

Royal point is the north extremity of this island bearing W. by N. $\frac{1}{2}$ N., distant nearly $4\frac{1}{2}$ miles from Clapperton island light-house; it is flat off this point for 200 yards, at which distance there is a depth of 15 feet.

Hesson point is the next eastward of Royal point, being distant therefrom half a mile; the water is deep close to this point. The east side of Innes island now trends southward exactly one mile to

Landerkin island.—This is the largest of a group of small, low islands, between which and Innes island there is scarcely a passage for a boat.

A rock with 4 feet water over it, lies S.E. 400 yards from the eastern extremity of Landerkin island, in addition to which, not more than 12 feet water will be found at a radius of a quarter of a mile from the same extremity of the island.

Anchorage.—There is excellent anchorage between Hesson point and Landerkin island in 5 to 6 fathoms clay, where vessels may get good shelter in westerly gales, swinging no nearer the main shore of the island than to keep Boyd island light-house in sight.

Gavazzi island is the eastern of two small, low islets, and situated half a mile south-westward of Landerkin island; it should receive a berth of 300 yards.

Kenny point is the south-western extremity of Innes island, and from it a shoal reef, named after the point, extends in a west-south-west direction one quarter of a mile, where there is only 8 feet of water. To avoid this reef keep Mt. Victoria touching or westward of the east side of Darch island, which should lead one third of a mile from the shoal.

From Kenny point the south shore of Innes island trends in an easterly direction, indented by several shallow coves for two-thirds of a mile, and should not be approached nearer than a quarter of a mile.

Trow point is on the west side of the island, and rather nearer to Royal than to Kenny point, having on each side of it, a shallow, stony cove.

Trow point shoal is a large rocky bank extending from the point of that name, there being but 11 feet at the distance of half a mile, in addition to which a rock with 5 feet on it lies N.W. by W. $\frac{3}{4}$ W., one-third of a mile from the same point; to avoid this bank keep the east end of Mt. McBean open north-west of or in line with Royal point.

Clapperton island light-house to Gore bay.—Gore bay light-house bears from that on the north end of Clapperton island S. W. by W. $\frac{1}{2}$ W., and is distant therefrom 12 miles. This course however would lead exactly over Western reef, with 11 feet on it, alluded to in the direction for Clapperton channel; care should therefore be taken to keep Clapperton island light-house in the hollow of the hills at Fort La Cloche N. E. by E. $\frac{3}{4}$ E., which will lead 400 yards north-west of this shoal. Having arrived at the mouth of Gore bay proceed up the middle and anchor or make fast to the wharf.

In going from Gore bay to Little Detroit the passage between Innes and Darch islands offers the most direct course.

DARCH ISLAND.—This island is nearly 2 miles long, north east and south-west, $1\frac{1}{2}$ miles wide, and at its northern end about 50 feet high.

North point of Darch island, bears W. N. W., and is distant 2 $\frac{1}{2}$ miles from Royal point of Innes island, and the water is deep close to.

Deep point on the east side of the island, one mile from North point, has the same character as well as the coast between them.

Stisted island is the name given to a small stony islet at the south-east extremity of Darch island, and one mile from Deep point; it should receive a berth of 100 yards.

Charlton shoal, with 8 feet of water over it, lies S. W. $\frac{1}{4}$ W. a little over three-quarters of a mile from Stisted island, and E. $\frac{3}{4}$ N. the same distance from the southern and smaller Howland rock. To pass south-eastward of this shoal, keep the east end of Mt. McBean touching or over Royal point of Innes island N. E. by E. $\frac{1}{2}$ E.

Robitaille point is the western extremity of Darch island, and the coast between it and Stisted island is foul.

Pinch-gut point on the north-west side of Darch island, is a little more than three-quarters of a mile from Robitaille point, and like the whole of the north-west side of Darch island, is steep-to. Good limestone is quarried from the cliff near the shore in the vicinity of this point.

Crawford island is a quarter of a mile in length and 5 feet high, is a wooded island a third of a mile southward of Robitaille point, and the passage between is only fit for boats or small craft.

A bank with 8 feet on it lies 400 yards off the north-west coast of Crawford island. A low island 100 yards in diameter lies 200 yards south of Crawford island, from which a reef with 3 feet of water over it, extends in a south-westerly direction a third of a mile.

Howland rocks consist of two patches of gravel, the northern one being $3\frac{1}{2}$ feet, and the other one foot high, situated half a mile southward of the last mentioned south island; shallow water extends 300 yards east and 450 yards westward of Howland rocks.

St. Just islands, 3 feet high, consist of two small islets joined by stones, the northern point of which bears S. W., and is distant nearly one mile from Robitaille point of Darch island.

Belleau island 5 feet high, and wooded, is a third of a mile long in an east and west direction, by a quarter of a mile in width, being nearly divided in three parts by as many coves. Shoal water extends in a northerly direction 300 yards from the east narrow point of the island, while a flat of 12 feet makes out in the same direction and a similar distance from the north-west extremity of the same. From the south-west part of the island a bank extends a quarter of a mile in a southerly direction, at which distance there is only a depth of 3 feet.

Passage.—A good channel, with 5 fathoms water, exists between St. Just and Belleau islands, to take which from the southward, bring Pinch-

gut point midway between St. Just and Belleau islands N. E. $\frac{1}{2}$ E., and proceed so through the passage until the west fall of Janet head (Manitoulin island) touches the west extremity of St. Just islands S.S.W., when haul to the northward to avoid the bank stretching off the north-west side of Crawford island.

In taking the passage from the northward, bring the west fall of Janet head midway between St. Just and Belleau islands. When past the islands and bound to the westward keep Pinch-gut point midway between St. Just and Belleau islands, until the depth of 10 fathoms is reached. If bound eastward keep the east extremes of Dalrymple and Belleau islands touching, N. N. W. $\frac{1}{2}$ W. until the same depth is reached.

Egg island, 12 feet high, with a clump of elm timber in the middle of it, is the westernmost and smallest island of the group, and is connected to Belleau island by a narrow rocky bank, on which there is a depth of 8 feet. A shoal extends 400 yards in a south-easterly direction from its south end, but the north extremity may be approached to half that distance. From Egg island a chain of rocky banks extends in a general W. by N. $\frac{1}{4}$ N. direction $2\frac{1}{2}$ miles, and between which it is not advisable for a stranger to attempt to pass. The principal dangers of this group will now be mentioned.

Kaulbach rock with 14 feet on it, lies with its eastern end bearing S. by E. $\frac{1}{2}$ E. half a mile from Egg island.

Wallace rock lies with its eastern end, on which there is the least depth of 9 feet, bearing S. W. by W. $\frac{1}{2}$ W. two-thirds of a mile from Egg island.

Labelle reef is the name given to a large patch on which there is but 4 feet water, and this depth will be found bearing from Egg island W. by N. $\frac{1}{2}$ N., nine-tenths of a mile.

Dalton reef with only one foot of water on it, is situated W. by N. $\frac{1}{4}$ N. distant $1\frac{8}{10}$ miles from Egg island.

Tyrwhitt shoal with a depth of 14 feet on it, lies on the same bearing and nearly $2\frac{1}{2}$ miles from the same. Between this and Dalton reef there exists another bank, called Denison rock, with 14 feet on it.

Rob Roy patch, with 21 feet on it, is situated W. $\frac{3}{4}$ N., a little more than $2\frac{1}{2}$ miles from Egg island.

Restless bank, with least water of 26 feet, is $1\frac{1}{4}$ miles long by a quarter of a mile wide, under a depth of 10 fathoms; the shoalest part bearing W. $\frac{1}{4}$ N. distant $4\frac{2}{3}$ miles from Egg island, and is separated from Rob Roy patch by a depth of 12 fathoms. Mt. Victoria in line with Mouse island N. N. E. $\frac{3}{4}$ E., leads westward of all the dangerous shoals above mentioned, and between them and Restless bank.

Caution.—A sailing vessel tacking, or a steamer in thick weather, will get good indication of her approach to the south side of these reefs by the soundings; 10 fathoms being found half a mile from them, and into less than which depth a vessel should not stand; but the north sides of these reefs go down like a wall, into very little less than the deepest water between them and Aird island.

Gore bay to Little Detroit.—The course from the middle of the mouth of Gore bay to a position one mile south of Boyd island light-house passing midway between Innes and Darch islands, is N. E. by N., and distance 11 miles, whence proceed as directed on page 93.

Clapperton channel to Little Detroit.—From the intersection of the Clapperton channel and Mt. McBean spur ranges, the distance to Boyd island light-house east of Innes island is 8 miles, and west of the same, one mile farther. The latter is perhaps the better track for a stranger, and from the intersection mentioned above, steer N. W. $\frac{3}{4}$ N. for $3\frac{1}{2}$ miles, when a vessel should be one-third of a mile south-west of Kenny shoal, to clear which, close Mt. Victoria with North point of Darch island, or keep them touching N. $\frac{3}{4}$ W. Proceed midway between Darch and Innes islands for Boyd island light-house, taking care before the north-west end of Mt. McBean ridge touches the south-east side of Hawkins island E. by N. $\frac{3}{4}$ N., to have the western Hiesordt rock in line with the light-house, bearing N. $\frac{1}{3}$ E., whence proceed as directed on page 93.

At night, do not shoal to less than 10 fathoms, until the light bears N. $\frac{1}{3}$ E., when steer for it if acquainted. A stranger should drop his anchor under the east side of Innes island and wait for daylight.

Passing eastward of Innes island.—As soon as the Mt. McBean spur range comes on, steer for it to pass between Western reef and the shoals about Clapperton channel. When Clapperton island light-house appears in the hollow of the hills at Fort La Cloche, a vessel may head for Gull rock, arriving near which, proceed as directed, page 93. By not shoaling the water to less than 10 fathoms a vessel will be clear of the bank off Landerkin island (Innes island).

WHALESBACK CHANNEL is the name given to the passage north of Aird and John islands, from Little Detroit to Turnbull island (3 miles south-eastward of Algoma Mills), and is so called from a rock, somewhat resembling the body of a whale, the eastern end being like the head, which is the highest part and 45 feet high. This rock is a little more than 10 miles from Little Detroit, and a little less than 9 miles from Algoma Mills. The narrowest parts of the channel are at Little Detroit, and again at John island; at the latter, however, the water is very deep, while at Little Detroit the least water is 21 feet.

Little Detroit.—This channel separates the north-east extremity of Aird island from the narrow and crooked peninsula of the mainland forming the north and west shores of Shoe-pack bay. The narrowest part of the passage is 38 yards in width, and with a depth, as before remarked, of 21 feet, being situated half a mile north-westward of the mill on Aird island. The mainland side of the channel is steep-to, but from Aird island a rocky flat makes out from Mary island and Ethel rock, narrowing the channel to the distance before mentioned. Once north-westward of the Narrows, the water on both coasts is good.

Green island, 163 feet high, presumably so called from its timber, lies on the north side of Whalesback channel and westward of the channel to Spanish river hereafter described; it is nearly $1\frac{1}{2}$ miles long by a third of a mile wide in its widest place, and its south shore has deep water close to it.

Shanly island lies south-westward of the last mentioned, being separated therefrom by a narrow boat-channel. It is half a mile long, with an average breadth of 300 yards, and of considerable elevation, its south-east side being of a cliffy character.

Passage island, as its name indicates, is the island on either side of which there is a good channel for the largest vessels. It is 800 yards long and half that distance broad, the east end being steep. The channel between it and Shanly island is a quarter of a mile wide, with a depth of 11 fathoms.

Brown island about 50 feet high, is just separated from Villiers island, west of it by a narrow channel. The two islands together are quite narrow, and three-quarters of a mile long, the water being deep on all sides.

Otter islands, two in number, lie north-west and south-east of each other, the eastern one being separated from Villiers island by a good passage 150 yards wide, with a depth of $4\frac{1}{2}$ fathoms. This channel will be recognized by the round rock 15 feet high, lying close to the west extremity of Villiers island.

Jackson island, two-thirds of a mile long, is the western of the string of islands lying north of Aird island, being separated from the western portion of the latter by a narrow boat passage.

North coast of Aird island.—Near the east extremity of the island there is a deep indentation, forming a double cove, and known as Cameron bight, being separated from Little Detroit by a promontory called King point, close to which the water is deep. The western extremity of Cameron bight is called Jacob point, whence the shore trends in a general west direction $1\frac{1}{2}$ miles to Baxter point, situated S.S. W. 600 yards from the east end of Passage island.

Schultz island, 22 feet high, small and round, with a small dry rock 70 yards north of it, lies S. E. $\frac{3}{4}$ S., 550 yards from the east end of the south-east Otter island, and points out the passage here already spoken of.

From Schultz island, the north shore of Aird island continues in a W. $\frac{1}{2}$ N. direction $1\frac{1}{4}$ miles, where it abruptly turns northward. For three-quarters of a mile westward of Schultz island the water is good, and here a vessel will find good anchorage if wishing to wait for daylight.

Klotz island, about 100 feet high, and separated from the west extreme of Aird island by a narrow and shallow boat-channel, is nine-tenths of a mile long, and about a quarter of a mile wide.

Casey shoal, with 13 feet water on it, lies N. W. $\frac{1}{2}$ N., half a mile from the mouth of the channel above mentioned, leaving a depth of 15 fathoms between it and Klotz island.

Rainboth island is round and nearly a third of a mile in diameter, being divided from Klotz island by a narrow boat channel.

Aikins island is the next west of Rainboth island; between them there is a passage for a ship, but as a rock with 9 feet water over it lies in the middle of the passage, it is not recommended to a stranger. Aikins island is nearly nine-tenths of a mile in length east and west, and helps to shelter Moiles harbour presently described.

Amyot rocks are a cluster, 3 feet high, lying from 200 yards to a quarter of a mile north-westward of the east extremity of Aikins island.

A rock, with 12 feet on it, is situated N.N.W., a quarter of a mile from the same extreme.

Weldon shoal, with 18 feet of water on it, lies N.W. 350 yards from the western Amyot rock.

JOHN ISLAND, 250 feet high, the north side of which forms the south side of Whalesback channel, is 4 miles long with a maximum breadth of $1\frac{3}{4}$ miles.

Bergeron point is the most easterly projection on the Whalesback channel side of the island, being separated from Aikins island by a small island between which and Aikins island is the north entrance to Moiles harbour. From Bergeron point the north shore of John island trends north-westward nearly three quarters of a mile to Davin point, with deep water close to the shore, excepting at the latter point itself, where a rock with 10 feet water on it lies 100 yards off.

Moiles harbour.—This perfectly sheltered basin is situated near the extremity of John island, and contains a saw-mill erected by the people after whom the harbour is named. Two passages lead into it,

that from Whalesback channel taking the name of North, and the other from the North Channel being called the East entrance. By the former 4 fathoms may be carried in, and by the latter 14 feet, while at the wharves ample water may be had.

A vessel bound to Moiles harbour from Missisanga straits, should steer E. by N. $\frac{1}{4}$ N. 27 miles, and when Mt. Victoria comes over the centre of Rainboth island bearing N. E. $\frac{3}{4}$ N., it should be steered for. This range will lead a vessel a quarter of a mile eastward of Beaufort reef, and to a mile off the east entrance with not less than 18 feet water, when a stranger should signal to the mill for a pilot.

If approaching Moiles harbour by North entrance from Whalesback channel care should be taken to pass westward of the rock with 5 feet on it, lying 150 yards off the north-west point of Aikins island.

Flood island is small, 20 feet high, and the water is deep close to the north side.

Nicholas island is somewhat similar but lower, and is situated a third of a mile westward of the latter, bearing S. S. E., $\frac{1}{4}$ E. 320 yards from a round, conspicuous dry rock, 7 feet high on the north side of the passage, close to which the water is very deep.

A rock, with 5 feet of water on it, lies W. N. W. 150 yards from Nicholas island, limiting the breadth of the channel to 200 yards.

Waters point is one-third of a mile westward of Nicholas island, and 100 yards off it is a rock with one foot of water on it; the channel between this shoal point and Parsons island being narrowed to 250 yards, but with a depth of 13 fathoms.

Camp point is one mile westward of Waters point, and east of it are two coves, off which a flat extends 150 yards.

West point, as the name indicates, is the western extremity of John island, and bears S. W. $\frac{1}{4}$ W., three quarters of a mile from Whalesback.

Dixon islands, two in number, are about 15 feet high with a few trees on them, the north extreme of the northern one bearing S. W. by W. $\frac{1}{4}$ W., 550 yards from Whalesback, between which is the channel.

A rock awash lies E. $\frac{1}{2}$ N., 600 yards from the north Dixon island, and S. by E. $\frac{1}{4}$ E., 360 yards from the west end of Whalesback. Keeping the latter close on board will avoid this danger, as will the north point of John island in line with the south point of Nelles island.

Goalen rock, 15 feet high, lies N. N. E., 350 yards from West point of John island.

Bradley rock, with 3 feet of water over it, is a very awkward danger, having already brought up several vessels; the whole bank is 350 yards long east and west, the western end being the shoaler. The latter spot

bears W. by N., one-third of a mile from Goalen island, and the track is between this sunken reef and Frazer rocks, a group hereafter described. To pass northward of Bradley rock, keep the north side of John island (Waters point) open northward of the northern Dixon island bearing E. $\frac{1}{8}$ N.

Having given a brief description of the islands and dangers on the south side of the eastern portion of Whalesback channel, we shall now treat of those to be met with on the north side. After emerging into the more open waters between the chain of islands just described and the main shore near Aird bay, a vessel will meet with nothing near the north side of her course until approaching the eastern and largest island of the group lying between John island and the main shore, called

Norquay island.—This and Greenway island, 200 yards west of it, are each about 100 feet high, and one-third of a mile long east and west, with precipitous sides.

White island, 76 feet high, and 120 yards northward of the eastern part of Greenway island, has a conical summit, and the quartz of which it is composed gives it the conspicuous colour whence it derives its name.

Spotted island is so called from the circumstance of its being patchy, especially on the northern side. It is about 30 feet high, 200 yards in length, and lies a little more than a quarter of a mile westward of Greenway island.

Daly islands.—The western one has a conical summit 53 feet high, which, with its perpendicular south side, renders it a conspicuous object, especially to a vessel using the channel northward of the island next described.

Parsons island, about 60 feet high in two principal parts, is situated with its western extremity $1\frac{1}{4}$ miles eastward of Whalesback; a passage exists on the north side of the island, but on account of a rock with 6 feet water on it lying N. by E. $\frac{1}{4}$ E., distant 350 yards from the west extremity of Parsons island, it is better for a stranger to use the broader and generally used channel southward of Parsons island.

The south-east side of the latter has several dry rocks and islets lying off it, the farthest being a small rock, 7 feet high, bearing S. S. E. $\frac{3}{4}$ E. 350 yards from the east end of Parsons island and alluded to in connection with Nicholas island, page 101.

Robin island, small, round and 25 feet high, lies W. by N. $\frac{1}{2}$ N. a quarter of a mile from the western extremity of Parsons island, and due West 300 yards from this islet is a rock with 9 feet water on it.

Nelles island, in two parts, with a round rock near the west end of the larger island, 11 feet high, is situated northward of Camp point, already alluded to. There is deep water on either side of this island, but

the 10 foot rock mentioned in the last paragraph makes it advisable for a stranger to adhere to the passage southward of Nelles island.*

WHALESBACK.—This bare, precipitous rock, before mentioned, has a rock with 24 feet water over it, lying W. $\frac{1}{2}$ S. 300 yards from its western and lower end, but with this exception the water is deep all round it, and between it and Nelles island; so deep is the water on the south side and wall-like the side of the rock, that the surveying steamer *Bayfield* was lashed alongside while disembarking a camp party, which to avoid the flies, were stationed on this rock for a month. There are several other islands lying between the string described and the main shore, but as the passages among them are not to be recommended their description has been deemed unnecessary.

The remaining and western portion of Whalesback channel, as far as Turnbull island, will now be taken up, describing first the islands southward of the passage.

Gowan island, 89 feet high, is the first one west of John island, being separated therefrom by a boat-channel 100 feet wide. The west point of this island forms the north entrance point of John harbour, hereafter treated of.

LeSueur island, a little lower in height, lies westward of Gowan island, the nearest extremities being nearly half a mile apart, and between which is the entrance to John harbour. LeSueur island is about a quarter of a mile in diameter; the north shore having deep water close to it. The water is also equally deep between it and Colmer ground—a patch with 21 feet on it, lying a third of a mile north-westward of its north-west extremity.

A group of three islands, named respectively, commencing from the eastward, Alfred, DeCelles and David islands, divides Whalesback channel from the broader waters of the North Channel of lake Huron, and there is no passage between these three islands, except for boats.

David, the smallest and western island, has a rock with 15 feet on it lying N. E. $\frac{1}{4}$ N., 300 yards from its north-west extremity. A rock, 9 feet high, is just separated from the west point of the island.

Mills island, 58 feet high, and about 120 yards in diameter, is separated from the group last mentioned by a channel one-third of a mile wide. With the exception of a rock with less than 6 feet water on it, lying 50 yards off its north-west side, the latter island is steep-to.

SCOTT ISLAND, the bare south fall of which is 127 feet high—the wooded summit of the island being a few feet higher—is a third of a mile long east and west, and nearly a quarter of a mile wide. It is a conspicu-

* It has been recommended to place a light-house near the west extremity of this island.

ous feature, commanding the approaches to Serpent river and Algoma Mills from the south-west and south-east, in which connection it will again be alluded to. It is situated three-quarters of a mile westward of Mills island, and the subaqueous ridge joining them having no less than 6 fathoms on it affords a good passage, taking the name of Scott island, into or out of Whalesback channel.

Whitcher island, 300 yards long north and south, by 200 yards broad, is situated N. by E. $\frac{1}{4}$ E., a little over half a mile from Mills island, the water between them being 18 fathoms deep with no sunken rocks. This island may be known by a rock 4 feet above the water, lying E. $\frac{1}{4}$ S. 170 yards from its north-east extremity, and which has a rock with less than 6 feet water on it lying 100 yards south-eastward of it; with this exception the water is very deep round this island.

Sylvain island, 43 feet high, lies with its north-west end bearing W. by S., distant two-thirds of a mile from the same extreme of Whitcher island. A small wooded islet lies 250 yards eastward of the island, and close to the east side of this islet the water is deep, leaving a good channel 600 yards wide between it and Whitcher island. The north-west side of Sylvain island should not be approached within 150 yards, a shallow ledge making out nearly that distance. The water is deep on the north and south sides of both islands.

Peter islands, two in number, quite low, and 200 yards apart, lie 250 yards northward of Scott island; one rock awash lies close to the east end of the eastern island, and a second bears S. E. $\frac{1}{4}$ E., 180 yards from the same extremity.

Robb rocks, 8 feet high, lie North a little more than half a mile from the west extreme of Scott island. Westward of them 200 yards is a small rock 4 feet above the water, and nearly the same distance eastward is situated a rock awash.

Minstrel rock, in two parts, 5 feet high, lies N. W. $\frac{1}{4}$ N., nearly half a mile from the same part of Scott island.

Tug reef, awash, is situated N. by W. $\frac{1}{4}$ W., 400 yards from the western Minstrel rock; shoal water extends 150 yards north-eastward from this reef.

Turnbull island, nearly three-quarters of a mile long, 30 feet high, and sparsely wooded, will be seen ahead soon after passing westward of Whalesback. It is the eastern of a group of islands lying south of Algoma Mills, and its eastern coast is steep-to, with the exception of a patch on which, however, there is not less than 18 feet, lying 250 yards eastward of the south-east point of the island. The description of the islands and coast on the north side of Whalesback channel will now be continued.

Fraser rocks, four in number, the highest being 8 feet high, lie W. $\frac{1}{4}$ N., nearly two-thirds of a mile from Whalesback, and 350 yards off Wicksteed point of the main shore; the channel is southward of these rocks which are steep-to on that side.

Turtle rock, 13 feet high, is situated due West $1\frac{1}{3}$ miles from Whalesback; the water is good all round the rock, but the deeper and most direct track for a vessel is south of it.

Page rocks consists of two, the eastern being only one foot high, while the western is 6 feet above the water. They are 350 yards apart, the western one being a quarter of a mile off the main shore, and bearing W. by N., three-quarters of a mile from Turtle rock.

Chapman reef, with 14 feet on it, lies S. W. by W., a quarter of a mile from the western Page rock.

Knight point, $3\frac{1}{16}$ miles westward of Whalesback, is the westerly termination of the comparatively straight shore of the mainland, about 100 feet in height, forming the north side of Whalesback channel. There, the shore abruptly turns to the northward in a succession of long bays alluded to further on.

Godfrey islands are a group of three, the western of which is 22 feet high, lying W. by S. half a mile from Knight point.

La France rock, with 11 feet water over it, lies S. S. W. distant one third of a mile from the eastern extremity of the eastern island of this group, and has deep water all round it.

Prendergast islands, three in number, are situated a quarter of a mile north-westward or the last mentioned, and are the most westerly islands in this locality; they are steep-to on the west and south sides.

DIRECTIONS.—Little Detroit to Turnbull island.—In passing through Little Detroit from the south eastward, keep the main shore on board, to avoid a rocky bank extending from Mary island and Ethel rock; when up to the narrows keep in mid-channel, and when round King point a W. $\frac{1}{2}$ S. course for $1\frac{1}{2}$ miles will take a vessel to the west extreme of Shanly island, or for $2\frac{1}{2}$ miles to the west end of Passage island. Haul to the northward on either side of the latter and steer W. $\frac{1}{2}$ N. for $6\frac{1}{4}$ miles if taking the channel east of Passage island, when a vessel will be abreast and northward of Nicholas island. It may be remarked that this course leads over a patch on which there is not less than 21 feet.

Passing between Nicholas island and the little dry rock 7 feet high, on the north side, a W. $\frac{1}{4}$ S. course for $1\frac{1}{2}$ miles will bring a vessel southward and abreast of the detached rock 11 feet high at the western extremity of Nelles island.* Passing 150 yards from the latter, haul to

* See note bottom of page 103.

the northward to pass the same distance south of Whalesback, and so avoid the rock awash situated as before stated S. by E. $\frac{1}{2}$ E. 370 yards from Whalesback.

From this position southward of Whalesback steer W. $\frac{1}{4}$ S. to pass 200 yards on the same side of Turtle rock, and avoid Bradley rock, with 3 feet on it, to ensure which see that the north shore of John island is in line with or open north of the northern Dixon island. Turnbull and Basset islands will now be seen ahead, appearing as one; steer rather nearer the south end than the middle of them, until past La France rock, when haul up for the north end of Basset island, and proceed as directed page 124.

Little Detroit to Serpent harbour.—In turning out of Whalesback channel for the latter place, the following islands and coast will be seen on the starboard hand:—

Drew island is small and 23 feet high, being the north-western one of a group lying north-westward of Long point; the latter being a point of the mainland and bearing N. W. $\frac{1}{2}$ W., a little more than half a mile from Knight point, already alluded to. Between these two points exists an indentation, rather more than a mile long, known as Tasehereau bay. Drew island may be approached from the westward to 200 yards.

Navy island, 250 yards long north-east and south-west and quite narrow, lies N. E. $\frac{1}{2}$ N., a third of a mile from Drew island, and may be approached to the same distance.

Cook island, small, wooded and about 25 feet high, is situated N. E. by E. 800 yards from Navy island, and like the latter it is the outlying one of several islands lying off this part of the coast. The water is deep at 200 yards west of it.

Garibaldi island, 13 feet high, is the northernmost of the group, and is separated by a boat channel 100 yards wide from the peninsula on which is situated an Indian village; the island is steep-to.

Emerald point, on the south shore, bears N. E. by E. half a mile from Garibaldi island, and is bold-to; near the shore of the cove under the point is situated an Indian burial-ground. This point may be considered as the southern entrance point to

SERPENT HARBOUR.—This inlet runs in a general E. $\frac{3}{4}$ N. direction for nearly $2\frac{1}{2}$ miles to the mouth of the river of that name, further than which the survey was not taken, but to which vessels drawing not more than 7 feet water can proceed. The inlet has an average breadth of nearly half a mile.

Nobles island, rising to a height of 142 feet, two-thirds of a mile long, lies across the mouth of the inlet, leaving a good channel north of it by which 18 feet water can be carried to the mill wharf. South of this

island a vessel may take in 10 feet. Cook Brothers have a steam sawmill here, and there is communication by steamer with Collingwood and Owen Sound almost daily besides railway communication with Sudbury and Sault Ste. Marie. At one-third of a mile above the mill the depth of the harbour diminishes to less than 18 feet, and at $\frac{1}{2}$ miles from the same there is but 12 feet.

Smith island, 38 feet high, is separated from the south shore of the harbour by a boat channel 40 yards wide, and bears E. by N. $\frac{1}{2}$ N. $\frac{1}{4}$ miles from Emerald point; a vessel may find anchorage in 20 feet over mud between this and Nobles island. The entrance to Serpent harbour south of Nobles island is situated half a mile eastward of Emerald point. Here the channel is narrowed by a reef 3 feet high lying close to the main shore, to a width of 100 yards, in the centre of which lies a rock with not less than 11 feet water on it, so that, as previously stated, a vessel drawing not more than 10 feet may safely pass through.*

The coast line is clifty, rising to a height of 138 feet. Just east of the rocks at the narrows is a cove 200 yards deep, with rushes at the bottom; the coast then becomes clifty again and 124 feet high, till 250 yards eastward of the eastern entrance to the channel, between which position and Smith island the shore is composed of two shallow bays.

Snider island, 60 feet in height, is a conspicuous conical island 300 yards north-eastward of Smith island, and E. by S. $\frac{1}{2}$ S., two-thirds of a mile from the mill. It is connected by shallow sunken rocks to a smaller islet 15 feet high 60 yards east of it. A boat passage exists between these islands and the south shore.

McCracken island, 100 yards long by 50 broad, lies with its west end bearing N. E. $\frac{1}{2}$ N., 200 yards from the same extremity of Snider island. Between the east end of the latter and the centre of McCracken island, and rather nearer to the former, lies a rock with 5 feet water over it. The passage is between the rock and McCracken island, and the rock may be avoided by keeping a point 2 miles westward of the entrance to the harbour (recognizable by its high pines), open north of, or touching Narrow point of Nobles island.

Spragge island, 100 yards from the south shore, is 30 feet high, and lies 400 yards eastward of Snider island. There is a depth of 14 feet abreast of this island, the coast between it and the mouth of the river being broken up into several coves.

Hamilton rock, with 5 feet of water on it, lying in the middle of the inlet, is situated N. $\frac{1}{2}$ E., 800 yards from the east end of McCracken island.

* At low stages there may be 2 feet less water.

† At low stages there may be 2 feet less water.

From the mouth of Serpent river the north shore of the inlet trends first in a north-westerly direction a quarter of a mile, whence it runs with a succession of slight bights and points to the mill and wharves. At these there is abundant accommodation for vessels drawing not more than 14 feet.

Morrison islands, two in number, lie at the east extremity of Nobles island, with a boat channel between, the eastern one being steep-to.

Indian island so called for the Indians using it as a summer camping ground, is small, 13 feet in height, and lies in the middle of the bight on the north side of Nobles island.

Anchorage in 15 to 16 feet over mud may be had between Indian island and the eastern shore of the bight.

Narrow point is the name given to the long, sharp, north-west point of Nobles island, and a vessel entering the harbour may keep the point close on board, there being 4 fathoms water 50 feet from it.

Meteor rock, 15½ feet in height, is a small round rock lying S. W. by W. ½ W., a quarter of a mile from Narrow point of Nobles island, and is a good mark of recognition for the entrance of Serpent harbour. A small light has hitherto been kept burning on the rock at night by the inhabitants of the port.* Up to the present time, masters of vessels have been in the habit of passing north of Meteor rock, by which track only 13 feet of water can be carried over the bank connecting the rock with Hospital point.

The south east extremity of the shoalest part of this mud bank lies N. E. ½ N., 350 yards from Meteor rock, where there is only 4 feet water. The proper channel, however, is southward of Meteor rock and between it and

Cross island.—This island is so called because it lies athwart the channel into the harbour, the water being just as good between it and Nobles island, as between it and Meteor rock, the more direct passage and therefore the one to be recommended. This island, 81 feet high, 170 yards long east and west, and 50 yards broad, leaves a channel with 23 feet of water 125 yards in width, between it and Meteor rock bank, and also a passage with the same depth, 100 yards broad, between its eastern end and Nobles island; but the latter has a sharp turn, which would be awkward for a long vessel. The east and south sides of Cross island are steep-to, while from the west extremity it is shallow for 50 feet, and on the north side shoal water extends 50 yards.

Fournier islands, two in number, the western one being 83 and the other 46 feet high, lie W. ½ S. one-third of a mile from Meteor rock, and their south sides are steep-to.

*The erection of a light upon this rock is contemplated by the Government.

DIRECTIONS Little Detroit to Serpent harbour.—After passing westward of La Francee rock by directions given on page 106, haul to the northward, keep a quarter of a mile off the islands already described on the starboard hand, until up to Navy island, whence proceed midway between the islands on either side. Pass 50 yards south of Meteor rock, the same distance west of Cross island, north of Narrow point and midway between the wharves and the north shore of Nobles island, until up to the wharves or anchor in 15 or 16 feet, E. N. E., 200 yards from Indian island. Until east of Narrow point, 22 feet should be the least water passed over, but 300 yards inside Narrow point there is a bar with not more than 18 feet, passing which the water again deepens to 24 feet, which depth can be kept to abreast of the mill.

Little Detroit to Buswell's wharf.*—The track lies between Green island and the west side of the crooked peninsula encircling Shoepack bay.

Craftsman point is the first projection of this peninsula after passing through Little Detroit, from which it is distant 450 yards, the bight between them having deep water close to the shore.

Landry point bears N. $\frac{1}{4}$ E., distant half a mile from Craftsman point, the shore between them forming a deep bight. The coast of the peninsula now runs N.N.E. for a quarter of a mile, forming with the shore of Green island, a strait 260 yards wide in its narrowest part, with a depth of four fathoms; the coast now turns away to the eastward, with several coves and points for $2\frac{1}{2}$ miles, forming the south shore of Frenchman bay, along which can be carried to within half a mile of the bottom, not less than 3 fathoms of water.

Sproule islands, the western and smaller of which is 13 feet high, are two in number, lying 230 yards north-eastward of Green island, the passage between them having a depth of 16 feet. Vessels were in the habit of taking the shorter track to Buswell's mill in preference to passing northward of Sproule islands, where there is four to five fathoms of water.

A rock, with 4 feet of water over it, lies W. by S., 100 yards from the western Sproule island, to lead south of which, with 17 feet water, keep Landry point, already mentioned, closed with the north-east extremity of Green island.

A reef, with 11 feet on it, is situated W. by N. $\frac{1}{2}$ N., one-third of a mile from the north-east extremity of Green island.

SPANISH RIVER.—The origin of the foreign name given to the river is obscure, but one reason assigned to it is that a Spaniard from

* The mill was destroyed by fire in 1890 and just now it is doubtful whether or not it will be rebuilt under the old name.

Mexico settled a century ago on the upper waters of the river, marrying the daughter of an Indian chief. The mouth of the river is 2 miles eastward of Buswell's wharf, and close to the mouth is a station of the Sault Ste. Marie branch of the Canadian Pacific Railway. The depth of three fathoms can be carried only one mile eastward of Buswell point, but light draught steamers enter the river and proceed as far as the first rapids, 10 miles from the mouth. Tugs are employed by the lumber companies in towing to their respective mills the large quantity of logs annually cut near the upper waters of this river.

The mouth of Spanish river is separated from Frenchman bay by a string of islands, the largest and easternmost of which is called Rock island, being separated from the main shore by a narrow passage, but deep enough to raft logs into Frenchman bay, where they are kept in booms till wanted. The next two islands west of Rock island are named Tomlinson islands. An islet 23 feet high, lies 200 yards south-west of the western Tomlinson island.

Fletcher islands are a group of three, lying one-third of a mile west of Tomlinson islands, and 400 yards southward of the group is a small islet 10 feet high known as Forbes island, marking the north edge of the channel to Frenchman bay.

Whiteaves island, small and wooded, is the western one of the string, and bears N. by E. $\frac{1}{4}$ E. a quarter of a mile from the western Sproule island, with 4 to $5\frac{1}{2}$ fathoms between.

A reef makes out 200 yards from the west side of Whiteaves island, and shoal water extends 100 yards from the south side. A small, dry rock, 3 feet high lies 100 yards eastward of the island.

Buswell's wharf, is situated in a bay of the main shore, 2 miles from the small wharf at the mouth of Spanish river, and nearly 3 miles by the channel from the mill, on the east end of Aird island. The wharf nearly a quarter of a mile long for the shipping of lumber is built out to a depth of 12 feet.

Buswell point is 120 yards south-east of the end of the wharf, and the north shore runs fairly straight to the mouth of the river, with a series of cliffs, the central portion being 97 and the eastern end 151 feet high.

A **Mud bank** under $2\frac{1}{2}$ fathoms, makes out from the western part of this shore for 400 yards, and a rocky spot on the approach to the mill with only 9 feet on it, is situated near the south west part of the bank, bearing S. S. E. $\frac{1}{4}$ E. 400 yards from the extremity of Buswell point.

Indian John point is a low, broad projection, half a mile west of the mill, and 150 yards southward of this point is the eastern one of a chain of five islands and called Kirke island. The east point is 600 yards

from Buswell point, the line joining them marking the limit of the depth of 3 fathoms.

DIRECTIONS.—Little Detroit to Buswell's wharf.—After passing through Little Detroit, as previously directed, give Craftsman point a berth of 200 yards, and head up for the passage, a little eastward of North; when at the narrows, keep mid-channel, and passing east and 200 yards northward of Sproule islands, steer W. N. W. until the mill stack—if standing—opens, or comes in line with Buswell point, N. N. E. $\frac{1}{2}$ E., when it may be steered for, and a berth taken up at the wharf.

Or a vessel may carry 16 feet through between Green and Sproule islands by keeping mid-channel, and taking care to pass south-west of the rock near the western Sproule island, by keeping Landry point closed with the north-east end of Green island; when west of the rock, steer for Mt. Victoria until the stack and Buswell point come in range, when proceed for the wharf.

Buswell point to the westward.—The shore between Buswell point and Gulnare point $2\frac{3}{4}$ miles further west, takes the form of a shallow bight, being hidden from sight by a chain of islands already alluded to, the highest of which is about 150 feet high.

Brewerton, the western island is separated from Gulnare point by a channel one-third of a mile wide, containing a depth of from 5 to 7 fathoms, muddy bottom. The southern shores of all these islands are steep-to, with the exception of Kirke island, where shoal water makes out 250 yards.

Gulnare point is the termination of a thickly wooded peninsula about 150 feet in height and may be approached to 200 yards.

Papineau island is triangularly shaped, the north side being cliffy and about 100 feet high. It is separated from Gulnare point by a shallow channel 300 yards broad, and its south extremity though low and sharp, may be approached to 100 yards.

Jamieson island is situated 150 yards northward of this, and with Papineau island helps to form the west side of a shallow inlet known as Coursoil bay.

North-westward of Green island are two islands, the south-eastern and larger of which is called Laurier island. The passage between it and Green island is fit only for boats—the same remark applying equally to the channel between it and

Gervase island.—This narrow and partially wooded island is of importance, as lying not far southward of the track of vessels from Buswell's wharf to the westward. Its north-west extremity, which consists of a round rock, 13 feet high, bears S. W. by W. $\frac{1}{4}$ W., distant nearly $1\frac{1}{2}$ miles from Buswell point.

A rock with one foot water on it, lies N.N.W. 200 yards from the dry rock at the north-west extremity of Gervase island. The shoalest part (14 feet) of a mud bank lies E. $\frac{1}{2}$ S. a little more than half a mile from the same.

Directions.—Keep the mill stack open of Buswell point to avoid the bank southward of the latter; when distant a quarter of a mile from the point haul to the westward, steering to pass the same distance off Gervase island. When southward of Brewerton island, the westernmost of the five islands between Buswell's wharf and Gûlnare point, steer for the north side of John island, and having arrived at Flood island, proceed west as directed on page 109.

Aird bay is a deep indentation on the north shore of Whalesback channel, between Papineau island on the east and Bartlett point on the west, and from the latter the coast of the bay runs in a general N. E. by E. $\frac{1}{2}$ E. direction, with several small shallow coves $3\frac{1}{2}$ miles to the bottom. The bay is contained on the east by Papineau and Jamieson islands already described; also by Rykert point, the westerly projection of the peninsula of which Gûlnare point is the southern extremity. On the north-east side of Rykert point the shore trends first to the southward in a shallow bay, separated from Coursol bay, previously alluded to, by a low neck a quarter of a mile wide.

Lister island, small, bushy, and 15 feet high, and a bare rock 8 feet high, lies 150 yards off the shore of Rykert point, the latter being the most northern, and distant 300 yards from Lister island. At present there is no trade to induce vessels to proceed to the bottom of this bay, the surveying steamer *Bayfield* being probably the only vessel of her draught to drop anchor there; but as the C. P. Railway runs close to the shore, and it is possible water communication may be had with it at some future date, the mariner will have to be careful to avoid the following dangers:—

A rock, 7 feet high, lies N. E. by E. $\frac{3}{4}$ E., three-quarters of a mile from Bartlett point.

Hird rock awash, lies E. by N. the same distance from that point, and S. $\frac{3}{4}$ E. 400 yards from the dry rock above mentioned.

Curran rock, also awash, is situated N. W. by W. $\frac{1}{2}$ W., nine-tenths of a mile from the south point of Papineau island, being nearly in the middle of the bay.*

Casgrain rock, 4 feet high, lies three-quarters of a mile further up the bay, bearing W.S.W. half a mile from the north extremity of Rykert point.

* A shallow rock is reported to exist between Curran rock and Papineau island, but the search for it in 1890 proved unsuccessful.

Anchorage.—A vessel wishing to anchor at the bottom of Aird bay should pass eastward of both Curran and Casgrain rocks, and let go in from $3\frac{1}{2}$ to $4\frac{1}{2}$ fathoms over mud northward of Rykert point.

Mount Victoria is a bare hill with three summits, the middle and highest of which is 482 feet high, and situated $1\frac{1}{10}$ miles from the bottom of Aird bay.

Boyd island light-house to Black rock.—This channel to the westward lies between Aird and Darch islands, and between The Consius and the group of islands lying off Algoma Mills.

Ferguson islands are a group partially wooded, the largest and highest of which, 27 feet high, is situated W. $\frac{1}{2}$ N. $1\frac{1}{10}$ miles from Boyd island light-house. With buoys, a vessel might get through between those islands and Aird island, but the channel is so tortuous that the passage close to Boyd island light-house is far preferable. The following sunken rocks lie south and eastward of Ferguson islands:

A patch, with 15 feet over it, lies S. E. $\frac{3}{4}$ E. nearly two-thirds of a mile from the top of the highest Ferguson island.

Rose rocks, with 3 feet and 9 feet on them, lie respectively S. S. E. $\frac{1}{4}$ E. and South one-third of a mile from the same.

St. Paul rock, with 15 feet, and another with 9 feet, are situated S. S. W. half a mile and S. W. a quarter of a mile, respectively, from the highest Ferguson island.

Galbraith point, on the south coast of Aird island, is $2\frac{1}{2}$ miles westward of Boyd island light-house, and lying off it are several rocky patches, none of which are very shallow. A spot with 19 feet over it is the shoalest and outer of these, and bears South nearly two-thirds of a mile from Galbraith point.

Flint rocks, bare and small, are situated with the southernmost one 2 feet high, bearing W. $\frac{1}{2}$ S. two-thirds of a mile from Galbraith point.

Billa rocks, a similar cluster, lie a quarter of a mile further west, the southern one awash bearing the same and distant nearly a mile from Galbraith point.

Lyon island is the name given to the easternmost but one of a group extending from the middle portion of Aird island nearly to Dalrymple island, the coast between Lyon island and Galbraith point at the back of Flint and Billa rocks being broken up into a number of shallow bays.

A rock, with 14 feet water on it, lies S. by E. $\frac{1}{2}$ E. a quarter of a mile from the west extremity of Lyon island.

Conmee island, the next west and largest of the chain, about 40 feet high, lies a quarter of a mile westward of Lyon island, and the same distance from the shore of Aird island.

Ogilvie island is the westernmost of the chain, and its eastern end bears from the corresponding extremity of Dalrymple island N. E. three-quarters of a mile.

Fawcett island, about the same size as the last mentioned, lies half way between Ogilvie and Coumee islands; and south of it 250 yards is a patch with 14 feet water over it.

DALRYMPLE ISLAND is 65 feet high, slightly red in colour, bare of trees and stands well southward of any other island, circumstances which render it a good mark in the navigation of this part of the coast. It lies almost in the line passing through Clapperton island lighthouse and the north extremities of Innes and Darch islands, being distant from Clapperton island lighthouse $11\frac{1}{2}$ miles; it bears also E. $\frac{7}{8}$ S., $9\frac{1}{4}$ miles from Scott island.

A patch with 17 feet on it, lies E. by S. $\frac{1}{2}$ S., nearly a quarter of a mile from the eastern point of Dalrymple island, and another with 15 feet lies N. N. W. 350 yards distant from the same. A rock awash lies 50 yards south of the western end of the island, with which exception the south coast of the island is bold, there being a depth of 10 fathoms at 100 yards. A bare rock, 5 feet high, is situated N. by W. 250 yards from the north-west extremity of Dalrymple island.

Mouse island is perfectly bare, of a light brown colour, 35 feet high, and derives its name from the quantity of mice that abounded on it at the time of the survey; it bears N. W. $\frac{1}{2}$ N. nearly six-tenths of a mile from the north-west point of Dalrymple island. A bank lies eastward of the island, the shoalest part of which, with 2 feet over it, bears E. $\frac{3}{4}$ S. one-third of a mile from Mouse island.

Bergin rock, with 11 feet on it, lies S. W. by W. $\frac{1}{2}$ W., a little more than half a mile from Mouse island. A patch, with 17 feet over it, bears S. W. $\frac{3}{4}$ S. a third of a mile, and another with 15 feet, lies W. $\frac{1}{4}$ S. three-quarters of a mile from Mouse island. That space northward of Dalrymple and Mouse islands is so occupied by rocks, dry, awash and sunken, that it is best for a stranger to avoid it altogether.

Beaufort island, low and wooded, lies near the south-east extremity of John island, being separated therefrom by a boat channel 200 yards wide. A bank under the depth of 2 fathoms extends a quarter of a mile from the east sides of this and John island.

Beaufort reef is a group of stones 2 feet high, joining the southern termination of this bank, and lying 350 yards south of Beaufort island, and from the east side of these boulders, a reef with 4 feet on it extends 350 yards. Beaufort reef bears W. by N. $\frac{1}{4}$ N., and is distant exactly 2 miles from the western extremity of Dalrymple island; the south side of the stones may be approached to 300 yards. A shallow sandbank extends

from Beaufort up to East entrance of Morles harbour to keep east of which see range given on page 101.

This shoal bank round Beaufort island continues to the westward, a spot with 2 feet water on it bearing W. by S. $\frac{1}{2}$ S, a little more than a quarter of a mile, while another, with 5 feet on it, lies W. by N. $\frac{1}{4}$ N., a little less than half a mile from the western extremity of Beaufort island. This rock also lies S. E. by S. 400 yards from

Tern island.—This rather conspicuous, dark coloured islet, 17 feet high, bears N. W. by W. $\frac{3}{4}$ W, nearly two-thirds of a mile from the west extremity of Beaufort island.

Fisher island, low and thickly wooded, is situated a quarter of a mile north-westward of Tern island, and 260 yards from its south-west point in the same direction, is situated a small rock, 2 feet high and 350 yards from the main shore of John island, while W. by N. $\frac{1}{4}$ N. 350 yards from the same lies another rock of the same description. The south coast of John island, from Fisher island, assumes a smoother character, running in a westerly direction nearly straight for $1\frac{1}{2}$ miles, with deep water off it, to the eastern entrance to

JOHN HARBOUR.—The north side of this excellent haven is formed by the south-west coast of John island, whilst it is sheltered on the south by a narrow island nearly 2 miles long, called Dewdney island.

Harbour island, small, and 3 feet high, lies 300 yards eastward of Dewdney island, being connected therewith by a reef, over which not more than 6 feet can be carried. The eastern entrance to the harbour is north-eastward of Harbour island, and 14 feet may be carried in.*

Sandy point indicated by its name, is the first projection of John island after passing westward of Harbour island, and from this point a sandpit makes out two-thirds the way across the Dewdney island, leaving near the latter a channel with a depth above mentioned. Exactly half a mile N. W. $\frac{3}{4}$ W. from Sandy point is a small green point on John island, close to which is a depth of 4 fathoms; and the bight between these two points should not be approached nearer than 100 yards. From this green point the shore of John island runs in the same direction nearly straight to the narrows separating John island from

Gowan island.—This island previously alluded to, is almost denuded of trees, and its south point narrows the west entrance of the harbour to 220 yards, when, by keeping rather near to Dewdney, than Gowan island, a depth of 22 feet may be carried in. A rock awash lies 70 yards off it at the western extremity of Gowan island.

A rock, with 14 feet over it, is situated S. W. $\frac{1}{4}$ W. 350 yards from the same, and 200 yards from off the shore of Dewdney island.

* At low stages of the water there may be two feet less.

Dewdney island.—Close to the harbour shore of this island, and 350 yards from the east extremity, lies a small round rock, one foot above the water, and known as Pancake rock, 70 yards north-west of which and 50 yards off shore is a rock with less than 6 feet over it. Two-thirds of a mile from the east extremity, the harbour shore of Dewdney island turns to the south-west, forming a cove 250 yards deep, with two islands and a cluster of dry rocks lying across the mouth. From the eastern point of the larger island, a reef extends in a N. E. by E. $\frac{1}{2}$ E. direction 250 yards, at which distance there is a depth of 10 feet, leaving a channel 4 fathoms deep and 150 yards wide between it and the green point previously described; to pass north-east of this reef keep the north side of Harbour island touching Sandy point.

Anchorage.—A vessel may anchor in 4 fathoms mud bottom eastward of this reef, or in 5 fathoms westward of the same or northward of the cove in Dewdney island just mentioned. From the latter, the north coast of this island runs nearly due West and straight, one mile to the west end, which is surmounted by a bare summit 67 feet high. This extremity of the island is distant 300 yards from Le Sneur island, and midway between them is a small islet, with a cluster of dry rocks on its south and east sides, the highest and southernmost of which attains a height of 22 feet. A depth of 8 feet may be carried between this and Dewdney island, and 7 feet between it and Le Sneur island.

DEWDNEY ROCK with 3 feet water over it, is a dangerous obstruction situated S. W. by W. $\frac{1}{2}$ W. one mile from Harbour island, and a little more than half a mile from the nearest part of Dewdney island.

A rock, with 11 feet on it, lies on the same bearing from Harbour island, and distant a little more than half a mile.

Directions for John harbour.—If from the south-eastward, a vessel may carry 14 feet into this harbour,* by keeping midway between Harbour island and the John island shore.

Having passed the former, haul over for the east extremity of Dewdney island, steaming slowly and with the lead going keep 50 yards or less from this island, until up to Pancake rock, when the shallow spit extending from Sandy point of John island will be passed. Steer now for the little green point on the latter island, taking care as it is approached to keep the north side of Harbour island touching, or closed with Sandy point, in order to clear the 10 foot reef extending north-eastward from the east point of the cove in Dewdney island.

Pass 100 yards off the green point and then borrow towards the Dewdney island shore until in mid-channel, when a vessel may anchor in 5 fathoms mud bottom, or proceed through into Whalesbaek channel by

* See note on previous page.

keeping midway between the islands on a course parallel to the north shore of Dewdney island, until the south point of Gowan island is reached, whence a mud bank extends half ways to the former, but over which, outside of 50 yards from Gowan island there is not less than 3 fathoms. A vessel may now haul out into Whalesback channel between LeSueur and Gowan islands. If from the north-westward, reverse the preceding directions.

Acadia rock, with 13 feet on it lies S. S. W. $\frac{3}{4}$ W. half a mile from the east extremity of Alfred island before mentioned in connection with Whalesback channel.

RESCUE ROCK* is a dangerous ledge just covered, lying a quarter of a mile southward of the line joining Dalrymple island and Black rock. It bears S. S. E. and is distant $1\frac{1}{2}$ miles from the western extremity of Scott island; it is flat for 100 yards east of the rock, and a depth of 5 fathoms will be found 200 yards westward, with which exceptions, the deep water comes close up to the rock, especially on the south and south-east sides; hence great caution is necessary when near it in thick weather.

Gunboat shoal, with 8 feet least water upon it, is one-third of a mile long east and west, by 150 yards broad. The shoalest part is the centre of the bank, and bears W. $\frac{3}{4}$ N. from the south side of Scott island and S. $\frac{3}{4}$ W. nearly 800 yards from the western Minstrel rock. To pass west of this shoal, keep the west side of Round island touching the east side of Turnbull island, N. by W.

Minstrel rock and Tug reef have been described page 104.

Southward of Algoma Mills is situated a large group of islands of varied size, the eastern called Bassett and Turnbull already mentioned, and the central and largest one known as Clara island. The latter, partially wooded and about 50 feet high, is over a mile in length east and west, with an average breadth of a quarter of a mile.

Loughlin island, with a conical summit, 58 feet high, is the south-west island of the group properly so called. It is situated N. $\frac{1}{2}$ E. a little more than three-quarters of a mile from Black rock.

A rock, with 8 feet of water on it, lies 250 yards westward of Loughlin island.

Struthers island, about 30 feet high, bears N. $\frac{1}{2}$ E. from Loughlin island, and is distant therefrom half a mile.

Caroline island, about 60 feet high, nearly half a mile long north-west and south-east, with a breadth towards its western extremity of a quarter of a mile, lies the same distance eastward from Loughlin island.

* This rock requires a buoy.

As there are no passages to be recommended to a stranger through these islands, they are comparatively unimportant in comparison with the southern chain of high bare rocks, and their attendant dangers, of which the most easterly is

Cherub rock.—This little rock, 3 feet high, is situated S. W. by W, nearly three-quarters of a mile from the south-east extremity of Turnbull island. A patch with 3 fathoms and another with 17 feet, lie E. by N. $\frac{1}{4}$ N. half a mile, and 300 yards respectively from Cherub rock.

A rock with 14 feet on it, lies W. by N. $\frac{3}{4}$ N. 350 yards from the same, while to the southward a depth of 10 fathoms will be found 300 yards distant.

Huntly rock, with 4 feet on it, is situated at the western extremity of a reef with less than 12 feet water, one-third of a mile long, the eastern end with 9 feet bearing W. $\frac{1}{4}$ S. one-third of a mile from Cherub rock. A depth of 10 fathoms will be found 300 yards southward of this reef.

Fortin rocks consist of four, the southern of which is one foot above the water; the north-eastern one about 30 feet high, with a few tall trees on it lies 300 yards from the smaller ones, and bears S. E. by E. $\frac{1}{4}$ E., distant one-third of a mile from the south-east extremity of Caroline island.

Ramsey islands, three in number, lie half a mile northward of Fortin rocks; and 250 yards southward of the east Ramsey island, is a rock with 9 feet water on it, while in the same direction from the western islet will be found the western extremity of a reef with 5 feet over it.

A rock, with 8 feet water over it, lies 170 yards southward of the southern Fortin rocks; falling suddenly down to a depth of 17 fathoms.

Chrysler rocks consist of a string nearly half a mile long, north-east and south-west, the largest and highest of which, 16 feet high, is situated near the north-east end. The south-western rock bears E. $\frac{1}{2}$ N., and is distant half a mile from Black rock.

A rock, with 13 feet water on it, lies E. by N. $\frac{1}{2}$ N., 300 yards from Black rock. A patch, with 4 fathoms, is situated S. $\frac{3}{4}$ W., half a mile from Black rock, and between, the depth is as much as 25 fathoms.

THE COUSINS is the name given to two low flat islands, each 5 feet high and 300 yards apart, lying S. E. by E. $\frac{1}{4}$ E. and N. W. by W. $\frac{1}{4}$ W. of each other. The north-western island bears S. S. E., and is distant $2\frac{1}{10}$ miles from Black rock. They are connected with each other by and surrounded with shoal water; there being only 10 feet 350 yards westward of the north-west island, while a rock with less than 6 feet

on it lies E. by N. $\frac{1}{2}$ N., 300 yards from the north-west extremity of the same. Shoal rocks lie 300 yards south-west and south from the south-east Cousin.

Europa reef, with 9 feet on it, is situated E. $\frac{1}{2}$ S., a little more than $1\frac{1}{2}$ miles from the south-east Cousin, while N.E. by E. 600 yards from the 9 foot spot is another patch—part of the same bank—with 13 feet upon it. A depth of 15 fathoms will be found between The Cousins and Europa reef, and the same between the latter and a bank with 23 feet least water on it, lying E. by N. $\frac{3}{4}$ N., $1\frac{1}{2}$ miles from the 13 foot spot on Europa reef, known as Maitland patch.

DIRECTIONS, Boyd island light-house westward.—The direct course and distance from half a mile southward of Boyd island light-house to half a mile off Mildram point (Straits of Missisanga) is W. by S., $36\frac{1}{2}$ miles; this course leads nine-tenths of a mile northward of Darch island, and two-thirds of a mile in the same direction from Tyrwhitt shoal, the western of the dangers from Egg island. It passes also 2 miles from cape Robert, $1\frac{3}{10}$ miles northward of Crescent island, and nine tenths of a mile from Batture island.

As there is no clearing-mark for the north side of the ledges west of Egg island, it would be better, until Tyrwhitt shoal is buoyed, for a vessel after clearing the shoal near Boyd island light-house to steer so as to arrive at about half a mile southward of Dalrymple island, and thence take her departure for Mildram point, the course and distance to which from a position half a mile southward of Dalrymple island, is W. by S. $\frac{1}{2}$ S. $29\frac{1}{2}$ miles; passing nearly $1\frac{1}{2}$ miles northward of Tyrwhitt shoal, $1\frac{1}{2}$ miles southward of Europa reef, 2 miles in the same direction from the shoal water of The Cousins, and further than the distances previously given from the shore of Manitoulin island.

Or a vessel may pass between Innes or Darch islands, and after arriving half a mile south of Howland rocks, described page 96, steer W. $\frac{1}{2}$ S. for 16 miles, when she should be half a mile northward of cape Robert light-house, after which she can coast it along the shore of Manitoulin island to Mildram point. By the latter track the distance is $38\frac{1}{2}$ miles, or 2 miles further than by going north of Darch island, but for a stranger it is the safer track.

The most direct route for a vessel from Boyd island light-house to St. Joseph channel and Saint Ste. Marie is between The Cousins and Black rock, the course and distance from a position half a mile south of Dalrymple island to a corresponding one south of Missisanga island, being W. $\frac{1}{2}$ N. $21\frac{3}{4}$ miles, leading nearly half a mile southward of Resene rock, and midway between The Cousins and Black rock; but until a buoy is placed upon Resene rock this course would not be a prudent one for a stranger, and it is for strangers that these sailing directions are primarily written. A safer track is that south of The Cousins, the course

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and distance to a position half a mile south of them from a similar one in regard to Boyd island light-house, being W. $\frac{1}{2}$ S. 20 miles, passing the same distance southward of Europa reef.

A vessel may proceed to Serpent harbour or Algoma Mills southward of Aird and John islands, by Scott island passage or Turnbull passage, as the channel between Turnbull and Scott islands is termed. If by the latter (that commonly used), before Round island disappears behind Scott island take care that the vessel is northward of Resene rock. Pass half a mile south of Scott island and do not bring the south side of Scott island to bear eastward of E. by N. $\frac{1}{2}$ N. until the west side of Round island touches the east side of Turnbull island N. by W., when steer for them so, to pass west of Gunboat shoal. Keep a quarter of a mile from the east shore of Turnbull island and proceed to Algoma Mills, as hereafter, or to Serpent harbour as already directed.

Approaches to Algoma Mills.—Round island, to which allusion has already been made, is situated with the eastern extremity bearing N. by E. $\frac{1}{4}$ E. a little more than three-quarters of a mile from the same end of Bassett island. It is about 150 feet high, thinly wooded, clifly on the west side, and of about the same size and appearance as Scott island.

A rock, with 5 feet water on it, lies 200 yards eastward of the south-east extremity.

A rock 24 feet high, lies 60 yards off the south west side.

McCallum islands consist of a group of islands and rocks, the western and longest of which is 200 yards long east and west, and 70 broad, bearing N. W. $\frac{1}{4}$ N., three-quarters of a mile from the east end Bassett island.

A rock with less than 6 feet water over it, together with a patch of 12 feet, lying 150 yards still further east, narrows the channel between McCallum islands and the rock 24 feet high above mentioned, to 300 yards, in which, however, there is a depth of 4 to 5 fathoms by keeping rather nearer Round island.

A rock awash, lies 70 yards from the south-west extremity of the west McCallum island. A good channel with not less than 5 fathoms water and half a mile in breadth, will be found between McCallum and Bassett islands.

Magazine island, small and bare, with some large blocks of stone on the top, and about 20 feet high, lies N. N. W. two-thirds of a mile from the west point of the largest McCallum island, and $1\frac{1}{2}$ miles from wharf at Algoma Mills. A rock 6 feet high lies E. by $\frac{1}{2}$ N., 170 yards from Magazine island, good water existing all around this island and

rock. The coast from Serpent harbour runs in a general west by south direction from Hospital point, $5\frac{1}{2}$ miles, to Algoma Mills.

Strong island, lying 350 miles off this shore and the same distance westward of Fournier islands, already described, is about 50 feet high, with a rock detached from its west extremity, and, like the last mentioned, has deep water close to its south side. A passage with not less than 17 feet exists between these islands and the shore by keeping nearer the former, which would make a good protection to any wharves that might be built in the future.

Chicora island is nearly two miles westward of Strong island, and lies quite close to the coast. The shore between Strong and Chicora islands, about 100 feet high, may be approached as near as 200 yards.

Mitchell island, lying parallel to the shore, nearly a third of a mile in length and narrow, is situated with its western point bearing N. N. W. $\frac{3}{4}$ W., distant half a mile from Magazine island. The space between Mitchell island and the shore, 400 yards broad, has a depth of 14 to 17 feet over mud, and would offer shelter to vessels or wharves.

Rocks, with 3 feet over them, lie E. $\frac{3}{4}$ N. a quarter of a mile from the east extremity of Mitchell island and 300 yards off shore.

Shickluna rock, with 6 feet water over it, lies S. W. $\frac{3}{4}$ S., 300 yards from the other end of the island.

In the passage between Mitchell and Magazine islands the depths vary from 18 feet near the former to 30 feet on the latter side, and in using this channel care must be taken to avoid Shickluna rock, by keeping nearer Magazine island.

East bay is an indentation immediately eastward of Algoma Mills, in which a vessel will find shelter in westerly gales in 14 to 15 feet over sand and mud.

ALGOMA MILLS, in the township of Long, is the name given to the site of a saw-mill driven by a stream emptying out of lake Lauzon, and owned by the Canadian Pacific Railway Company, which also has one of its principal stations here on its Sault Ste. Marie branch. A substantial wharf also extends from the shore to a depth of 14 feet; the village with a population of 620 has post and telegraph offices, and almost daily communication may be had by steamer with Collingwood, Owen Sound and Sault Ste. Marie; a customs-officer resides here. The village is situated in a bay, separated by a level broad point covered with young timber, from East bay already spoken of.

Lally point, one mile west-south-westward of Algoma Mills, considerably shelters the wharf at the latter, notwithstanding which, in heavy westerly breezes considerable swell is felt on the weather side of the wharf.

Sanford island, wooded, and about 30 feet high, is situated three-quarters of a mile southward of Lally point; the island is half a mile long, north-east and south-west, by a quarter of a mile in breadth, and is connected to Lally point by a bar of sand, on which the deepest water is 18 feet, found 150 yards from Sanford island. At a third of the distance from Sanford island to Lally point there is 16 feet, and in the middle of the passage only 15 feet of water.

Plough-boy rock with 9 feet water on it, lies E. by N. $\frac{1}{2}$ N., half a mile from the north-east extreme of Sanford island to pass east of which keep the wharf at Algoma Mills end on, N. $\frac{1}{2}$ E.; in addition to this, a sand bank makes out in the same direction a quarter of a mile, where there is a depth of 14 feet.

Spartan rock, with 15 feet water on it lies E. $\frac{3}{4}$ N., $1\frac{1}{4}$ miles from the north-east point of Sanford island.

O'Dwyer island, small and low, lies 400 yards westward of Sanford island, the channel between them being rendered unfit for large vessels by reason of a rock in the middle with 9 feet on it. A passage exists on the north and south sides of O'Dwyer and Sanford islands, the former being known as North and the other South Passage, the dangers in the first of which will now be described.

Double island, as its name indicates, consists of two small, low islets, the western of which is almost bare and 12 feet high; they lie W. by S. $1\frac{1}{4}$ miles from Lally point, and half a mile off the shore of the bight between the latter and Mary point. In the eastern portion of the bight, are three islets, the western being known as Dot, the eastern as Plumb and the northern as Can island. Between the former and Double island the extensive sandy flat has a depth over it of 10 feet.

Mary point is situated due West $2\frac{1}{10}$ miles from Lally point, and terminates the bight above mentioned.

Moodie rock, just shewing, lies W. S. W. 300 yards from Mary point.

Simon rock, small, bare, and $1\frac{1}{2}$ feet above the water, is the western-most of the rocks and islands forming the large group south of Algoma Mills, and bears S. W. $\frac{1}{2}$ W., distant $1\frac{1}{4}$ miles from O'Dwyer island. Soal water extends 70 yards from the south end of the rock, with which exception nothing of a very shallow character could be found in its locality.

Two rocky patches, having 3 fathoms on them, lie S. by W. $\frac{1}{2}$ W., a half and a quarter of a mile, respectively, from Simon rock, being known as South-west patches.

May reef, with the same depth on it, lies N. $\frac{1}{2}$ W., a third of a mile from the same.

A sandy knoll, with 17 feet over it, lies E. by N. 800 yards from Simon rock.

Isaac rock, with 12 feet over it, lies S. W. by W. $\frac{3}{4}$ W., half a mile from O'Dwyer island.

Pandora rock, with 8 feet on it, is situated West one-third of a mile from the same, and to ensure passing north of it, keep the north sides of Round and Sandford islands touching E. $\frac{1}{4}$ N.

Dangers in South Passage.—This channel, as before stated, is on the south side of Sandford island, and northward of Struthers and Clara islands, previously alluded to, and although not so easy to navigate, has the advantage of a greater depth of water, a vessel being able to carry five fathoms by closely following the leading marks hereafter given; moreover, an alternative channel is often useful in the spring, when that commonly used may be blocked with ice.

Doucet rock 10 feet high, is situated S. E. by E. $\frac{3}{4}$ E. two-thirds of a mile from Simon rock, and the South Passage track leads midway between these two rocks.

Jane rock, similar to the last described, but 2 feet higher, lies half a mile eastward of Doucet rock, and directly between it and Struthers island. Midway between the latter and Jane rock is a rock with 10 feet upon it, while N. N. E. one third of a mile from Jane rock is a rock with 5 feet over it, known as Bruce rock, to lead north of which keep the south side of Round island touching the north side of McCallum islands, E. by N. $\frac{1}{2}$ N.; the lower rocks belonging to the latter will be a little overlapped with Round island, (see view on chart No. 908.) The south-east coast of Sandford island and the north shore of Clara island should receive a berth of 250 yards.

DIRECTIONS.—To Serpent harbour by North Passage.—If from the westward, the master of a vessel before he passes Comb point, near Blind river, should see that the north extremity of Round island is just showing in range with the same point of Sandford island, E. $\frac{3}{4}$ N. This mark will keep a vessel of large draught off the extensive sand banks fronting the shore from Comb point to near Lally point, and will lead her up to the north side of Sandford island, with 17 feet water.*

A vessel should pass from 200 to 300 yards northward of the latter island, and steer for Magazine island, passing 300 to 400 yards northward of Ploughboy rock, and a quarter of a mile in the same direction from Spartan rock. Pass 250 yards or so on either side of Magazine island, and steer to pass 200 to 300 yards southward of Strong and Fournier islands, whence enter Serpent harbour, as previously directed.

* At low stages there may be 2 feet less water.

If bound to **Algoma Mills**, a vessel may haul up for the wharf when past Sanford island, remembering, as the latter is approached, that the western shore of the bay, in which the village is situated, is shallow, not more than 10 feet being found at 300 yards distance.

By South Passage.—Before getting into a less depth than 10 fathoms, see that the inner end of the wharf at Algoma Mills is in line with the north-west shore of Sanford island N. E. $\frac{1}{2}$ N. Keep it so, passing midway between Simon and Doucet rocks, and when the south side of Round island comes in line with the north side of McCallum islands—the low rocks of the latter will overlap the shore of Round Island a little.—see view on chart 908,—steer for them E. by N. $\frac{1}{2}$ N., pass 200 to 300 yards northward of these islands, and steer up the middle for Serpent harbour.

If wishing to proceed to Algoma Mills, when the wharf at the latter appears end on, steer for it, in order to avoid and pass east of Ploughboy rock.

Algoma Mills to Serpent harbour.—On leaving the wharf, keep it end on for a quarter of a mile, and then steer to pass 200 to 300 yards on either side of Magazine island, whence proceed as before directed.

Turnbull island to Algoma Mills.—The east sides of this and Bassett island may be approached to 150 yards, and when round the latter, the houses at the mills will be seen just open south of McCallum islands. Give the latter a berth of 260 yards, and keep sufficiently to the eastward, if of heavy draught, to avoid Spartan rock, which bears from the wharf at Algoma Mills S. S. E. $\frac{1}{2}$ E., distant nine-tenths of a mile. From Mary point on the north shore, the coast trends W. $\frac{3}{4}$ N., three quarters of a mile to the mouth of a small shallow bay, called Colin cove.

Caribou Point is a small hooked peninsula, S. E. by E., three-quarters of a mile from Blind river mill.

Louis island, with a few trees on it, is the eastern one of a small group of rocks lying near Caribou point. Louis island is 3 feet high, and bears S. E. by E. $\frac{3}{4}$ E., distant 350 yards from the south-east part of Caribou point; the western rock is 6 feet high, and lies 150 yards southward of the point.

Davies rock, 5 feet high, lies 300 yards off the shore of Hoffman light, as the indentation between Colin cove and Caribou point is called. It bears to $\frac{3}{4}$ N. half a mile from the southern part of Caribou point.

Dixie rock half a foot high, lies S. E. by S. 750 yards from the same.

A rock awash is situated 70 yards north-westward of Dixie rock. Halfway between Caribou point and the wharf there is a low islet called Henriette island.

BLIND RIVER.—The mouth of this small river—called by the Indians *Pe-ne-wà-be-kung*—is situated 6 miles westward of Algoma mills. A saw-mill, owned by an American company, is erected on the stream near the shore, driven by water passing over some small falls, and rendering the river inaccessible for the smallest boat. It is also a station of the Sault Ste. Marie branch of the Canadian Pacific Railway. The tall and broad brick sawdust burner is a good mark for Blind river. There are two wharves here, at the outer end of the western and longer of which is a depth of $11\frac{1}{2}$ feet,* where a vessel may lie in ordinary weather, the force of the sea in westerly gales being broken by Comb point, from which it is divided by a shallow and rushy strait known as Dorothy inlet. Caribou point also shelters the wharves from the eastward. A depth of 13 feet can be carried to the wharf eastward of

Susanne island.—This small, bare island, 8 feet high, lies in the middle of the approach to the wharf, and bears E. $\frac{1}{4}$ N. a little more than a third of a mile from Comb point.

A **rock awash** lies E. by N. 150 yards from the island, while sunken rocks lie off the west and north-west sides a distance of 100 yards. Between the island and Comb point there is a depth of 13 feet, and with the assistance of buoys this depth can be carried to the wharf by passing westward of Susanne island. With the mill burner in line with the outer end of the long wharf, 10 feet may be carried in. (*See foot-note.*)

Harriette point, on which there are still the remains of the old wharf, is one quarter of a mile westward of the mill wharf.

Comb point is the eastern extremity of the island separated from the main land by Dorothy inlet. A rock awash lies 150 yards S. S. E. $\frac{3}{4}$ E. from the extremity of Comb point.

Belle rock, with 8 feet over it, lies S. $\frac{1}{4}$ E. 750 yards from Susanne island, and to pass south of it keep the whole of Double island shut in north of Lally point, E. $\frac{1}{2}$ N.

Blind river bank is the name given to the extensive flat, with depths between 2 and 3 fathoms, which makes out in the vicinity of Blind river a distance of nearly 2 miles. Approaching Blind river wharf from the eastward, keep the north sides of Round and Sandford islands touching E. $\frac{3}{4}$ N. until a round, dark wooded hill, close to Blind river, comes in line with the burner, N. N. W. $\frac{1}{2}$ W.

Keep the latter mark on until Comb point comes north of Susanne island, whence steer for the wharf with not less than 13 feet water. In turning to come out again, approach no nearer the north side of Susanne island than to have Mary point in line with Louis island E. $\frac{1}{2}$ S.

*At low stages of the water there may be 2 feet less.

Anchorage.—A vessel of light draught may anchor between Comb and Harriette points in 12 to 13 feet water sandy bottom. (*See* note at foot of page.)

Approaching the wharf from the westward, when abreast of Comb point see that Double island is shut in north of Lally point to lead south of Belle rock, until the black wooded summit before mentioned comes in line with the burner, when steer for it, as previously directed. Wishing to anchor under Comb point, when the burner comes in line with the end of the long wharf steer for it, to lead west of Belle rock, and eastward of the rock awash 150 yards off Comb point, and when the old wharf on Harriette point bears North steer for it, anchoring in 12 or 13 feet to swing clear of the wharf.

Missisauga river.—The bay into which this river empties itself is contained between Patrick point on the east and Wolstan point; the mouth of the river being nearer to and one-third of a mile from Patrick point.

Patrick point.—This point bears W. $\frac{1}{4}$ S. $1\frac{1}{4}$ miles from Comb point; and one-third of a mile east of Patrick point is the western entrance, with the remains of a little wharf, to Dorothy inlet; between which and Comb point three small coves indent the coast.

Midway between the middle and eastern of these boat coves, and half a mile west of Comb point, a reef makes out 150 yards. Blind river trends N. N. W. $\frac{3}{4}$ W. for $1\frac{1}{10}$ miles, with a depth of over 8 feet, when another channel leaves the main river and empties into Missisauga bay with a depth of 4 feet on the bar, the two mouths enclosing a delta of several low islands. At the convergence of these two principal mouths is situated a post of the Hudson Bay Company, and a small village of Indians and others, numbering 789 at the last census. The Canadian Pacific Railway crosses the river at a quarter of a mile above the fork.

Patrick point bank commences at Wolstan point, whence it makes out 300 yards, and stretches across the bay into which the river flows, forming a bar, over which not more than 8 feet can be carried into Missisauga river. The south-eastern extremity of the bank, with a depth of 8 feet, bears S. S. E. $\frac{3}{4}$ E. two-thirds of a mile from Patrick point; a vessel should therefore give this point a wide berth.

Beaumont point is the next west of Wolstan point, being distant therefrom half a mile, and between, the shore takes the form of a sandy beach.

Webber island, the western extremity of the delta of Missisauga river, is about 20 feet high, and between it and Beaumont point is a shallow, sandy cove, with a small islet in the middle. A small wooded island lies 170 yards from the south-west point of Webber island, being connected thereto by a narrow bank of dry stones.

Missisauga bay takes its shape from a chain of islands extending from Webber island, just mentioned, $4\frac{1}{2}$ miles, called by some the French islands, but as that is rather a loose and very frequently used title, the islands and rocks comprising the group have, for the convenience of a detailed description, been given individual names of Frenchmen celebrated in the early settlement of Canada. This bay is so shallow that for 3 miles from the bottom—into which flow two mouths of Missisauga river—there is less than 3 fathoms of water, and for 2 miles not more than 12 feet, the bottom over the whole bay being sandy. For the convenience of surveying this bay, the *Bayfield* was anchored on the north side of Hennepin island, about one-third of a mile eastward of the channel dividing the latter from Tonty island, but as the bay is open to westerly gales it cannot be recommended as an anchorage, especially as the holding ground is not very good.

Hennepin island, the largest and easternmost of the chain, is $1\frac{3}{4}$ miles long, with a greatest breadth of a quarter of a mile, and at three-quarters of a mile from the west end attains in the shape of a dark wooded summit, a height of 140 feet. The south side of the island may be approached to 150 yards, and the bottom on the north side is level with the exception of

Briggs rock.—This small rock, with 6 feet on it, is situated half a mile from the west extremity of Hennepin island, and 270 yards off shore. Some idea may be formed of the small size and slight indication given by the soundings, of the rocks on this north shore, when it is stated that the *Bayfield* had the misfortune to get on to this rock though a boat was ahead sounding, and the leadsmen sounding in the ship, steaming slowly.

Two rocks, $1\frac{1}{2}$ feet above, lie N. by W. $\frac{1}{2}$ W., 370 and 600 yards respectively from the eastern extremity of Hennepin island.

Fisherman gut, separating the latter from Webber island, is not good for more than 6 feet of water, which may be had in the narrow channel between the north-east extremity of Hennepin island and the two small islets between it and Webber Island. A few fishermen are usually stationed here, to attend to the pound-nets in the locality.

Tonty island is divided from the west end of Hennepin island, by a channel 150 yards wide, through which 11 feet can be carried, taking care in running through from the southward to avoid the reef extending from the south-west extremity of Hennepin island; afterwards hauling over for the north-west point of the latter, to pass the shoal which makes out from the north-east point of Tonty island.

The north and south shores of Tonty island may be approached to 150 yards, but from the west extreme a reef of dry and sunken rocks extends 200 yards.

De Caen rock 6 feet high, lies W. by N. $\frac{1}{2}$ N., one-third of a mile from the north-west extremity of Tonty island; it is 150 yards long north-east and south-west, and may be approached as close as 100 yards all round.

A depth of 17 feet water will be found between it and Tonty island, while on the other side and bearing W. by N. $\frac{1}{2}$ N., a little more than a third of a mile from the rock is situated a patch with 14 feet over it. The water of Missisanga bay eastward of De Caen rock begins to shoal more rapidly.

La Salle island with a sharp rocky top near its east end, 54 feet high, is a little less than nine-tenths of a mile westward of Tonty island; it is 650 yards long, with an average breadth of 150 yards. The south side of the island is steep-to, while from the east and north sides, a bank under 3 fathoms deep, extends rather more than one-third of a mile, the shallowest place with 12 feet over it, being situated E. by N. $\frac{1}{2}$ N., a quarter of a mile from the east end of La Salle island. A depth of 18 feet may be carried through between the latter and De Caen rock. A few fishermen are usually located on the west extremity of La Salle island in the summer.

Richelieu island lies 650 yards westward of La Salle island, the gap between being nearly filled with dry rocks.

Talon rock, quite small, and $3\frac{1}{2}$ feet high, is the western of the chain. A rock with less than 6 feet water on it lies N. E. $\frac{3}{4}$ E. 150 yards from this rock, while its east and west sides are foul for a distance of 50 yards.

Steeple rock just covered, derives its name from its pinnacly nature, and is a very dangerous obstruction, the soundings at 100 yards giving no indication of its existence. It lies S. W. by W. $\frac{1}{4}$ W., and is distant a quarter of a mile from Talon rock. This, together with Briggs rock, already spoken of, standing as they do like haystacks upon a level prairie will always make the existence of such rocks possible after the most carefully executed survey, and mariners cannot be too vigilant in keeping a good look out for any sign of discoloured water when navigating on this northern coast.

De Roberval point, which may be termed the north entrance point, is 4 miles from the bottom of Missisanga bay; it is a very ragged point, indented by numerous snug little sandy coves, and strewn with rocks and islands.

Joliette islands three in number, lie off the western part of this point, and form the south shore of a rocky bay known as Foul bight. The western and smallest Joliette island, 5 feet high, bears N. $\frac{1}{4}$ W. a little more than $1\frac{1}{2}$ miles from Talon rock. These islands should not be approached on the south side nearer than a quarter of a mile.

Supply point is a very inconsiderable projection, bearing N. W. by W., half a mile from the western Joliette island, but a small cove on the west side of the point afforded good landing for provisions sent in to the parties working on the railway, whence it derives its name.

Foul bight, already alluded to, is the name given to the rocky and shallow indentation eastward of Supply point and northward of Joliette islands. In the bight, or in the many coves about De Roberval point, a boat will find safe shelter in westerly gales.

Sayers island, 9 feet high, is the easternmost of the group off De Roberval point and bears N. $\frac{1}{4}$ W., three-quarters of a mile from De Caen rock; the group which it belongs to lies 250 yards off shore, and eastward of it the water commences rapidly to shoal. From Sayers island, the north shore of Missisauga bay trends N. E. by E. $\frac{1}{4}$ E. $1\frac{1}{2}$ miles; thence it takes a S. E. by E. direction $2\frac{1}{2}$ miles, with a shallow shore fringed with rushes, to the western mouth of Missisauga river.

MISSISAUGA ISLAND is situated with its light-house bearing N. W. $\frac{1}{4}$ W., a little more than $10\frac{1}{2}$ miles from cape Robert light-house. The island is low, with a slight rise and trees on the north end, and is nearly six-tenths of a mile long north and south, its breadth being irregular on account of two coves which indent the eastern side.

LIGHT.—Near the south shore of the island is erected a white square tower, with dwelling attached, which from an elevation of 53 feet exhibits a *revolving white* light, visible all round except between the bearings of S. E. $\frac{3}{4}$ S. and S. S. W. $\frac{3}{4}$ W., when it is obscured by the trees on the northern part of the island.

North point shoal extends from North point as a narrow gravel bank, with less than 6 feet water upon it, due North 420 yards.

Dog point shoal is the name given to a reef stretching off from the point of that name a quarter of a mile, at which distance there is only 6 feet of water. The cove on the east side, in which is situated the wharf and boat-house belonging to the light-house, is fit only for boats and small tugs that will find excellent shelter in westerly gales.

Anchorage.—Vessels will find good temporary shelter from westerly gales on the east side of Missisauga island in 4 to 5 fathoms clay bottom.

A **patch** with 12 feet over it, lies S. S. E. 250 yards from the light-house.

West islet about 4 feet high and 70 yards in diameter, with an indentation on its north side, is situated W. S. W. half a mile from North point of Missisauga island, being connected thereto by a bank over which 12 feet may be carried in an emergency, by keeping the burner at Blind river touching the trees on the north end of Missisauga island until 150

yards off the latter, when haul sharp to the north-west and keep the light-house right astern; but as shoal rocks make out 200 yards from the east end of West islet, and there is only 9 feet in the middle of the passage, it is fit only for fishing tugs.

A reef of dry and sunken rocks extends S. W. by W. $\frac{1}{4}$ W., 300 yards from the south point of West islet.

McDonald shoal with 5 feet over it, is a rocky patch lying N. W. $\frac{1}{2}$ N., 430 yards from the same, leaving a depth of 3 to 4 fathoms between it and West islet.

NORTH-WEST REEF, with 13 feet over it, is situated N. W. $\frac{3}{4}$ W., $1\frac{3}{4}$ miles from West islet, and from it the south-west extremity of Missisauga island is in line with the contrary side of West islet.

In thick weather passing south of Missisauga island, a vessel will not approach it nearer than $1\frac{1}{4}$ miles if she keep in 10 fathoms or more.

Campana shoal, with 17 feet on it, is the rocky head of a bank over half a mile in diameter, under the depth of 10 fathoms, and bears E. by S., distant $4\frac{1}{4}$ miles from Missisauga island light-house; also W. by N. $\frac{1}{4}$ N. 4 miles from the western Cousin.

The description of the north coast in this chapter being now concluded, the north shore of Manitoulin island will be taken up, continuing from Janet head.

Janet Head.—Half a mile westward of Gore bay light-house, the clay-bank is 148 feet high, and the coast turns away and runs straight S. W. by S. for $1\frac{3}{4}$ miles, forming the east side of Julia bay. A shallow bank fringes this shore, the edge being 150 yards off the light-house, and 250 yards at half a mile west; thence the bank gradually narrows until one-third of a mile from Hartney cove when the shore is steep-to. The north-east half of this shore is well marked by a clay-bank.

Julia bay is a deep and square indentation next west of Gore bay, contained between Janet head and Blackstock point. It is $3\frac{1}{4}$ miles broad at the mouth and $2\frac{1}{2}$ long, and the water in it is very deep, there being 20 fathoms a quarter of a mile from the bottom of the bay. This fact, together with the exposure to northerly gales, renders it unsuitable for anchorage, but should a vessel have to load timber here, the best places are a quarter of a mile northward of Duroquet point, in 8 fathoms, and in the south-east corner of the bay.

Hartney cove, situated in the latter, is a long and shallow inlet, running in a north-easterly direction a third of a mile, and a quarter of a mile due West of this cove is a rocky bank with 15 feet over it.

*At low stages there may be 2 feet less water.

Brymner bay, with a smooth, sandy beach, occupies the south corner of this bight.

Botterell point, is a rounding point—close to which the water is deep—a little less than half a mile north-westward of Brymner bay. A line running east from this point marks the depth of 3 fathoms over sandy bottom. From Botterell point, the south shore of the bay trends in a general W. $\frac{1}{2}$ N. direction $1\frac{1}{2}$ miles to Shoal point, at the eastern entrance to Bayfield sound. This strait at $1\frac{1}{4}$ miles from Duroquet point is bridged over for the convenience of people living on Barrie island, and is fit only for boats.

Duroquet point, on Barrie island low and narrow, bears N.W. $\frac{3}{4}$ N., one-third of a mile from Shoal point, and not more than 8 feet can be carried through between them.

A reef with less than 6 feet of water on it extends S.E. by E. $\frac{1}{2}$ E. just halfway across to the mainland shore. From Duroquet point, the west shore of Julia bay continues in a general northerly direction $2\frac{1}{2}$ miles to

Blackstock point.—This point bears W. by N. $\frac{1}{4}$ N., and is distant $4\frac{1}{4}$ miles from Gore bay lighthouse, and the cliffs thickly wooded at the back of it rise to a height of about 250 feet. This point, as well as all the west shore of Julia bay to Duroquet point, may be approached as close as 200 yards. The north coast of Barrie island consists of five wooded headlands very similar in appearance, inclosing four bays, the eastern and broadest of which is sometimes called Blackstock bay. Of the points the most northerly and conspicuous is

JULIA POINT.—This point bears W. by N. $\frac{5}{8}$ N., and is distant 6 miles from Gore bay light-house. It also bears E. by S. $\frac{1}{4}$ S., nearly $8\frac{1}{2}$ miles from the extremity of cape Robert; shoal water makes out nearly 400 yards northward of the point, and a quarter of a mile from the western half of Blackstock bay.

Osborn point is the next south-west of Julia point, being distant therefrom a little over a mile. A shoal rocky bank extends a quarter of a mile from the Julia point side of the bay formed between them.

Beer point bears W. by S. $2\frac{1}{10}$ miles from Julia point, and from the eastern side of the bay formed between it and Osborn point, and a quarter of a mile from the latter, is a cluster of dry stones, off which shoal water extends 300 yards.

Creighton point, the western one of the five before mentioned, is well marked, when viewed from the north-westward, by a conspicuous clay-bank, 52 feet high, situated just westward of the point itself; shoal water makes out 300 yards from the eastern part of the bay between Creighton and Beer points. From the clay-bank, the shore turns away and runs straight $1\frac{1}{4}$ miles, when it again alters its direction eastward of south, forming the east shore of Trout bay.

Horace point is the south-west entrance point to this shallow rocky bay, which should be entered only by boats.

A dangerous rocky bank extends one-third of a mile north-east and north from Horace point, falling like a wall to a depth of 12 fathoms, while the same bank, though not so shallow, stretches half a mile west of the point, at which distance there is 14 feet water. This bank may be avoided by keeping the south-east extremities of Henry and Fanny islands touching S. W. by S. $\frac{1}{4}$ S.

JUBILEE SHOAL is the name given to the shoalest part of a bank $2\frac{3}{4}$ miles long, in a north-east direction, and half a mile broad, under a depth of 10 fathoms.

Jubilee shoal has only 3 feet of water over boulders, and bears from cape Robert light-house S. E. by E., $3\frac{7}{8}$ miles. The north fall of Battery bluff over the highest part of Henry island, leads *over* the rock. The shoal under the depth of 18 feet, is nearly two-thirds of a mile long, with a greatest breadth of 400 yards. Julia point in line with Creighton point E. $\frac{7}{8}$ N., leads south; the south-east extremity of Henry island touching the north-west side of Fanny island, S. by W. $\frac{3}{4}$ W., leads west of Jubilee shoal. The same extremity of Henry island, in line with the south-east end of Fanny island, leads east of Jubilee shoal but does not clear Heron patch.

Heron patch.—This spot, with 16 feet upon it, stands upon the same bank as Jubilee shoal, bearing from it N. E. $\frac{1}{4}$ E. $1\frac{1}{2}$ miles. It lies also 350 yards southward of the line joining cape Robert and Julia point.

BAYFIELD SOUND so named after the late Admiral, (who as a lieutenant did so much excellent work upon the lakes between 1817 and 1823,) is a large inlet sheltered from the northward by Barrie and the Henry island group, and together with Wolsey bay forms really one large harbour, nearly 12 miles long by 4 in width in the widest part; but at the date of the survey the amount of shipping trade did not justify the survey being carried any farther than a line joining Elizabeth point to Charlie island. Enough has been done to enable a vessel to find shelter, whence she can, with local assistance, proceed farther up.

Fishery point on the east side of Bayfield sound, is a narrow, gravelly spit, half a mile south-westward of Horace point, and affords shelter to boats employed in attending the pound-nets in the locality. From Fishery point the coast of Barrie island runs south nearly three-quarters of a mile, with a rocky bank extending from it 300 yards; it then turns to the south-eastward, forming a stony bight, to Dingy point, distant half a mile, further than which the survey is not at present taken.

Charlie island, small, 5 feet high and thickly wooded, lies a quarter of a mile due West of Dingy point; scattered stones lies off its north and south sides, while to the westward shoal water makes out 250 yards.

Gertrude Island is the north-west one of these islands lying in the mouth of the Sound. The western side is cliffy, about 20 feet high, and slopes gently to the southern shore. The water is good close to all but its southern shore, whence a shallow bank extends across to.

Henry island.—This, the largest of the group, is about half a mile in diameter, about 30 feet high, and sparsely wooded; the south-west point may be approached to 300 yards, but on all other sides a shallow sand bank makes out, there being only 13 feet S. W. $\frac{3}{4}$ S. a mile from the south-west extremity of the island, while on the same bearing from the point and distant two-thirds of a mile will be found the north-west end of a reef with but 3 feet water on it. To the south-eastward this sandy bank, with 5 to 7 feet water on it, extends more than a mile from Henry island, leaving a narrow channel, with a depth of 15 feet, between it and the shoal from Elizabeth point.

Eastward of Henry island, the bank extends half a mile, while to the north-eastward a reef, with less than 6 feet upon it, and in some places awash, joins Fanny island.

Fanny island.—This double island, 5 feet high, is the north-eastern and smallest of the three; shoal water extending from its south-east point a quarter of a mile in an easterly direction, and 200 yards northerly from the north end. Not more than 4 feet can be carried through between these islands.

Elizabeth point, on the south shore, is the west point of the bay of that name, and bears S.W. $\frac{1}{2}$ W., distant 2 miles from Charlie island, eastward of which line—as before stated—the survey was not taken. Shoal water extends from this point N.N.E. $\frac{1}{2}$ E. 350 yards, where there is but 11 feet.

Stanley island, 400 yards long, north and south, lies with its north end bearing W. $\frac{1}{4}$ N., distant a little over a third of a mile from Elizabeth point, and between is formed a shallow bay with sand and clay bottom, containing a depth of 5 to 6 feet; a depth of 17 feet will be found a quarter of a mile north of Stanley island.

Sackville island, about 10 feet high, and wooded like the last mentioned, is situated westward of Stanley island, the northern extremity bearing W. by N., three-quarters of a mile from Elizabeth point. The water is deep near the north end, and shallow for 200 yards off the west side of the island, while between it and Stanley island a vessel may carry in 15 feet by keeping nearer to Sackville island. From the south points of both these islands, narrow, rocky spits extend in a southerly direction 250 yards.

Battery bluff is the name given to a steep cliff 239 feet high, surmounting the shore of Manitoulin island south-westward of Sackville island; and between it and Elizabeth point, the coast takes the form of two bays, the eastern and larger of which has been described in connection with Stanley island. The shore under Battery bluff may be approached to 100 yards.

Cooks bay lies immediately westward of Battery bluff, being formed between it and Gauthier point; it runs in two-thirds of a mile, with a depth of 12 to 15 feet mud bottom. Half way along the south shore of the bay is a wharf and fishery establishment, belonging to the person from whom Gauthier point takes its name. Shoal water extends 200 yards from the north-west side of the bay, reducing the anchorage space, which at best is open to the northward, and permits a heavy sea to roll in with gales from that direction. From Gauthier point, the west shore of the Sound trends in a general north-west direction 2 miles to Edward bight, the shoal water extending 250 yards off Gauthier point, and one-third of a mile off Edward bight.

Henry patch, with 18 feet over sand, is situated N. $\frac{3}{4}$ W., eight-tenths of a mile from Gauthier point.

Stony island is a small, low, wooded islet three-quarters of a mile southward of the Indian village of She-sheg-wà-ning, being connected to the point 300 yards northward of it by a bank of dry stones. Shoal water extends 150 yards off this point, and Stony island.

She-sheg-wà-ning is the name given to an Indian village situated 3 miles from Cooks bay, and consists of a number of houses and a church; the latter however is not very conspicuous from the offing. An island 200 yards long, and separated from the main shore north of it by a narrow boat channel, shelters the cove well from the eastward, rendering it a good boat harbor. From this island the north-west coast of Bayfield sound runs N. E. by N. for 2 miles, and then gradually turns to the northward and north-westward to cape Robert light-house, and the whole of this cape Robert shore may be approached to 200 yards.

To Bayfield sound from the westward.—Pass 300 to 400 yards from cape Robert light-house, and the north-east shore of the cape, and steer midway between Fanny island and the west extremity of Barrie island; having arrived at the latter position, proceed southward and anchor either a quarter of a mile due West of Charlie island in 4 fathoms sand or clay, or half a mile east of the south-east extremity of Henry island in 6 fathoms mud, with the east extremity of cape Robert in line with the north-east side of Fanny island and Charlie island in line with Dingy point.

On the 7th of September, 1887, the surveying steamer *Bayfield* in the first position rode out a heavy gale, the wind commencing at S.E., veering

through south and ending at N.W.; when the wind came from the latter quarter the swell from cape Robert caused the vessel to knock about a good deal, but she rode with very little strain upon the cables, on account of a current setting to windward out of the sound, probably the water driven down the North Channel by the gale returning through Julia bay.

Entering the sound from the eastward.—Pass a quarter of a mile from the clay-bank at Creighton point, Barrie island, and head for the north-west side of Gertrude island. Steer for it until the east sides of Henry and Fanny islands are in line S.W. by S.†S. Proceed now on this range to clear Horace point bank and when Charlie island is open its breadth west of Barrie island steer in about South, at moderate speed, with an occasional east of the lead, passing rather nearer to Barrie than to Fanny island, to avoid the shoal bank extending from the latter, and anchor as previously directed.

A vessel may carry 15 feet between Henry island sand-bank and Elizabeth point spit, by keeping the north fall of cape Lambert its height open of the point dividing Elizabeth and Helen bays.

Battery bluff anchorage.—There is excellent shelter and holding ground between this bluff and Sackville island in 3 fathoms, with cape Robert just showing westward of the latter. A vessel may also anchor in 15 feet, swinging in not less than 12 feet, mud bottom, between the two islands and the first bay east of Battery bluff. If entering from the northward, 15 feet may be carried in by keeping 150 yards from the east shore of Sackville island, to avoid the bank making out from the west shore of Stanley island to nearly the middle of the passage.

If passing between Battery bluff and Sackville island, keep the former point on board, to avoid the spit from the south end of the latter, a mark for leading south of which is the fall of the land beyond Gauthier point in line with Battery bluff point. The anchor should be dropped in 15 feet mud bottom, with the north side of the Indian village of She-sheg-wà-ning touching the south point of Sackville island, in conjunction with the west side of Barrie island in line with the same extremity of Stanley island.

CAPE ROBERT is the name given to the north extremity of the promontory dividing Bayfield sound from Vidal bay. It is the most projecting point in the North Channel of lake Huron, and from the westward, its white clay-banks render it unmistakable.

Cape Robert anchorage.—A vessel will find excellent shelter from westerly gales under the east shore of cape Robert, three-quarters of a mile distant from the light-house, in 5 fathoms over sand and clay.

LIGHT.—Cape Robert light-house stands 50 yards inside the low north extremity of the cape, and is a square white wooden structure, with dwelling attached, exhibiting at a height of 46 feet above the water, a *fixed white* light, visible 12 miles; 400 yards south of the light-house the land rises considerably and is wooded; a patch of stones lies 70 yards off the light-house, and a shoal spit makes off 200 yards.

Cunningham point, with the land falling steeply down to it, bears W.S. W., and is distant $1\frac{1}{4}$ miles from cape Robert light-house. The eastern part of the bay, formed between this point and cape Robert, is of a cliffy character, conspicuous clay-banks rising to a height of nearly 100 feet, off which a very shoal, rocky ledge extends a quarter of a mile. From Cunningham point the shore trends first S. W. $\frac{1}{2}$ W. three-quarters of a mile, and then S.S.W. $\frac{1}{4}$ W. as much further to Cyril cove. A clay-bank, a quarter of a mile long, rises from the shore just west of Cunningham point, off which shoal water extends 250 yards; the rest of the shore being approachable to 150 yards.

Cyril cove is the name given to a boat cove situated $1\frac{1}{2}$ miles from Cunningham point, and is fit only for boats, this shore may be approached to 100 yards.

Eaton point is 3 miles westward of cape Robert, and three-quarters of a mile in the same direction from Cyril cove. A reef of dry stones extends 300 yards northward from Eaton point, while the bight between it and Cyril cove is foul for a quarter of a mile.

Eaton point.—Shallow water makes off nearly a quarter of a mile north-westward of Eaton point, and from the west gravelly extremity of the latter the coast turns abruptly to the southward for half a mile, forming the east shore of Cole bay, off which a rocky bank extends nearly a third of a mile.

Bayard island, the ground of which is only 5 feet high—although the timber on it makes it appear much higher—is situated with its north end bearing W. by S. $\frac{1}{4}$ S. distant $4\frac{1}{4}$ miles from cape Robert; it is one-third of a mile long north-west and south-east, by 250 yards broad in the middle, and is connected to the west point of Cole bay as well as to Lapthorn island by a shallow bank, affording a passage only for boats, while from the north end a reef makes out in a direction west of North for a distance of 300 yards, where there is a depth of 15 feet. The north-east side of the island may be approached to 200 yards.

Bayard reef, with 9 feet water on it, lies parallel to the island of that name, and is a third of a mile long, under the depth of 15 feet. The outer part of the shoalest portion of the bank is situated N. E. $\frac{1}{2}$ N. nearly half a mile from the north-west extreme of Bayard island, and between is a depth of 4 to 5 fathoms.

Laphorn Island, in two parts, lies S. S. W. $\frac{3}{4}$ W., one-third of a mile from Bayard island, leaving a boat passage between it and the main shore. The west side of this island may be approached to 200 yards.

Morris island, low, wooded, a quarter of a mile long north-east and south-west, with its long, narrow, south point distant 100 yards from the main shore, lies with its outer end bearing S. W. by W. $\frac{3}{4}$ W. distant $1\frac{1}{10}$ miles from the north-west point of Bayard island, and affords good shelter to the little boat-cove south of it. The western portion of the coast between Morris and Laphorn islands is foul for a quarter of a mile. The land at the back of this island is wooded, and about 200 feet high, lessening its height as cape Robert is approached. The west side of Morris island can be approached to 200 yards.

VIDAL BAY is a long and broad indentation, the eastern side of which trends from Morris island in a general south-west direction $3\frac{1}{2}$ miles to the bottom, where there is excellent anchorage and shelter in 5 or 6 fathoms. Vidal island lies across the mouth of the bay, having a channel $1\frac{1}{10}$ miles wide eastward of it, through which $3\frac{1}{2}$ fathoms might be carried if buoyed. In the absence of buoys, 16 feet can be carried in by attending to the directions hereafter given.

A depth of 12 feet can be carried out southward of Vidal and Batture islands and the reefs joining them, but as this channel is crooked, and no intelligible leading marks could be found, it should not be attempted by a stranger.

Good anchorage in 4 fathoms sand and clay will be found half a mile off the middle of the south shore of Vidal island.

Masson island, small and low, bears S. W. $\frac{1}{4}$ S., distant one mile from the north-west point of Morris island, the shore between being fronted by scattered dry stones. For half a mile north-east of Masson island the coast is shallow for over a third of a mile, a depth of only 5 feet being found due West a quarter of a mile from Masson island, while the north tongue of the bank, with 12 feet on it, bears N. N. W. $\frac{1}{4}$ W. one-third of a mile from the same. The north-west extremity of Bayard island open north of the same side of Morris island, N. E. by E. $\frac{3}{4}$ E. leads clear of this bank.

Shore of Vidal bay.—From Masson island the shore of Vidal bay runs south-easterly three-quarters of a mile, forming a shallow bay, the southern part of which is sandy, called Creasor bight, where the depth of 15 feet will be found one-third of a mile from the shore. The coast now trends west-south westward $1\frac{1}{2}$ miles and south-west three-quarters of a mile to the eastern and deeper of two coves at the bottom of the bay, where a stream empties itself. This shore for $1\frac{1}{2}$ miles north-eastward of this cove may be approached to 200 yards. The unbroken west coast now

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runs northward $1\frac{1}{4}$ miles, and then north-westward $2\frac{1}{4}$ miles to Chamberlain point, to within a mile of which the shore may be approached to 100 yards. The land round the shores of Vidal bay is wooded, and rises to a height of about 150 feet at a quarter of a mile back.

Vidal island is $1\frac{9}{10}$ miles long east and west, and a little more than three-quarters of a mile wide near its east end, about 20 feet high on the north side, gradually sloping to the south shore, and thinly wooded.

Arthur point, its most easterly projection, should not be approached nearer than 300 yards. The shore from this point trends north-westerly straight for three-quarters of a mile to the most northerly point of the island with good water to within 300 yards of the latter.

Harold point, the most southerly portion of Vidal island, is situated nearly half a mile south-westward of Arthur point, and is important because of a shallow rocky bank extending south-eastward from it over half a mile. The north end of a patch, with 6 feet on it, lies S. E. by E. $\frac{3}{4}$ E. 300 yards from Harold point, and S. $\frac{1}{4}$ E. a little over a third of a mile from Arthur point.

A patch with 16 feet least water on it, lies S. $\frac{3}{4}$ W. three-quarters of a mile from the latter, and a bank 450 yards long, north and south, is situated southward of this patch, its shallowest spot near the south end with 13 feet upon it, bearing W. by S. $\frac{3}{4}$ S. three-quarters of a mile from Masson island.

To lead between this bank and that from Harold point, keep the north-west extremities of Bayard and Morris islands in line N. E. by E. $\frac{3}{4}$ E., which mark however leads over the 16 feet patch. The south coast of Vidal island, low, shallow and strewn with dry stones trends to the westward for $1\frac{1}{4}$ miles from Harold point, and should not be approached nearer than a third of a mile by a vessel drawing 12 feet of water.

West point of Vidal island is foul, and joined to Batture island by a barrier reef, over which there is no passage for a vessel. Shallow water extends 400 yards northward of the point, and the western half mile of the island. A very snug little boat harbour exists a quarter of a mile eastward of West point, and between it and the north extremity of Vidal island, distant $1\frac{1}{2}$ miles, there are two bays, in the western of which the deep water approaches close to the shore. In the eastern bay a reef of dry stones extends 200 yards in a north easterly direction from its west point.

A patch, with 12 feet on it, lies N. N. E. 300 yards from the latter.

Crescent island, about 3 feet high, consists of three distinct islands joined by stones; the southern is much the largest, and the timber on it is left in thick clumps, with coarse grass growing in the gravel between. The island has still somewhat of a crescent shape, with the convex side

to the north-east, and it is quite possible that the resemblance was greater when Admiral Bayfield named it. This island is connected with the north extremity of Vidal island by a ridge over which not more than 10 feet can be carried. The bank extends to the westward of Crescent island W. by S. one-third of a mile from the western extreme, at which distance there is 11 feet. Shoal water follows round the west side of the island to 400 yards westward of the northern islet, on the north side of which, however, the water is deep. Thence to the eastward the shoal water gradually spreads further out, only 12 feet being found a quarter of a mile eastward of the south gravelly point of Crescent island.

Batture island, 5 feet high, and wooded, is 300 yards long east and west and 70 yards broad, and marks the western termination of the barrier reef joining it to West point of Vidal island, from which it is distant $2\frac{1}{4}$ miles.

On the north side of the island the water is good, and may be approached to 200 yards, but from the western end a reef extends in a S. W. by W. direction a total distance of 850 yards, where there is 15 feet. At a quarter of a mile from the same there is less than 6 feet; care must therefore be taken in entering Mildram bay from the eastward to avoid it. On the north side of the continuous reef joining Batture and Vidal islands, there are two distinct patches, the western one with 14 feet over it, bearing W. N. W. $1\frac{1}{2}$ miles, the other with 9 feet on it N. W. half a mile from West point of Vidal island. Mildram point open northward of Batture island W. $\frac{1}{2}$ S. leads northward of these ledges.

In thick weather a vessel should not shoal the water to less than 10 fathoms between Crescent and Batture islands.

MILDGRAM BAY, sometimes spelt **Meldrum**, is the westernmost indentation on the north shore of Manitoulin island. The bay is contained between Chamberlain and Brittomart points, nearly $3\frac{1}{2}$ miles apart, and from the line of these points is $2\frac{1}{2}$ miles long, with a breadth at the bottom of nearly $1\frac{1}{2}$ miles.

The land, at about one-third of a mile back from the east and west shores, is about 200 feet in height, the limestone cliffs occasionally showing through the partially burnt timber. The bay affords excellent shelter in westerly gales; a vessel may anchor in 10 fathoms in the south-west corner of the bay, or in 5 fathoms 300 yards southward of the wharf; at night keeping Missisauga island light in sight. On the west shore of the bay and three-quarters of a mile from the bottom is a saw mill and wharf, at which steamers running from the south-eastern ports of Georgian bay to Sault Ste. Marie call in the summer. In winter, mail communication is had with the east by carrier to Gore bay. There is a depth of 24 feet at the wharf.

Chamberlain point is the east entrance point of Mildram bay, and from it a ledge with 10 feet on it extends in a N. E. $\frac{1}{2}$ E. direction a quarter of a mile. Two-thirds of a mile eastward of Chamberlain point the bank joins that connecting Vidal and Batture islands, and with the assistance of a couple of buoys placed on this ridge it is possible that 15 or 16 feet might be carried between Vidal and Mildram bays. The steamer *Bayfield* went through on two ranges, with 12 feet least water, by keeping a conspicuous little fall in the land, on the south-east shore of Vidal bay, open its height of the west shore of the same bay, S. E. $\frac{3}{4}$ E., until cape Robert came halfway between Vidal and Crescent islands E. $\frac{1}{2}$ N., which mark was kept on astern.

From Chamberlain point, the east shore of Mildram bay trends S.S.W. $\frac{3}{4}$ W., $2\frac{1}{4}$ miles, with three slight indentations to Whitley point; and for $1\frac{1}{4}$ miles from Chamberlain point it should receive a berth of 300 yards; the remainder may be approached to 150 yards.

Muriel point, at the bottom of Mildram bay, divides it into two large coves, the south-east one, between it and Whitley point, being known as Newbery, the western one named Macrae cove.

Welsh island, in Newbery cove, small and wooded, lies 120 yards off shore, and half a mile eastward of Muriel point, and midway between the island and Whitley point is a rocky bank, with less than 6 feet water over it. A vessel should not pass inside the line joining the latter point and Muriel point.

Macrae cove is deeper, and the bottom may be approached to within 300 yards. A snug but shallow little boat harbour is situated on the west shore of this cove, and nearly half a mile southward of the mill. A vessel may drop her anchor between this boat harbour and Muriel point, in 10 fathoms over mud.

Near the mill is built a wharf for the piling and shipping of lumber, with sufficient water alongside for the largest vessels, but in approaching it from the northward care must be taken to avoid a gravel bank, with 12 feet water on it, the outer end of which bears N.E. by E. 250 yards from the north-east angle of the wharf. There is slightly deeper water inside this bank. From the wharf the west shore of Mildram bay runs north half a mile, gradually inclining to the westward, with good water 150 yards off as far as

Brittomart point.—This, the west entrance point of Mildram bay, has a spit extending from it 150 yards, and a large bank under the depth of 10 fathoms reaching nearly $1\frac{3}{4}$ miles east and one mile north-westward of it, the shoalest part with 4 fathoms on it taking the name of Dauville ground, and bearing N.N.W. $\frac{1}{2}$ W. two-thirds of a mile from Brittomart point.

MILDGRAM POINT, one mile west of the latter, is the name given to the gradually rounding north-west extremity of Manitoulin island. It may be considered also the east entrance point from the North Channel to Missisauga straits, being distant from the light-house of that name 5 miles.

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CHAPTER IV.

CAPE RICH TO CABOT HEAD.—(CHART 1214.)

VARIATION $4^{\circ} 35'$ WEST.

A description of Cabot head will be found on the opening page of the "Pilot."

CAPE CHIN, a steep bluff 147 feet high, with scattered burnt trees upon it bears S. $\frac{1}{4}$ W., and is distant $6\frac{1}{2}$ miles from the east side of Cabot head. The bight between these headlands is known as Dyer bay, in which the water is very deep, there being over 70 fathoms at less than a mile from the shore. On account of the proximity of the deep water to the coast, a vessel has to be inconveniently close to the shore when anchored for shelter in westerly gales.

Anchorage in Dyer bay.—The best place to anchor is $1\frac{1}{4}$ miles southward of the mill, and about a quarter of a mile southward of a low earth cliff, in a depth of 7 fathoms over sand. Here a vessel will find most room to get under-weigh with an east wind and will have shelter from S. by E., through west to N. N. E.

The mill alluded to above, is driven by water from Gillies lake situated on the higher land at the back. There is a small wharf here at which is not more than 11 feet water over a very rough bottom. The shores of Dyer bay are surmounted by a limestone cliff which near Cabot head attains an elevation of 235 feet. At cape Chin itself the water is not dangerously shoal outside the distance of 150 yards.

Darling reef is a narrow ridge of rock and boulders 400 yards long in a N. E. and S. W. direction. The shoalest spot with a depth of 17 feet on it, bears N. E. by E. $\frac{1}{4}$ E., and is distant $2\frac{1}{2}$ miles from cape Chin, the nearest land. A bank with less than 10 fathoms on it extends one mile north-eastward from the reef, but on the south-west side the water is very deep, there being nearly 60 fathoms at 300 yards.

Eight fathom patch with that depth on it, lies E. $\frac{1}{2}$ S. distant $4\frac{1}{4}$ miles from cape Chin, being separated from Darling reef by a lane of water 50 to 60 fathoms deep. From cape Chin the shore trends in a S. by E. direction $2\frac{1}{2}$ miles to a bluff somewhat similar in character to cape Chin, known as

Smoky head.—This headland is 172 feet in height, and the water is good close to the shore.

White bluff, 175 feet high, is so called from the bleached appearance of its limestone cliff; it is situated $2\frac{3}{4}$ miles southward of Smoky head, and is about the same distance from the village of Lions Head. The shore between White bluff and Smoky head may be approached as near as 100 yards. A depth of 50 fathoms will be found a quarter of a mile from White bluff.

Whip-poor-will bay is the name given to the indentation between White bluff and the village of Lions Head and contains shelter from westerly gales. A vessel might lie here with the wind as far round as North protected by the high land of White bluff; the great drawback is the depth of water, 14 fathoms being the least a vessel could anchor in to ensure swinging clear of the shore.

LIONS HEAD.—The village is situated at the bottom of what is called on the old chart Isthmus bay; it has a population of over 400 and contains several churches, the most conspicuous of which from seaward, is the Episcopal. It has flour, saw, shingle and planing mills, and a telegraph office and has connection with Wiarton its nearest banking town daily by stage coach. A small steamer calls here tri-weekly from Owen Sound and Wiarton. The harbour if it may be so called is about a quarter of a mile square, has a depth over it of 8 to 11 feet, and is partially sheltered from northerly gales by a breakwater extending 120 feet beyond the north-west narrow point, under which vessels drawing 6 or 7 feet water take refuge with the wind in. It is no place for any but small craft.

From the village, the east shore runs N. E. straight for $1\frac{3}{4}$ miles to a headland 168 feet high called by the same name as the village, but on the old chart cape Hangeliff. From the eastern part of Lions head a reef makes out 400 yards, and as the bottom is very rough, care should be taken to avoid it.

Gun point bears S. E. by E. $\frac{1}{2}$ E., and is distant $1\frac{1}{2}$ miles from the last mentioned headland; the shore between should receive a berth of 300 yards. Gun point is a steep cliffy headland 181 feet in height, and has deep water close to it.

JACKSON SHOAL under the depth of 18 feet is an extensive patch three-quarters of a mile long in a north and south direction, and a quarter of a mile broad. Its shoalest spot with 4 feet water on it bears N. N. E. distant 2 miles from Gun point, and N. E. by E. a little more than the same distance from Lions head. It is connected to both these headlands by a bank on which there is 6 to 9 fathoms water rocky bottom.

Buoys.—A spar buoy is placed at each extremity of Jackson shoal.

The N. W. side of the Episcopal Church in line with the S. E. side of the mill at the village of Lions Head, S. W. by S. leads west of this shoal.

To lead south of it no better mark offers than a tall pine at the back of Village cliff kept in line with Lions head (the bluff) S. W. by W. $\frac{1}{2}$ W. To pass eastward of this shoal a better mark presents itself, viz.: capes Paulett and Dundas in line, S. S. E.

Barrow bay.—From Gun point the coast trends abruptly to the south-westward, surmounted by a limestone cliff and with good water close to it, forming the north-west shore of Barrow bay. At 2 miles from Gun point it alters its character to that of a beach and its direction to the eastward of South for nearly two-thirds of a mile to the mill.

Cape Dundas is the south-east point of Barrow bay being distant from the mill a little over four miles. The cape is surmounted by a bluff about 300 feet high, covered with thick timber, offering a contrast to the burnt country between it and Cabot head.

Cape Dundas itself and the coast west of it for $1\frac{3}{4}$ miles should receive a berth of a quarter of a mile, the remaining shore of the bay may be approached to 200 yards. From cape Dundas the shore runs southward $1\frac{1}{2}$ miles to the point of

Jackson cove.—In this cove and close under its east point will be found good shelter from all winds, the only drawback being the great depth of water, a vessel in order to swing clear of the shore having to let go in 13 fathoms muddy bottom. A stranger having to seek shelter from a northerly gale will find it easier to make and anchor under this point, than find his way to MacGregor harbour which will be treated of presently.

Hope bay is contained between the east point of Jackson cove and cape Paulett, running in from the line of these headlands 3 miles, and at the bottom of the bay is a saw mill. There is excellent anchorage at the bottom of Hope bay. One mile in from the point of Jackson cove is a somewhat similar projection sheltering a small shallow bay and from that circumstance named Shoal cove. This flat does not however interfere with the general navigation of the bay, the shores of which—with the exception of the bottom of the bay—may be approached to 200 yards. At the bottom the flat makes out a-quarter of a mile, at which distance there is 18 feet.

Cape Paulett has somewhat the same character as cape Dundas but is about 100 feet higher; this broad headland divides Hope and Sydney bays, and is fringed with shoal water for a distance of 250 yards.

Sydney bay is contained between the last mentioned headland and the low point known as Prairie point on the east. The west and south shores of the bay are flat, shoal water extending from abreast the Indian village a little over a quarter of a mile; outside this bank however and in the western portion of the bay under cape Paulett there is good anchorage and shelter in 4 to 5 fathoms muddy bottom.

Prairie point already mentioned has the name which the Indians generally apply to a broad, flat, bare and low point of this character. It separates the last mentioned bay from MacGregor harbour, and has a rocky bank making off its west side nearly a quarter of a mile. The westernmost of three remarkable limestone cliffs and known as Jones bluff 376 feet in height follows the south-east shore of Sydney bay at a distance of a quarter of a mile, the road to Wiarton running between the cliff and the shore.

MacGregor formerly called **Indian harbour** is the easternmost of the three arms of the large bay contained between cape Dundas and cape Croker called by Bayfield, Melville sound. Although considerably smaller than either Hope or Sydney bays—the other two arms—it is an excellent little harbour affording shelter from all winds under the north-western narrow point called Harbour point, in 3 fathoms muddy bottom. Near the shore of the harbour is situated the village of the cape Croker band of Indians. The village contains a post office, Roman Catholic and Methodist churches, situated near the middle of the neck separating the harbour from the water on the south-east side of cape Croker. A good carriage road connects the village with Wiarton the nearest railway and telegraph town.

There is a wharf on the northern part of the harbour but only carried out to a depth of 7 feet. A sand bank stretches out 300 yards from the shore close westward of Harbour point, there being only 6 feet of water at that distance off the little boat harbour situated 356 yards westward of Harbour point. A fringe of shallow water also follows the coast round at an average distance of 200 yards. Before giving directions for taking MacGregor harbour, the coast of the peninsula as far as Montresor point as well as Barrier island will be first described.

Pine Tree point is the most westerly part of the cape Croker peninsula, being a little more than $1\frac{1}{2}$ miles from MacGregor harbour, and 2 miles from Montresor point.

Lamorandière bank.—There is nothing remarkable in the appearance of Pine Tree point but it is important because of a rocky bank extending a third of a mile in a westerly and two-thirds of a mile in a south-westerly direction. The shoalest part with less than 6 feet on it lies N. W. by W. $\frac{1}{2}$ W. a quarter of a mile from Pine Tree point. This bank is the worst obstruction in approaching MacGregor harbour, but may be passed westward of by keeping the cottages on the cliff at the back of the mill in Hope bay just shut in behind the cliff, S. W. by W. $\frac{1}{4}$ W., but this mark is not easy for a stranger to discern. To pass southward of this bank keep Gunn point and cape Dundas in line, N. W. $\frac{1}{4}$ W.

Montresor point is the old name given to the northern part of that portion of the peninsula separated from the eastern and higher portion

by a broad valley running from Cove of Cork bay to MacGregor harbour. The point is composed of a light coloured earth cliff 86 feet high, and from the shore 200 yards eastward of this cliff, a shallow rocky flat extends nearly a quarter of a mile. The shore between Montresor and Pine Tree points may be approached to 200 yards.

Barrier island is low and wooded, and nearly two-thirds of a mile long in a north and south direction, with an average breadth of 200 yards. Its eastern side may be approached to 200 yards, but its other sides are foul, the western coast being shallow for a distance of one-third of a mile, while from the south point a narrow rocky spit makes out in a southerly direction a quarter of a mile, to clear which keep cape Croker closed with Montresor point, E. $\frac{1}{2}$ N.

DIRECTIONS for MacGregor harbour.—If west of Barrier island, keep midway between the latter and cape Dundas, steering towards cape Paulett to bring Gun point and cape Dundas in line, N. W. $\frac{1}{2}$ W. Keep this mark on astern until within three-quarters of a mile from the harbour, when keep rather nearer to the south shore and proceed into the harbour. Harbour point may be rounded close to and the anchor let go under that point in 16 to 18 feet. If passing east of Barrier island the latter may be approached as near as the line of Kings point bluff touching Pine Tree point S. by E. $\frac{1}{2}$ E.

When cape Croker touches Montresor point steer towards Hope bay to avoid Lamorandière bank until Gun point is in line with cape Dundas, when proceed as before directed. If from the eastward, give Montresor point a berth of half a mile and steer for the bottom of Hope bay keeping the cliff cottage mark on if visible, and when Gun point and cape Dundas are in line keep them astern as before directed.

CAPE CROKER.—This prominent and conspicuous headland is 24 miles from the town of Owen Sound and 22 miles from Cabot head. The eastern part of the headland is 165 feet above the water, but the most northerly part of the promontory is low. The shore of the latter as well as the higher portion of the cape just alluded to should receive a berth of 400 yards.

Cove of Cork bay.—Between the most northerly part of cape Croker and Montresor point already alluded to is a large open bight called Cove of Cork bay, so named from a small boat harbour near the north point of the bay called by the fishermen Cove of Cork. The bottom of the bay is shoal for nearly a quarter of a mile.

SURPRISE SHOAL is one of the worst dangers in Georgian bay, lying as it does in the direct track from Cabot head to Warton, Owen Sound and Collingwood. It consists of a rocky bank which under the depth of 10 fathoms is a mile long in an east and west direction by half that

distance in breadth. It has on it three distinct shallow spots, the western one with 9 feet water on it being the shoalest and bearing from the most northerly portion of cape Croker N. by W. $5\frac{1}{10}$ miles. From this shoalest spot two other shoal heads with 11 and 16 feet on them lie respectively E. $\frac{3}{4}$ N. two-thirds and N. E. $\frac{3}{4}$ E. a quarter of a mile. From the 9 feet rock the lighthouse at Griffiths island is open its own height of cape Croker. At night therefore when the light is seen a vessel will not pass southward of Surprise shoal.

Buoy.—A spar buoy painted black and red is moored near Surprise shoal.

In clear weather and daylight a vessel will pass outside or eastward of the bank by keeping the whole of Griffiths island open eastward of cape Croker S. $\frac{1}{2}$ E., while to pass inside it, the island (and at night the light) should be shut in by the cape. A vessel will be south-east of Surprise shoal when the south-east steep fall of cape Dundas is in line with the north-west extremity of Barrier island, S. W. $\frac{1}{4}$ S. The fall of Kings point bluff in line with the east edge of the clump of trees at the back of Montresor point leads west. The course and distance from the north-east extremity of Cabot head to the corresponding part of cape Croker is S. E. by S., 22 nautical miles passing $1\frac{1}{2}$ miles inside or south-west of Surprise shoal. In clear weather it is recommended to pass inside the danger both by day and night.

Passing Cabot head at the distance of a quarter of a mile, a S. S. E. $\frac{3}{4}$ E. course for $16\frac{1}{2}$ miles should lead a vessel to a position midway between Surprise shoal and Barrier island, distant from each about $2\frac{1}{2}$ miles, and if the weather is clear the high bluff of cape Croker should be discernible a little on the port bow distant $5\frac{1}{2}$ miles. The course may now be altered more to the eastward to pass half a mile from the cape Croker shore. Griffiths island light should be visible on a clear night, by the master of a vessel whose eye is elevated 15 feet above the water, a distance of 15 miles, or at $1\frac{1}{2}$ miles north-westward of Surprise shoal, and from an elevation of 30 feet as would be the case from the bridge of a large steamer the light should in ordinary clear weather be seen 3 miles further; if Griffiths island light is visible the vessel must be northward of her intended inside track and in danger of passing over Surprise shoal.

In proceeding from cape Croker to Cabot head a direct course of N. W. by N. (if the master of a vessel can rely upon his compass) may be shaped. This course giving cape Croker a berth of a quarter of a mile should lead nearly $1\frac{1}{2}$ miles south-westward of Surprise shoal, and when the vessel is abreast of the low north extremity of the cape the light on Griffiths island should show signs of closing behind the high north-east extremity of cape Croker, and as before stated, as long as the light remains obscured by the cape a vessel will be southward of the shoal. The twenty fathom line encircles Surprise shoal at a distance of a third of a mile,

while on the south side there is as much as 10 fathoms, 150 yards from the 9 feet and 11 feet patches.

A depth of 30 to 40 fathoms over a mixed bottom of sand, gravel, and reddish clay, will be found between the shoal and Montresor point (the western portion of cape Croker peninsula already mentioned), and a vessel uncertain of her position in thick weather or at night by not shoaling to less than 50 fathoms will keep a safe distance from Surprise shoal.

From the north-east extremity of cape Croker the shore turns away southward for three-quarters of a mile, and then in a general S.W. $\frac{1}{2}$ W. direction for 4 miles to the Indian village situated round the shore of a bay a mile north-westward of Kings point. At the northern end of this village is erected a saw-mill and wharf called after Port Elgin in lake Huron.

Port Elgin shoal commences at a point half a mile northward of the mill and runs southward as a narrow ridge until its extremity bears E. $\frac{1}{2}$ S. distant 600 yards from the mill wharf. The chimney of the mill in line with the end of the wharf W. by N. $\frac{1}{2}$ N. leads south of the reef.

Anchorage.—On the south-east side of cape Croker there is good holding ground and shelter from winds between south and north through west, in 7 to 8 fathoms water 300 yards from the shore with Griffiths island open a little east of Hay island, but still better shelter can be had in 4 to 6 fathoms off the road leading across to MacGregor harbour. The shortest distance across the neck at a third of a mile southward of the road is 900 yards.

Kings point, broad and not very high, is about $4\frac{1}{2}$ miles from cape Croker, and may be said to form the north-west entrance point of Colpoys bay, from the bottom of which it is distant 10 miles. Shoal water makes off nearly a quarter of a mile from the northern part of Kings point, as well as from the shore of the bay west of it.

Kings point bluff 371 feet high, and very conspicuous from the offing is a well defined limestone cliff three-quarters of a mile in from the point of that name, and with Jones bluff $1\frac{1}{2}$ miles north-west of it, already alluded to together with Malcolm bluff 388 feet high the same distance southward of it make three of the most conspicuous landmarks on this part of the shore.

COLPOYS BAY, supposed to be so named after a French half-breed pilot whom Admirals Owen and Bayfield had with them during their survey of this part of the shore, is a magnificent inlet running in $7\frac{3}{4}$ miles from the south-west extremity of White Cloud island, which together with Hay island shelters it from the heavier seas of Georgian bay. The breadth of the mouth of the bay is $2\frac{2}{3}$ miles and that of the bottom at the town of

Wiarton two-thirds of a mile. It is a fine sheet of water and with the exception of a sandy flat extending 800 yards from the bottom of the bay, and a bank near the village of Oxenden unking out 300 yards, its shores may be approached anywhere to a distance of 200 yards and in some places closer.

The shores are marked by picturesque limestone cliffs 330 feet high at the entrance to the bay gradually lessening in height as the town of Wiarton is approached.

Anchorage.—There is excellent anchorage in any depth under 10 fathoms from abreast the village of Colpoys to the bottom of the bay, a space of $1\frac{1}{2}$ miles in length by a mile in breadth on an average.

WIARTON.—This town is prettily situated round the bottom of Colpoys bay. It has a population of nearly 2,000, and contains churches of all denominations. It contains a bank and telegraph office, and is the present terminus of the Georgian bay and lake Erie branch of the Grand Trunk Railway. The steamboats of the Great Northern Transit Company, running between Collingwood and Sault Ste. Marie, call here during the season of navigation, and also a small local steamer running between Owen Sound and Providence bay. To get to Owen Sound from Wiarton it will be necessary to take the steamer or proceed by rail as far as Allanford, and thence take the stage to Owen Sound.

LIGHT.—A *fixed red* light is shewn from a pole at the outer end of the Government wharf from an elevation of 19 feet, visible 6 miles.

Village of Colpoys.—This little village is situated on the west side of the bay and two miles from Wiarton; a small steam saw mill is erected on the shore, and a vessel may anchor 300 yards off it in 5 fathoms. Three-quarters of a mile southward of the village of Colpoys is situated the residence of Alexander McNeill, Esq., the present member of the Federal Parliament for the north riding of Bruce county. This house called "The Corra," together with a single tall pine tree on the lawn, are conspicuous features when proceeding up Colpoys bay.

Hay island is thickly wooded, the tops of the trees being about 360 feet above the water, the exposed clay bank at the north end being 120 feet in height. The island is $2\frac{1}{2}$ miles long north and south, with a breadth of one mile. The water is very deep close to the west shore, but from the north-west extremity shoal water makes out 300 yards. The remainder of the coast may be approached to 200 yards. A quarter of a mile north-westward of South point a vessel may anchor in 7 to 8 fathoms with good shelter from all winds.

White Cloud island is separated from Hay island by a passage nine-tenths of a mile wide, and a good deep channel $1\frac{1}{2}$ miles wide divides it from the west shore of Colpoys bay. The shore of the island

may be everywhere approached to 200 yards, excepting about North point, as that extremity is called, where a shallow rocky flat makes out 400 yards.

Kidd bay, named after the owner of the saw mill here, is a considerable indentation on the west side, and in which a vessel may find anchorage though the water is rather deep.

Gundersen shoal is a rocky patch with 18 feet water over it lying W. by S. $\frac{1}{2}$ S. a little more than a mile from Kidd point, the south-west extreme of White Cloud island.

Cameron point is the name given to the rounding point of the main shore south of White Cloud island, and close to which the water is deep. Three-quarters of a mile back of this point is a conspicuous cliff known as Skinner bluff.

North Keppel is the village situated on the shore of Big bay fronting the gap between White Cloud and Griffiths islands. There is a wharf here at which the small local steamer calls on her way to Wiaraton. It has also post and telegraph offices.

Big bay.—The shore of Big bay may be approached anywhere to 200 yards, but a heavy sea rolls in with a northerly wind. The land at the back of the bay gradually rises until it culminates in three hills, the western being called Esther cliff 372 feet high, the middle one Halliday hill of the same height, and the eastern known as Dodds hill 432 feet high.

CAPE COMMODORE is the name given to the gradually rounding point on the east side of Big bay, and is really the western entrance point of Owen sound. A clay bank 144 feet high follows the shore round at a distance of 200 yards and at this distance off the shore a vessel will have good water.

GRIFFITHS ISLAND thickly wooded is separated from cape Commodore by a deep water channel $1\frac{3}{4}$ miles wide. The tops of the trees give it an elevation of about 300 feet above the water.

Light-house.—On the north-eastern side of this island is erected a white circular stone tower, which at an elevation of 85 feet above the water exhibits a *fixed white* light visible 15 miles. It can be seen from cape Croker and from the eastern shore of cape Commodore; the gradually rounding character of the coast of the island prevents the light being seen westward of these points. The north side of the island should receive a berth of 300 yards, but its other shores may be approached to half that distance.

Anchorage.—On the south side of Griffiths island a vessel will find good shelter from northerly gales by anchoring in 5 fathoms off the two reddish coloured clay-banks known as Patterson cliffs.

OWEN SOUND.—This fine bay, at the bottom of which is situated the town of that name, is on the line joining Vails point and cape Comodore 8 miles wide, and from this line to the town 12 miles long, gradually narrowing to the bottom. It makes a good and well-sheltered approach to the town in westerly gales, its shores being everywhere approachable to a quarter of a mile with the exception of Vails and Squaw points, on the east side of the sound.

Presqu'isle is a small village on the western shore of the sound distant $7\frac{1}{2}$ miles from the town of Owen Sound. On the north side of the low point, which at one time was no doubt very nearly an island, and suggested its name, there is a wharf, along the west side of which vessels will find 11 feet of water.

Light-house.—A *fixed white* light, 31 feet above the water and visible 10 miles, is exhibited from a white square wooden building near the wharf.

Storm drum.—The usual signals for probable storms are shewn from a flagstaff erected near the light-house.

A **rocky bank** with 9 to 12 feet water on it extends from the extremity of Presqu'isle point in a N. E. by N. direction a quarter of a mile, and to avoid which in approaching the wharf, the end of the latter should be brought in line with the light house.

Anchorage may be had in 8 to 10 fathoms sandy bottom half a mile northward of the wharf, but the proximity of the deep water would entail a vessel swinging close to the shore with the wind in.

Between cape Comodore and Presqu'isle the coast may everywhere be approached to 250 yards.

Eastern shore of Owen sound.—**Vails point**, formerly called point William, is $4\frac{2}{3}$ miles westward of cape Rich, and 12 miles from the town of Owen Sound, and consists of a gravelly bank 27 feet high.

VAILS POINT SHOAL is a dangerous rocky bank extending from the point of that name in a west-north-west direction nearly $1\frac{1}{4}$ miles, at which distance there is only 8 feet of water, while on the bank there are several spots with less than 6 feet of water.

Buoy.—A red spar buoy marks the north-western end of the shoal.

Coffin hill surmounted by timber is a conspicuous feature over 350 feet high, two-thirds of a mile from the shore, and $3\frac{3}{4}$ miles south-westward of Vails point. Between the latter and the point abreast of Coffin hill the shore is foul, and a vessel in beating into the sound should not approach nearer than one-third of a mile.

Coffin cove was formerly a snug little cove for boats but very little remains of it now but the name. The little point which used to shelter

the cove is situated $3\frac{1}{2}$ miles north-eastward from Squaw point, and 2 miles from the village of Leith.

Beacons for ascertaining compass error.—Close to this cove are erected a set of four small beacons painted white, for the purpose of testing a vessel's compass. That nearest the shore is surmounted by a plain white triangle, the remaining three back beacons have marked on them in black the letters E., S.E., and S. These brought in line with the aforesaid triangular beacon will point out respectively the East, South-east, and South magnetic lines.

A similar set are erected at Sutton point, indicating the South-west, West and North-west lines. Pyette point and the east side of Griffiths island in line bear N. $\frac{5}{16}$ E., while Squaw point in line with the point of the east shore under Coffin hill bear N. E. $\frac{1}{16}$ E.

For a vessel with a standard compass so placed that a bearing can be taken all round, one range would be sufficient for any direction of the ship's head, but in the small vessels with the compass in the wheel-house, the wood-work of the latter obscures the view excepting for 2 or 3 points on each side of the bow. It is therefore necessary to point the ship's head exactly for each pair of beacons in line just keeping steerage-way until the course which the vessel makes by her compass is carefully noted. Having noted these eight courses which should occupy about an hour and a half, printed directions for making a table of errors on every point can be procured from the collector of Customs at the town of Owen Sound or the Marine Department, Ottawa.

Steamers would make better courses if their compasses were tested every spring, because from lying so long every winter at the docks in Owen Sound with the ship's head in one direction and that nearly north or south, a certain amount of temporary magnetism will have entered an iron vessel, causing her to make a different course probably to that she made in her last voyage in the previous fall. In addition to the examination in the spring the time would not be thrown away if the compass were again tested in July by which time the magnetism acquired in the hull of the vessel during the previous winter will have been worked out.

For $2\frac{1}{2}$ miles north-eastward of Coffin cove the shore may be approached to 250 yards, but south-westward of the same a shoal bank gradually widens, until off Leith not more than 3 fathoms will be found a quarter of a mile from the shore.

Measured Mile.—Between Leith and Coffin cove, the Government has had erected two pairs of beacons painted white with the letters M.M. (measured mile) marked on them. These beacons are exactly one nautical mile apart.

Two spar bnoys moored in 17 fathoms water and painted with black and white bands mark approximately the same distance on the water.

Squaw point low and wooded is 3 miles from the harbour of Owen Sound and half that distance westward of the village of Leith. A line joining Squaw point to Bayview point on the opposite side may be said to mark the limit of the deeper water of Owen sound.

Squaw point shoal takes its name from the point off which it extends 600 yards, at which distance there is a depth of 9 feet over rocky bottom. To clear Squaw point shoal by day the west side of the Canadian Pacific Railway elevator should be kept touching the east side of Reid's quarry S. S. W. $\frac{1}{2}$ W. At night the back range light at the entrance to the harbour should be kept well open westward of the front light, as the two lights in one lead over the end of Squaw point shoal.

West shore of Owen Sound—Sutton point is a slight projection $1\frac{2}{3}$ miles southward of Presqu'isle, and marks the southerly termination of a low gravelly cliff.

Bayview point which, with Squaw point opposite it, may be said to enclose the inner part of the sound is 3 miles from Sutton point, and $2\frac{1}{2}$ miles from the outer range light-house at the town. This not very conspicuous point has good water close to it. In the bight southward of the point is a snug little boat cove, into which a small stream under the name of Indian brook empties itself.

Village of Brooke.—This village stands on a rising ground close back of the shore and close to the town of Owen Sound. Findlay's saw mill, close to the coast line already alluded to, and the Methodist church with its spire are perhaps the most conspicuous objects.

TOWN OF OWEN SOUND.—This rising port is situated as before stated at the bottom of the bay of that name, being called after the late Admiral Owen who, as a lieutenant in 1817, commenced the survey of the lakes, which Admiral Bayfield at that time continued. The same name applied to both town and bay is unfortunate and confusing, the single word Owen for the town, or Sydenham as it was formerly called, would be more appropriate. The town is pleasantly situated on both sides of Sydenham river, and is the county town of the county of Grey. It has a population of 7,497, including the village of Brooke, and if it prospers as it has done since the Canadian Pacific Railway made it a terminus for their Port Arthur steam boats, will soon rise to the dignity of a city.

It is scarcely necessary to remark that a town of this size has all the conveniences that a master of a vessel requires including a dry dock, on the sill of which however at present there is at mean water only 10 feet.* No doubt the dock may be altered to accommodate the largest vessels on the lakes, now that the enlargement and deepening of the harbour is con-

* At low stages of the water there may be 2 feet less.

pleted. The Messrs. Polson brothers of Toronto have erected a slip at a spot on the east shore three quarters of a mile outside the harbour for the building of vessels, a fine specimen of which is the Canadian Pacific Railway steamer "Manitoba."

A stream called the Potawatamie river runs into the bay 300 yards westward of Sydenham river, but which on account of the shallow flat outside it, can only be entered by boats. It is possible however that at some future day this river may be deepened, and a channel cut from the one leading into the present harbour.

LIGHTS.—Two light-houses are erected at the entrance to the harbour, the outer one on a crib on the west side of the dredged channel; it is painted red with a red vertical stripe on its northern face, and from a height of 22 feet above the water shows a *fixed red* light visible 6 miles. The back light-house stands above the pile work on the west side of the channel about 500 yards S.S.W. $\frac{5}{8}$ W. from the outer light-house; it is painted similarly to the latter, and exhibits at an elevation of 39 feet above the water a *fixed white* light visible 11 miles. When a quarter of a mile from the front light the back one should be brought a little open eastward of the former, to lead between the red and black buoys marking the dredged channel into the harbour. The range should not be kept on at a greater distance than a quarter of a mile northward of the outer light-house as the line of the present lights in line leads close to the bank stretching off the eastern shore and actually *over* the outer part of Squaw point shoal.*

Anchorage.—A sailing vessel waiting for a tug to tow her into the harbour will find good anchorage off Findlay's mill in 6 to 7 fathoms muddy bottom where with good ground tackle a vessel could safely ride out a heavy gale from the north-eastward. A stranger with the chart should have no difficulty in navigating his ship as far as the anchorage in any condition of wind or weather.

The Claybanks.—From Vails point already described the outer coast runs eastward $4\frac{3}{4}$ miles to cape Rich, and nearly midway between them is a light-coloured conspicuous bank of clay, formerly called Campbell's cliff $1\frac{1}{2}$ miles long obtaining an elevation in its middle part of 370 feet. This feature together with the high land of cape Commodore (known as Pyette hill) Griffiths island, and cape Croker, render the approaches to Owen Sound unmistakable from the offing.

A rocky flat makes off from the shore of The Claybanks to a distance of a quarter of a mile.

* It has been recommended to alter the position of the back light-house and a little dredging done outside the outer light, so that the two in one bearing S. S. W. may lead right up the sound clear of all obstructions.

CAPE RICH is, in contrast to the high land $1\frac{1}{2}$ miles at the back of it, a comparatively low point, wooded on the western, and cleared on the eastern side; on the latter are several deserted houses formerly occupied by fishermen, but which may again be turned into use for cool weather seekers in the summer. The shores of the cape and bight eastward of it are clean, there being 4 fathoms at a distance of 200 yards.

Anchorage in the bight eastward of cape Rich may be had in 5 to 6 fathoms sandy bottom with shelter from westerly winds, but on account of the probability of the gale veering sooner or later to the northward, a vessel should be in readiness to leave on the first sign of such a change.

Twelve-fathom bank with least water of that depth is a broad, rocky rise in the bottom 3 miles northward of The Claybanks. The soundings in the locality may be useful in foggy weather to a vessel making Owen sound from the north or north-eastward, as between Twelve-fathom bank and the cape Rich shore the water again deepens to 20 and 24 fathoms with sandy bottom, finally shoaling to 10 fathoms rock and gravel half a mile off The Claybanks.

CHAPTER V.

COLLINS INLET TO MCCOY ISLANDS.—(CHART 1213.)

VARIATION $4^{\circ} 45'$ WEST.

A description of the shore westward of Grondine point, as shown on chart 1213, having already been given on pages 36 to 39, chapter II., written in connection with chart No. 907, directions for the coast eastward of Grondine point will now be given.

White rock, 9 feet high, is situated a little more than $2\frac{1}{2}$ miles eastward of Grondine point and 400 yards from Eagles Nest point. It is really composed of five small bare rocks, one of which is of a dark colour in contrast to the highest which is lighter in colour than the coast adjacent. Standing well off shore, its light colour renders it a conspicuous object on a coast where there are few characteristics. The shore between Grondine point and White rock is broken up into innumerable small islands, and is called Indian bight on account of the neat little village of Indians situated on the west side of the indentation and about $1\frac{1}{3}$ miles from Grondine point. The best way to communicate with this village is by Collins inlet.

Voyageurs channel.—On the eastern side of this bight is situated the entrance to the western mouth of French river, up which for a distance of 3 miles, 6 feet water may be carried.* This particular outlet has been named Voyageurs channel, as it was by this mouth that the canoes in the early days are said to have entered Georgian bay from lake Nipissing on their way eastward. The whole of this bight is full of dangerous ledges, and should be carefully avoided by vessels in thick weather by not standing into less than 10 fathoms.

White rock ledge extends from White rock before described W. by S. three-quarters of a mile, terminating in a couple of rocks a few inches above the water.

Fort channel is the name given to the second mouth of French river, situated nearly $1\frac{1}{2}$ miles eastward of White rock, and joins Voyageurs channel at about $1\frac{1}{3}$ miles from the entrance. It is reported that there still exists in the locality the remains of a fort from which the passing brigades used to be attacked in early days, and from which

* Although this and Fort channel are called here *mouths* of French river, no permanent outward current was noticed. They might therefore as appropriately be termed inlets.

circumstance this mouth takes its name. The steamer *Bayfield* anchored, for the convenience of carrying on the work, in Fort channel about three-quarters of a mile below its junction with Voyageurs channel, but the entrance from Georgian bay is so blocked with rocks of a pinnacly nature that a master of a vessel should not think of attempting it.

Maitland bank is a dangerous shoal extending in a south-westerly direction from the coast immediately eastward of Fort channel, with depths on it varying from 12 feet to a few inches. At the distance of one mile from the shore, the bank breaks up into a number of shoals terminating in

Pring reef—This shoal has only 9 feet water over it. It bears S. $\frac{3}{4}$ E. nearly $1\frac{1}{2}$ miles from White rock, and E. $\frac{1}{2}$ S. 3 miles from Grendine rock. Between this and the main body of Maitland bank the shoals have depths on them varying from 14 to 18 feet.

Temple rocks are a group lying one mile westward of Bad river point. The highest is 4 feet high, and the outer rock is nearly two-thirds of a mile from the general shore line. From this outer stone, the shallow bank continues in a southerly direction ending in

EMERY REEF.—This dangerous obstruction with only 5 feet water upon it lies W. by S. $\frac{1}{2}$ S. nearly $1\frac{1}{2}$ miles from Bad river point, and W. by N. $\frac{3}{4}$ N. $2\frac{3}{4}$ miles from the Bustard rocks light houses.

Isabel rock, with 14 feet water over it, is situated two-thirds of a mile southward of Emery reef.* It bears S. W. by W. $1\frac{3}{4}$ miles from Bad river point; care should be taken to avoid this patch in a large draught vessel and heavy sea.

Bad river.—This is the third or middle one of the five mouths by which French river empties itself into Georgian bay. Tugs have gone some distance up this river for lumbering purposes.

Bad river point is situated at the mouth of the river, and although called a point, because it appears as such from the direction of the mouth of French river proper, it is in reality only one of the innumerable islets which compose the coast line of the whole of this shore. Being bare and about 12 feet high, it is rather more conspicuous than the rest of the adjacent coast. From it the broken up coast trends in a general E. by N. direction a little more than three miles to Depot island, the west entrance point to French river proper.

Mary Grant rock with 2 feet water on it, lies S. $\frac{1}{4}$ E. nearly half a mile from Bad river point, and a patch with 13 feet on it, is situated on the same bearing and distant from the point nearly three-quarters of a mile.

* At low stages there may 2 feet less water.

Everard reef, 2 feet above the water, lies E. $\frac{1}{2}$ S. nearly $1\frac{3}{4}$ miles from Bad river point, and N. by E. $\frac{1}{4}$ E. $1\frac{1}{4}$ miles from the Bustard rock light-houses; nearly half a mile south-west of it there is a patch with 10 feet water on it, while at 300 yards distance on the same bearing there is less than 6 feet. Shoal water extends over a mile south-westward from Everard rock in patches, but on none has there been found less than 3 fathoms of water.

Turnaway rock, 4 feet high and bare, is the name given to the south-west end of a ledge extending from Depot island (previously alluded to) in a S. W. by S. direction half a mile; the fairway range of the two lights in one leads rather less than 200 yards eastward of this ledge.

North-west bank, with from 5 to 10 feet water over it, is the name given to a dangerous and shallow rocky ledge extending in a general south-west direction a little more than three-quarters of a mile from Turnaway rock. The fair-way range of the Bustard rocks light-houses in one leads 200 yards eastward of the bank.

BUSTARD ISLANDS.—This important group of islands and rocks is situated $1\frac{1}{2}$ miles southward of the entrance to French river proper, South point bearing E. by S. 17 miles from the north end of Green island, and N. W. $\frac{1}{2}$ W. $13\frac{1}{4}$ miles from Gereaux island light-house, Byng inlet. This group has an extreme length of $3\frac{1}{2}$ miles, and is $1\frac{3}{4}$ miles broad in a north and south direction. It is broken up into an almost innumerable number of islands, islets, rocks above, and rocks below water of every size, shape and description. They are composed like the remainder of the shore of gneiss, with occasional dark veins of hornblende character, possibly indicative of larger hidden masses of the same which may contain magnetite, and account for the abnormal variation of the compass, observed in this locality.*

The Bustard islands when seen from the southward are scarcely distinguishable from the main shore, but from the westward the higher character of the north side, together with the gap caused by the little harbour render them unmistakable. In the afternoon too, the sun shews up the white light-house on the Bustard rocks. The string of rocks, which extends S. W. by W. $\frac{1}{4}$ W. two-thirds of a mile from the light-house, is usually known as the Bustard rocks by reason of being utterly bare of vegetation.

South-west rock is the outer one of the chain just spoken of; it is 5 feet high with a spit extending from it in a W. S. W. direction 200 yards.

Perley rock, with 9 feet water over it, † lies W. $\frac{1}{4}$ S. nearly half a mile from South-west rock, and another called Belize rock with 12 feet

*The variation observed in 1886 on the Ridout islands was $7\frac{1}{4}$ degrees westerly, or a quarter of a point more than the normal as used in this chapter.

† At low stages there may be 2 feet less water.

on it lies South, half a mile from the same. Between these positions there are several other shoals with depths on them ranging from 12 to 17 feet. As these rocks are of an extremely pinnacly nature, the point should not be rounded nearer than one mile; in a heavy sea and in thick weather a vessel should keep in deeper water than 10 fathoms. No stranger should pass between these shoals and South-west rock.

South point is, as its name would indicate, the most southerly point or islet in the Bustard group. From the eastward and westward it is at present well marked by a single tree leaning to the north-eastward from the almost constant south-west winds. The bight between South point and South-west rock is full of rocks awash, and some with very little water on them, and from South point itself, shoal water extends half a mile southward where there is a depth of 10 feet.

LIGHTS—Bustard rocks light-houses are situated two-thirds of a mile from the extreme south-west end of the chain. There are two in number; that for general purposes being a skeleton structure painted white, which from a height of 33 feet above the water, exhibits a *fixed white* light visible, all round, 11 miles. The other light-house bears N. E. $\frac{1}{2}$ E., and is distant 77 yards from the above mentioned. This similar but smaller building is painted red, and shows from a height of 26 feet above the water a *fixed white* light visible, in the direction of French river, 6 miles. These two lights in one bearing S. W. $\frac{1}{2}$ W. lead towards the entrance of the river, until the lights there are seen in one. There is excellent boat-landing at the main light-house in any weather.

Castle island forms the north-eastern of the Bustard rocks, being quite bare and 26 feet in height; some dry rocks extend from it in a north-east direction nearly 200 yards, which may be approached to 100 yards, as may the whole north-west side of the Bustard rocks.

Ridout Islands, three in number, lie nearly three-quarters of a mile north-eastward from Castle island, and the north-west, north, and east sides, may be approached to 100 yards.

A rock with 14 feet water on it, lies North fourth-tenths of a mile from the point of Ridout islands, and about 350 yards south-eastward of the track into French river.

McLean shoal, with 9 feet water over it, is situated South a quarter of a mile from Turnaway rock previously described, and is only 100 yards eastward of the intersection of the light-house ranges.

Seymour rock, 3 feet high, lies on the east side of the channel into French river, and bears E. by S. nearly 600 yards from Turnaway rock. A reef with 8 feet water over it extends S. W. by W. 270 yards, and a rock with 4 feet on it, lies North 150 yards from Seymour rock.

Borron rock, 3 feet high, is situated N. N. E. 470 yards from Seymour rock, being connected therewith by a bank on which there is less than 3 fathoms. Shoal water extends north-eastward 300 yards where the depth is 12 feet. A stone, 2 feet above the water, lies S. E. $\frac{1}{2}$ E. 100 yards from the south point of Borron rock.

Cherokee rock is a small stone just shewing above the water, and situated E. by N. $\frac{1}{2}$ N. distant 600 yards from the highest part of Depot island. There is a patch with 12 feet on it situated S. W. $\frac{3}{4}$ S. 350 yards from it; a rock with 3 feet water over it lying nearly South, distant 200 yards, and another with only 6 feet on it, lying N. E. by N. 200 yards from Cherokee rock.

Depot island.—From this island, 8 feet high, the west shore of French river runs in a N. E. $\frac{3}{4}$ N. direction, three-quarters of a mile to the light-house on Lefroy island, and is steep-to.

LIGHTS.—Lefroy island light-house stands close to the east shore of the island of that name. It is a small frame-work structure painted white, shewing from a height of 16 feet above the water a *fixed white* light visible in the line of the range 6 miles.

Creek light-house is a similar structure erected on the east shore of the creek near the southern mill; it is painted white and exhibits from a height of 30 feet above the water a *fixed red* light visible in the line of the range 6 miles. These two lights in one bearing N. E. by N. in conjunction with the Bustard rocks range, lead into the river.

Middle reef lies with its north end (a dry stone just shewing) bearing E. $\frac{1}{4}$ S. 120 yards from Lefroy island light-house. Shoal water extends from this stone 200 yards in a south-west direction, reducing the channel between it and the light-house to a width of 80 yards. The coast of Lefroy island being quite steep-to, may be kept close on board.

Bluff point, about 20 feet high, forms the east entrance point of the river, and 50 yards off it lies a round rock, 8 feet high, called Loaf rock whence shoal water extends westward 100 yards. From Bluff point the east shore of the river runs nearly straight for two-fifths of a mile to the mouth of the creek where will be found a depth of 10 feet of water, gradually shoaling to the bottom.

Brock island.—From Lefroy island, the cliffy coast, from 20 to 30 feet high, runs nearly straight two-thirds of a mile to Brock island, which is separated from the west shore by a narrow boat passage. This island is narrow and 150 yards long, and 100 yards south-westward of it there is a rock about 30 yards from the west shore with 3 feet water over it, while 100 yards north-eastward of the island, and rather nearer the west than the east side of the river there is a rock with only one foot of water over it, which should be carefully avoided by keeping the east shore on board.

Green island, 4 feet high, is the name given to the north-eastern of four small islets situated just above the upper mill, and one-third of a mile from Brook island. The channel is narrowed still more by a rock with 9 feet water on it, lying 50 yards eastward of these islets. The channel between this rock and the eastern bank of the river is only 70 yards wide. If the buoy which usually marks this obstruction should be displaced, the eastern shore and wharf should be kept close on board. A dry rock and one awash, lie nearly 150 yards south-westward of the largest and south-west island of the group, and 50 yards from the west steep bank of the river which is here 35 feet high.

Public wharf.—This is erected on the east side of the river about one-third of a mile above Green island, and $1\frac{1}{2}$ miles from Lefroy island light-house. This wharf is 100 yards north of a rather deep indentation called Loading cove, from its being a convenient place for the large vessels to take in saw logs. Sufficient water will be found at this and all the wharves in French river for the largest vessels. At half a mile northward of the public wharf the river widens out, the north-west corner taking the name of Macdongal bay, and the north-east shores rapidly converging and preventing any further navigation.

Directions for French river.—If from the North Channel of lake Huron pass half a mile southward of Groulind rock, whence steer E. by S. $\frac{1}{4}$ S., which should lead rather more than one mile southward of Emery rock and half a mile south of Isabel rock with 14 feet over it. Proceed no further eastward than to bring the north extremity of Ridout islands touching Castle island rocks E. by N. $\frac{3}{4}$ N. The Ridout islands are lightish in colour, Castle island rocks are dark. This mark leads north-westward of Perley rock, and all the shoals off the Bustard rocks, and to within 206 yards of the light-houses.

Or a vessel may haul to the northward when the Bustard rocks main light-house bears E. $\frac{3}{4}$ N., steering for it on that bearing until within a quarter of a mile from the rocks, keeping from them that distance, although they are quite steep-to. When abreast of Castle island bring the Bustard rocks light-houses in line astern bearing S. W. $\frac{1}{4}$ W., and proceed with them so far about $1\frac{1}{2}$ miles from Castle island, when the river lights should be seen in one bearing N. E. by N. After keeping the latter in line for $1\frac{1}{2}$ miles Lefroy island light should be passed close to, and mid-channel kept until destination is arrived at. By following these directions a depth of not less than twenty-four feet will be found.

Anchorage.—A vessel may anchor in from 4 to 7 fathoms mud bottom under the west shore anywhere above Depot island.

Proceeding to French river from the south-eastward, keep one mile from South-west Bustard rock until the north point of Ridout

islands opens north-westward of Castle island rocks, E. by N. $\frac{3}{4}$ N., when a vessel may haul north-eastward and proceed as before directed. It has been suggested to the Government to place, if practicable, an additional small red light, so that kept in line with the Bustard rocks main light it may afford a safe lead in from the bay. At present the only guide at night is by steering for the main light bearing E. $\frac{3}{4}$ N. by compass, an error of a point in which would lead a large vessel over shallow water.

Pending the erection of this additional aid, it is best for a stranger to approach the Bustard islands in the early afternoon, when, with the sun at his back, he will have no difficulty in identifying the white light-house.*

Bound to French river from Owen channel.—After entering Georgian bay (by the directions given on page 18 for chart No. 906,) steer to pass half a mile north-westward of Wall island whence a N. E. by E. $\frac{1}{2}$ E. course for 35 miles will bring a vessel to within one mile of South-west rock of Bustard islands. From Saginaw bay, in lake Huron, and all ports north of it, this is in clear weather and daylight a good route to French river, leading $3\frac{3}{4}$ miles north-westward of North-east Shingle, and $5\frac{1}{2}$ miles in the same direction from Dawson rock, with the benefit of smoother water in the prevailing south-west winds.

Proceeding to French river from cape Hurd channel.—When making the entrance to Georgian bay in daylight and fine weather, the master of a vessel if acquainted with the locality will find cape Hurd channel the most direct route from the southern ports of lake Huron. Having entered Georgian bay by the directions given on page 9 of the Pilot for chart 906, a N. E. $\frac{3}{4}$ N. course from a position half a mile eastward of Bear's Rump for 41 miles will bring a vessel to within one mile of South-west rock of the Bustard islands, passing one mile south-eastward of Halfnoon island (see page 24), and the same distance south-eastward from Dawson rock (see page 25). If the weather is thick when approaching the Bustards proceed very slowly after getting 12 fathoms, and stop immediately at 10 fathoms until the land is recognized.

Double island, on the north coast of the Bustards, lies with the north end of the eastern and larger island bearing E. $\frac{1}{2}$ S. half a mile from the north point of Ridout island. Its north point is steep to, and the passage eastward of it has from 4 to 5 fathoms.

Camel rock, 5 feet high, is situated between Ridout and Double islands, being joined to the latter by sunken rocks and a dry stone; good water may be carried in between Ridout islands and The Camel.

Anchorage may be had under the north shore of Bustard islands by steering from 200 yards off Castle island, to the same distance north

*These remarks apply equally to Byng inlet and Point au Baril.

of Ridout islands. Haul round eastward of the latter midway between them and The Camel; pass rather nearer the north shore than the latter to avoid a spit from it, and anchor close under the shore with the western Double island in line with the mouth of French river, or proceed nearly a quarter of a mile further eastward, where there will be still better shelter.

Bustard island harbour.—The entrance to this snug little harbour and fishing station is nearly half a mile south eastward of Camel rock. A depth of 15 feet *may* be carried in between Harbour island and the main shore southward of it. When the island is passed the water will deepen to 4 or 5 fathoms mud, and the vessel's head should be turned sharply to starboard and the anchor let go in the middle of the space just sufficient for a vessel 130 feet long, to swing with 25 fathoms of chain. This harbour cannot be recommended to vessels drawing more than 8½ feet water on account of two small rocks with 9 feet water on them, lying 30 or 40 yards westward of the entrance, between which rocks the *Bayfield* drawing over 10 feet used to pass by marking them with buoys.

North-east Passage.—This is the name given to the channel extending from French river to One Tree island northward of the Bustard islands, Gull rocks, and Frances Smith shoal, and through which, with the assistance of buoys and beacons, it would be possible to carry 4 fathoms of water. It is not intended that the following description of its principal dangers and directions for avoiding them, should in the present unbuoyed state of the channel, induce a stranger to attempt it. It is no channel for a stranger unless such aids to navigation were placed, which the present trade scarcely warrants the expense of. The directions are first, for the purpose of assisting in the possible placing of such aids at a future day, and secondly to add to the local knowledge of the few men who use this passage at the present time. The distance from Byng inlet to French river by this passage is 4 miles shorter than that south of the Bustard islands. The dangers in the passage will now be described, commencing from the westward.

Queen reef, 400 yards long east and west, with 7 feet least water on it, is situated with its west extremity bearing N.N.E. 350 yards from the north point of the eastern Double island previously alluded to; the passage being between this island and the reef.

North island, as its name indicates, is the northernmost island of the Bustards, its western side being composed of a steep bluff, 35 feet high, and probably the highest land in the group.

Tie island, so called from the fact of tugs tying up to it with their rafts in southerly gales, lies next eastward of North island. Northward 200 yards from the centre of this island is a patch with 15 feet over it called Minnie rock with 10 fathoms between them.

Hall rock, with 12 feet water on it, lies a quarter of a mile eastward of the last mentioned patch, and 200 yards northward of the first small island eastward of Tie island; the passage is between Hall rock and the Bustards, close to the north shore of which the water is deep.

Burke shoal, with 11 feet of water on it, lies N. E. $\frac{1}{2}$ N. 400 yards distant from North-east point and 200 yards from the nearest Bustard island, the channel being between the latter and Burke shoal.

Gull rocks consist of a cluster of small bare rocks covering an area about 600 yards in diameter, the highest rock being 10 feet above the water. In addition to this cluster there is an isolated smooth bare rock 8 feet high, situated 600 yards south-eastward from Gull rocks and known as South-east rock. Between the Bustard islands and Gull rocks there is no passage for a vessel, and even for boats it is dangerous in a sea.

Black rock is of a darkish colour, quite alone, 5 feet high, and is situated N. by W. $\frac{1}{2}$ W., half a mile from the highest Gull rock. It is about 25 yards long north and south and a spit makes out 50 yards from its north end, with which exception the water is deep all round it. The channel passes from 100 to 150 yards northward of this rock.

Bagot rock, with 11 feet on it, lies E. by S. $\frac{3}{4}$ S. a little more than a third of a mile from Black rock; a rock awash lies S. E. the same distance from it, and a patch with 12 feet on it, lies S. E. by E. $\frac{1}{4}$ E. just half a mile from Black rock.

Goldwin rock, with 8 feet water over it, lies N. E. by E. $\frac{1}{4}$ E. distant nearly three-quarters of a mile from South-east rock, the vessel's track passing midway between them.

FRANCES SMITH SHOAL is a very dangerous and extensive rocky bank, on the north side of which are two patches of dry stone one foot above the surface. The shoal, with depths varying from a few inches to 12 feet, extends over a distance of $1\frac{1}{2}$ miles in north-west and south-east direction and one mile transversely. Its north-west side is separated from South-east rock by a passage nearly a mile wide with irregular depths exceeding in places 20 fathoms. Several banks with from 3 to 4 fathoms on them lie south-westward of Frances Smith shoal, the outermost one with $3\frac{1}{2}$ fathoms on it, bearing S. E. nearly 4 miles from South point of Bustard islands, and W. by S. $\frac{1}{4}$ S. a little more than $2\frac{1}{2}$ miles from One Tree island. In this locality in thick weather passing vessels should not approach Frances Smith shoal to a less depth than 8 fathoms.

One Tree island takes its name from a single umbrella shaped elm tree (which it is to be hoped no thoughtless person will cut down) and is situated $3\frac{1}{2}$ miles south-westward from the mouth of the inlet known as The Key.

Solitary rock, 6 feet high, lies nearly half a mile westward of the last mentioned island, being connected therewith by shoal water. Its isolation renders it conspicuous and consequently serviceable in pointing out the entrance to North-east Passage from the south-eastward. A few dry stones extends from its north end, and a rock just level with the surface lies N. W. by W. $\frac{3}{4}$ W. 400 yards from Solitary rock. Very shallow water also extends one-third of a mile W. $\frac{1}{2}$ N. and a quarter of a mile S. W. $\frac{1}{4}$ S. from the same. Two distinct patches also lie W. by N. $\frac{1}{4}$ N. 850 yards, and W. N. W. three-fifths of a mile respectively from Solitary rock, the first called Dingy rock, having 11, and the latter 10 feet over it.

Murray rocks are a group of small islets and rocks situated with the south-eastern and largest islet (10 feet high) bearing N. by E. $\frac{1}{4}$ E. one mile from Solitary rock, and 300 yards north-westward from Elgin rock, an islet of similar size, height and character. From 6 to 7 fathoms will be found between the two, forming the channel to the anchorage on the east side of Dokis island, to be again alluded to. The western extremity of the Murray rocks consists of a small spot with 6 feet water upon it, bearing E. $\frac{1}{4}$ S., $1\frac{1}{2}$ miles from South-east rock.

Dead island so called from the fact of its having been in olden times the burial place of the Indian tribes frequenting these parts, is three-quarters of a mile long north and south with an average breadth of 300 yards. This dark wooded island is separated from the main shore by a boat channel 150 yards wide, after having passed through which from the south-eastward, boats may find smooth water inside the islets and reefs to the mouth of French river proper, from which Dead island is distant 5 miles. This shore has the character peculiar to the whole of this coast, being broken up into countless small islands fronted by sunken rocks and shallow banks extending nearly to North-east Passage of which we have been treating.

Directions for North-east Passage from French river.—Steering for the Bastard rocks light-houses in one, alter course for the north extremity of the Bastard islands, when it touches the south point of Dead island bearing E. by S. $\frac{3}{4}$ S.; steer for it thus, passing close to the north point and from 50 to 100 yards off the north shore of the Bastards. Leaving the shore of these islands, steer to pass from 100 to 150 yards northward of Black rock. Thence steer E. by S. $\frac{3}{4}$ S. for half a mile to pass north of Bagot rock with 11 feet water (on which should be a buoy); after passing the latter, steer S. S. E. the same distance, when a vessel should bear from South-east rock N. E. by N. distant about a third of a mile, and by heading up for One Tree island should have the Elm tree on it right ahead, and Black rock right astern, and about its own breadth open north of Bastard islands. With the objects in this position a vessel should steer S. E. $\frac{1}{2}$ E. for One Tree island $2\frac{1}{4}$ miles, passing between

Frances Smith shoal and Murray rocks, with not less than 4 fathoms water, until the high south-east Murray rock bears N. E. by E. $\frac{1}{2}$ E.

The vessel's head should then be turned to the southward to pass out between Frances Smith shoal and the reef from Solitary rock, steering S. $\frac{1}{4}$ W., or if the beacons which were placed on the main shore, half a mile north-westward of Dead island, for the use of the *Bayfield*, are still standing, they should be kept in line astern, (they range with one of the Murray rocks just shewing above the water) bearing N. $\frac{1}{4}$ E., until one mile outside of Solitary rock, when the shoal water will be passed and a vessel may haul to the south-eastward.

Without the beacons, a buoy should be placed on the south-west extremity of the bank from Solitary rock, and brought to bear S. $\frac{1}{4}$ W. before turning off the One Tree island and Black rock range; a course to pass close west of it will lead also eastward of Dingy rock, on which as before stated there is 11 feet. After passing the reef from Solitary rock, two patches will be passed over, the northernmost of which at half a mile has 15 feet least water on it, and the other at one mile, with 21 feet.

Dokis island is situated with its south point bearing E. by N. $\frac{3}{4}$ N., distant $1\frac{1}{2}$ miles from the south point of Dead island and between them runs in the eastern mouth of French river, called from that circumstance East Branch. The land of Dokis island is about 20 feet in height, which with its steep south fall, together with its tall pines is not only a conspicuous feature, but affords excellent shelter close under its east side in 18 feet muddy bottom. Eastward one mile from the island is the entrance to the inlet known as The Key. Owing to the existence of several shoal patches lying between Murray rocks and Dokis island, it would be useless and perhaps hazardous to attempt to give the mariner reliable sailing directions for reaching the anchorage under Dokis island, but the track used by the *Bayfield* in proceeding thither from the south-eastward, will be given as intelligibly as possible.

Soon after passing Solitary rock shoal and Dingy rock, the south point of Dokis island will be seen in line with the south-east Murray rock. Alter course to the north-eastward when they appear in one, and steer for them N. E. $\frac{1}{4}$ N., which should lead over not less than 16 feet. Pass close to the east side of Murray rocks—the water is deep—and thence steer for the west side of Dokis island (steaming slowly and keeping the lead going) for nearly a mile, when Keefer island with (at this time) two conspicuous trees upon it will be a quarter of a mile on the starboard beam.

A rock with less than 6 feet water on it, lies N. by W, 300 yards from the north-west dry rock of Keefer island. When abreast of the latter steer for the south-east point of Dokis island bearing N. E. Keep 30 or 40 yards from the east coast of Dokis island, to avoid a rock with 7 feet

water on it lying about 150 yards off the same, and anchor off the little bay 300 yards northward of the south-east extreme of Dokis island, in 3 to $3\frac{1}{2}$ fathoms, just as close to the island as the vessel will swing clear. If frequenting the anchorage a small buoy should be placed upon this 7 foot rock, which bears N. E. by E., distant 300 yards from the south-east point of Dokis island.

The regular depth of 5 to 6 fathoms between Dead island and Murray rocks, as shewn by the soundings, would seem to indicate a good passage to Dokis island from French river *northward* of Murray rocks, by keeping the highest Gull rock astern and Keefer island exactly ahead, taking care to avoid the 6 foot rock at the west extremity of Murray rocks on the starboard, and the ledge extending 300 yards from the southern dry rock of Dead island on the port hand.

Beresford island is a small round islet, 12 feet high, with a few round stunted bushes growing on it, lying a little more than one mile south-eastward of One Tree island.

Salisbury island is situated S. S. E. two-thirds of a mile from the last mentioned; it is 9 feet high, 300 yards long north and south and quite narrow. A cluster of dry rocks extends nearly half a mile in a south-west direction from the line joining these two islands.

Zachary Rock, with one foot of water over it, lies S.W. $\frac{1}{4}$ W. one third of a mile from the south point of Salisbury island, and S. E. $\frac{3}{4}$ S. $2\frac{1}{4}$ miles from Solitary rock.

Champlain island, two-thirds of a mile long, with an average breadth of 300 yards lies half a mile from the main shore, and forms the south-eastern and largest island of the group we have been describing. It is low, wooded and indented with numerous small coves, and its north extremity bears East nearly three-quarters of a mile from Salisbury island; the space between the latter and Champlain island being thickly studded with low, dry rocks and shallow spots. The south-west extremity of Champlain island is composed of a cluster of small dry rocks, 400 yards south-west of which lies

Gladstone island--This bare rock being 10 feet high is rendered rather a conspicuous feature; rocks dry and sunken lie off its south and west sides 400 yards, and a sunken rock with 15 feet over it, is situated W. by S. $\frac{1}{2}$ S. one-third of a mile from the south point of this island. A boat channel exists between it and Champlain island. A rock with 12 feet over it lies S. S. W. nearly half a mile from the south point of Gladstone island.

Kartos point is a portion of the mainland $1\frac{1}{4}$ miles southward of Hervey inlet and between this point and Champlain island is a passage for small tugs and boats, which for smooth water run through inside the group of islands recently described.

FLAT ROCK applies to the larger and western of two bare islets 9 feet high, and lying well outside anything else, offers a good mark for recognizing this portion of the coast. Shoal water extends 300 yards southward of this rock, and to avoid the shoals lying north-west and south-east of these rocks, the south point should not be brought to bear southward of E. by S. $\frac{1}{2}$ S. or westward of N.N.W. $\frac{1}{2}$ W. Flat rock bears S.S. E. $\frac{1}{4}$ E. distant nearly $1\frac{1}{4}$ miles from Gladstone island.

Potvin point although really a small, low, wooded island, and the south-westernmost of the group, is situated E. by S. $\frac{1}{2}$ S. distant $1\frac{3}{4}$ miles from Flat rock, and shoal water extends from it in every direction for nearly one mile.

BYNG INLET is the name given to a long and narrow arm of the bay 15 miles south-eastward of French river, and running nearly East for about $6\frac{1}{2}$ miles to where the river Maganatawan disembogues. About two and a half miles from the entrance to the inlet will be found Burton's saw mill, and $3\frac{1}{2}$ miles from the same is situated the upper of two mills owned by Messrs. Dodge & Co., an American firm. These establishments together with the cottages of the mill hands, churches, and school, form a prettily situated village of about 600 people. There is a custom house officer and a good general store. Main communication is had twice a week by steamer with Midland and Collingwood, but at present there is no telegraph. A depth of 18 feet water may be carried up to the mills.

LIGHT.—Gereaux island light-house is erected on the island of that name, $1\frac{1}{4}$ miles south-westward of the mouth of the inlet, and is the most conspicuous land-mark in approaching this shore. The light-house is built of wood with dwelling attached, painted white, and exhibits at a height of 49 feet a *fixed white* light visible 12 miles.

The best time for a stranger to make Byng inlet is in the afternoon, when the sun shines on the white light-house; in the early summer morning it is difficult to distinguish.*

Range lights.—These are situated on the south-east shore three quarters of a mile inside the main light on Gereaux island and near the mouth of the inlet. The front light is *fixed red*, 34 feet high, the back one *fixed red*, 60 feet high, and are visible in the line of the range 6 miles. Kept in line bearing E. by N. they lead in with not less than 4 fathoms.

Dangers in the approach to Byng inlet.—Clarks islands 36 feet high lie in the mouth of the inlet leaving a channel out to seaward on both sides of the group, but the passage north of them and called from this circumstance the North channel leading between dangerous shoals for $2\frac{1}{2}$ miles, could not be used without it, were carefully marked with large buoys; this being done 12 feet might be carried in and a saving of

*This remark applies equally to French River and Point au Basil.

$1\frac{1}{2}$ miles effected, if approaching from the north-westward. The south extremity of Clarks islands bears N. E. by N. and is distant $1\frac{3}{10}$ miles from the light-house on Gereaux island.

MacNab rocks are a cluster of small dry rocks, with a maximum height of $6\frac{1}{2}$ feet lying south-westward of Clarks islands, and separated therefrom by a passage 250 yards in breadth, through which 12 feet may be carried by those locally acquainted.

Keystone is the name given to a rock with 2 feet water over it lying nearly in mid channel between the east end of MacNab rocks and the main shore, and narrowing the main passage to 300 yards.

Burton bank extends from MacNab rocks in a south-westerly direction $1\frac{1}{4}$ miles, and in a westerly direction nearly $1\frac{3}{4}$ miles; it is a very shallow and dangerous bank and should be carefully avoided by not standing into less than 10 fathoms, until the range lights are in line. The sea breaks heavily on this bank in the strong prevailing south-west winds. The North channel before mentioned, passes between this bank and the shoal water from Potvin point.

Duffy island is the name of the island half a mile south-westward of Gereaux island light-house. It is low and flat, about 300 yards in diameter and may be recognized by the huts of the fishermen who usually resort here in the summer season.

Old Tower rocks, two in number, and 4 feet high, are separated from Duffy island by a clear good passage for boats, 300 yards wide. The north-western rock is easily distinguished by the stone foundation of the old light-house still standing 4 feet above the top of the rock, or $8\frac{1}{2}$ feet above the water. This old tower bears W. $\frac{1}{4}$ S. and is distant 900 yards from Gereaux island light-house. A rock nearly awash lies 100 yards north-west of the ruin of this old tower. A rock with 4 feet water over it bears W. by N. 600 yards from Gereaux island light-house.

MAGANATAWAN LEDGES extend in a westerly direction $2\frac{1}{4}$ miles from Duffy island; the outer patch with 15 feet over it bearing W. by S. $\frac{1}{2}$ S. $2\frac{3}{4}$ miles from Gereaux island light-house.

A rock with 13 feet lies W. $\frac{3}{4}$ S. a little over 2 miles from the same. A rock awash is situated S.W. by W. $\frac{1}{4}$ W. nearly 2 miles from the light-house.

A patch with only 9 feet on it is situated W. $\frac{1}{2}$ S., exactly one mile from the same. From the last described patch, rocks awash and some with a few feet of water on them extend eastward and south-eastward.

Algoma and Waterwitch rocks, with 5 feet and one foot water over them, lie E. by N. $\frac{1}{2}$ N. 250 and 450 yards, respectively, from the north-east extremity of Clarks islands. To avoid these rocks keep sufficiently near the south shore of the inlet as to close the channel between Clarks islands and the south shore.

Directions for proceeding to Byng inlet.—The course and distance from Beurs Rump to a position W. $\frac{1}{2}$ S., 3 miles from Gereaux island light-house, is N.E. by E. $\frac{1}{4}$ E., 43 nautical miles (49 $\frac{1}{2}$ statute miles). This course passes 2 $\frac{1}{2}$ miles south-eastward of South ledge of Halfmoon island, and 7 $\frac{1}{2}$ miles in the same direction from Dawson rock.

As the last mentioned danger as well as North-east Shingle lie right in the course from Owen channel to Byng inlet, a vessel entering Georgian bay by Owen channel, had better take the French river course N.E. by E. $\frac{1}{2}$ E., given on page 161; when the Bustards are discernable, a more easterly course may be steered for Byng inlet.

If from Killarney the course from the north point of Green island to the position off the entrance to Byng inlet, above mentioned, is S.E. by E. $\frac{3}{4}$ E. and distant 27 miles. This course leads 2 $\frac{1}{4}$ miles southward of Grouline rock, and 4 $\frac{3}{4}$ miles from Bustard rocks light-house, and after the first three miles from Green island, a vessel should not have less than 10 fathoms.

If from the North Channel of lake Huron direct, pass close north of Gull island, the course and distance from which to the before mentioned position off Byng inlet is E.S.E. 21 $\frac{1}{2}$ miles.

When going the reverse way in thick weather or at night a good check on the distance run and the proximity of Gull island—low and difficult to make out—is a cast of the lead on Seven-fathom bank, lying directly in the course, distant 4 miles from Gull island, between which there is a depth of 17 to 19 fathoms, the former depth being found close to Gull island.

The Patent-log.—Here it may be well to mention that the substitution of the patent log, for the estimated speed of the ship from the number of revolutions, when running long distances would be found much more satisfactory to masters of vessels. They are made with very great accuracy, and an occasional comparison of the recorded patent-log distance between two places, with the actual one taken off the chart, will give what little error they may have.*

Necessity of knowing the Compass error.—While many vessels have been wrecked by over-running their distance, others have been lost by steering the wrong course. The courses given in these Sailing Directions will take a vessel clear of danger, supposing her compass is not affected by any iron in the vessel's construction or cargo. But as every steam-vessel possesses a certain amount of this metal in her composition or fittings every compass is more or less in error, and as no notices taken of this error, which may amount in extreme cases to a couple of points, a vessel is unlikely to see the port or point she is steering for right ahead. As mentioned on page

* It may be as well to remind those unaccustomed to the use of the patent-log that the distance recorded is the number of *nautical* (not statute) miles.

151, Chapter IV, beacons have been erected on the shores of Owen Sound, by which the steamers can, every spring before proceeding to sea, test their compasses, and, from the printed directions obtainable from the Collectors of Customs at the lake ports, or from the Marine Department at Ottawa, the master of a vessel can tabulate the courses he must steer by his compass to make good every one of the courses given in this book.

If from French river to Byng inlet, a S. E. $\frac{1}{2}$ E. course from a position one mile distant from South-west rock of the Bustards in line with the lighthouses, for a distance of nearly 14 miles should lead a vessel to the before mentioned position W. $\frac{1}{2}$ S. 3 miles from Gereaux island light-house.

Bound to Byng inlet from the south-eastward.—From a position one mile West from the highest Black Bill island to a position on the line of the Byng inlet range lights distant $3\frac{3}{4}$ miles from Gereaux island light-house, passing half a mile south-west of Morden rock, the course is N. by W. $\frac{1}{8}$ W. and distance $15\frac{1}{4}$ miles.

Proceeding in.—Keep the range lights in line bearing E. by N. until midway between Gereaux island light and the front range light; when keep the south-east shore on board to avoid Keystone until the mouth of the inlet is reached.

In daylight a good mark to clear Keystone is to keep the inlet closed. When abreast of the south end of Clarks islands keep in mid-channel as far as the north-east extremity of the same, when to avoid Algoma and Waterwitch rocks at the Fork, keep sufficiently close to the south shore as to close the channel just passed through. At one-third of a mile above Clarks islands the Narrows will be reached, and a mid-channel course with not less than 18 feet at mean water can be carried to the mills.

Anchorage—A sailing vessel waiting for a fair wind, will find excellent anchorage in 4 fathoms mud between MacNab rocks and the entrance to the inlet, dropping anchor with the north-east extremity of MacNab rocks bearing N. N. W., and Clarks islands touching the east shore of inlet E. by N. $\frac{1}{2}$ N. A vessel will also find perhaps shelter at the Fork (as that part of the inlet at the north-east extremity of Clarks islands is called) in 15 or 18 feet mud bottom, provided that Algoma and Waterwitch rocks are both buoyed. Dropping her anchor midway between the buoy a vessel with a short scope will swing clear of them, and be fairly out of the track of passing vessels.

Bush buoys mark the edges of Burton bank, Maganatawan ledges, and the other mentioned rocks, but as these are too small to render their distinguishing colors (red and black) discernable, a stranger should not attempt to enter until the range lights are in line, or he might find himself in among the dangerous Maganatawan ledges. A vessel should not stand into less than 10 fathoms of water until the range lights are in line.

* It is an island, and the purpose of the buoy is to mark the point of the island.

Danger angle.—To those conversant with the use of a sextant, as long as the angle subtended by Gereaux island light-house and the centre of Red rock is less than $38\frac{1}{2}$ degrees ($3\frac{1}{2}$ points of the compass) a vessel will be half a mile outside the Maganatawan ledges. In the steamer *Bayfield*, this only sure means of ascertaining the distance off shore before taking or leaving the line of the range lights proved very convenient.*

Red rock, 11 feet high and about 120 yards diameter lies S. W., $2\frac{1}{2}$ miles from Gereaux island light-house.

McHugh rock is round and flat, 6 feet high, and bears N. W., 800 yards from Red rock, while Norgate reef the same height above water lies a quarter of a mile southward of the same. The latter is 400 yards long in a north-west and south-east direction, and like the other two is surrounded with shoal water; the shallowest and most outlying spots being as follows:—

Sophia rock with 4 feet water over it W. by N. $\frac{1}{4}$ N. $\frac{1}{6}$ mile from Red rock,

Sarah rock with 7 feet, W. S. W. over three-quarters of a mile from the same.

Augusta rock with 5 feet on it S. S. W. one mile from Red rock.

A rock with 11 feet on it lies S. W. $\frac{1}{4}$ W. $1\frac{1}{3}$ mile from the same. The shore is especially foul between Duddy island and Red rock, the prevailing westerly winds making the navigation uncomfortable for a boat. The latter can however avoid the shallow and exposed water by taking the well sheltered boat passage inside the reefs as far as Naisheotyang river described later on.

MORDEN ROCK is a dangerous obstruction with 8 feet water over it lying S. W. by W. $\frac{1}{2}$ W. $2\frac{1}{4}$ miles from Red rock. This danger lies 3 miles south-eastward from the line of Byng inlet range lights.

Buoy.—A spar buoy usually marks Morden rock.

Imperial bank with $5\frac{1}{2}$ fathoms over it lies S. S. W. $\frac{1}{4}$ W., $1\frac{1}{4}$ miles from Morden rock, and the track previously recommended from the Black Bills to Byng inlet passes between them. Another bank with $6\frac{3}{4}$ fathoms on it lies three-quarters of a mile westward of Morden rock.

In thick weather a vessel should not shoal her water to less than 10 fathoms in the vicinity of Morden rock, or indeed anywhere between Byng inlet and Point au Baril.

* It has been recommended to the Government to do away with the light upon Gereaux island, and place it upon Red rock, when a bearing of it at night would serve the same purpose.

Raft island which with the other islands about it form a kind of point, lies E. S. E., two-thirds of a mile from Norgate reef, and with the assistance of buoys a small steamer might for lumbering or other purposes get in as far as this, and perhaps east of Raft island,

Bourchier islands are another group half a mile south-east of Raft island, and as before remarked the whole form a kind of point.

Laird rock small and one foot high lies South a little more than three-quarters of a mile from the south-east extremity of Norgate reef.

Head island is $4\frac{1}{4}$ miles south-eastward of Duffy island. It is supposed by some to take its name from the resemblance of the north-east island of the three to a bald headed man. This island is 26 feet high, and the top being bare with pines growing round the sides, it is quite probable that the name was suggested by this bald appearance. This clear spot and grey rock together with the high bent pines on the southern and largest island make it conspicuous as marking the vicinity of Naisheotyng river.

Garnet rock 3 feet high, **Wolseley rock** 2 feet high and **Mercier rock** one foot high, lie respectively N. W. by N. two-thirds, W. N. W. one-third of a mile, and S. S. W. $\frac{1}{2}$ W., the latter distance from the south point of Head island. A spot with 15 feet on it lies due West $1\frac{1}{10}$ miles from the same. In fine weather a boat may squeeze through between Head island and the shore.

Naisheotyng river.—The mouth of this river is situated three-quarters of a mile south-eastward from Head island, and although there are innumerable sunken rocks in this locality, there exists a very narrow channel, by which with the assistance of buoys, 15 feet can be carried in by keeping close to some dry rocks off the south-east entrance point. The river from the entrance takes an easterly direction $2\frac{3}{4}$ miles when it is joined by Charles inlet the entrance to which is $2\frac{1}{2}$ miles south-eastward from Head island. A considerable quantity of logs is brought down the Naisheotyng river.

Black rock as its name indicates, is a darkish rock 5 feet high situated two-thirds of a mile southward of the mouth of Naisheotyng river, and one mile north-westward of the entrance to Alexander inlet; it is surrounded by shallow water.

Athabasca and Alberta Rocks, with less than 6 feet water on them lie W. by N. nine-tenths, and West two-thirds of a mile respectively, from Black rock.

ALEXANDER INLET is the name given to a little harbour $1\frac{3}{4}$ miles south-eastward of the mouth of Naisheotyng river. It is also 7 miles from Duffy island, Byng inlet, and $5\frac{3}{4}$ miles north westward of Point au Baril harbour. Excellent anchorage in 3 fathoms over mud

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can be had in Alexander inlet with perfect shelter from all winds, and 13 feet at mean water can be carried in by bringing the south point of North reef in line with north side of Meneilly island E. by S. $\frac{1}{2}$ S. For the use of the *Bayfield* two beacons were erected upon this line and are probably there still, but without such aids or buoys, no stranger should attempt to enter.

The Sisters are a patch of rocks awash, and similar to a cluster known as **The Brothers** lying 300 yards westward of the entrance, the channel being between them. These shoals break heavily in a strong westerly breeze, more particularly **The Brothers**, rendering the passage anything but inviting, but the latter are steep to on the north side.

Sylvia rock, with 5 feet on it, lies on the north side of the channel near the entrance, which is between two clusters of rocks 3 or 4 feet high the northern point being known as North reef, and the southern as South reef. **Sylvia rock** lies south-east nearly 100 yards from North reef. It is a very small rock and should be buoyed by any body frequenting this port. A glance at the enlarged plan on chart No. 1213, for which this chapter is written, will show that proceeding up the inlet in mid-channel there is no danger in the way excepting **Snap rock** (small and generally showing) on the south side of the passage, until abreast of the boat-channel into **Charles inlet**.

Harbour reef is the worst obstruction in the harbour, and consists of several shoal rocks with one to four feet water over them, reaching from the north shore to about the middle of the passage.

Dart rock the top of which is usually level with the surface of the water is on the south side of the channel and almost abreast of **Harbour reef**, thus narrowing the passage to 70 yards but leaving a depth of 4 fathoms.

Directions for anchoring in Alexander inlet.—Do not shoal the water to less than 7 fathoms until the south point of North reef is in line with the north side of Meneilly island bearing E. by S. $\frac{1}{2}$ S. (the inlet will appear just closed to the northward, and the old beacons if still standing will appear in one).

Proceed in, keeping the lead going, which, if in the right track, should not give less than 13 feet of water on the narrow ridge joining **The Brothers** and **Sisters**.* When past the former (which if not breaking generally show themselves by their yellow colour contrasting with the dark colour of the deep water on the channel edge of them) keep to the southward so as to avoid **Sylvia rock** and steer up in mid-channel dropping anchor in 3 to $3\frac{1}{2}$ fathoms 150 yards eastward of **Harbour reef**. Here a vessel 150 feet long at single anchor with 20 fathoms of chain could ride out the heaviest gale swinging clear all round.

* At low stages there may be 2 feet less water.

Charles inlet, before mentioned, runs in a quarter of a mile northward of Alexander inlet, taking an E.N.E. direction for $2\frac{1}{2}$ miles, when it joins the Naisheotyang river by a boat channel. Though there is not room to swing an anchor at the mouth of this inlet, yet for rafting purposes a vessel can by means of buoys carry 3 fathoms in, and tie up to the rocks. To proceed into Charles inlet keep on the Alexander inlet range, until the bottom of Charles inlet comes in line with Jarrad island N.E. by E. $\frac{3}{4}$ E., when proceed for it passing close to the latter, and northward of the sunken rocks 300 yards inside Jarrad island.

Hang-dog point as the name indicates is a broken-up foul point, on the south side of Alexander inlet. In approaching Alexander inlet from the south-eastward the point should receive a good berth as there is only 11 feet water eight-tenths of a mile off it. In thick weather a vessel in this vicinity should keep in more than 7 fathoms.

POINT AU BARIL.—From Hang-dog point the broken up coast continues in a generally straight S. E. by S. direction $5\frac{1}{2}$ miles to Point au Baril, and for this distance there is nothing remarkable about the coast line which presents the same low, sparsely wooded, shallow shore; as little as 12 feet in spots being found three-quarters of a mile off, and to avoid which a vessel should not shoal to less than 7 fathoms. The approach to the back waters of Shawanaga bay or Franklin inlet renders Point au Baril more important than does its trade, consisting merely of fishing, for which of course it is well situated. It is of consequence too, as being an excellent harbour, and the only one that a stranger could take between Byug inlet and the anchorage under the Mink islands. Although a vessel has to run the gauntlet between many shoals, and moreover the passage one mile from the outer light is only 150 yards broad, yet the range lights by being so far apart are so sensitive that the mariner can confidently rely upon the two lights in one taking him in with not less than 15 feet, at an average state of the water.*

A small steamer from French river or Byug inlet, bound for Parry Sound, by taking the inside passage *via* Point au Baril, would with the exception of the gap between Red rock light-house and Snake island, have smooth water from Point au Baril to Parry Sound, which, notwithstanding adding 4 miles to the distance would be a great advantage in westerly gales. Between Point au Baril and Twin island, at the southern entrance to Shawanaga bay, not less than 14 feet water will be found on the track. (*See* foot note.)

The outside coast and dangers between Point au Baril and McCoy islands will first be described.

Look-out island which gives the shelter to the harbour of Point au Baril is a third of a mile broad and including the islands on the

* At low stages of the water there may be two feet less.

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north side, on which are situated the huts of the fishermen from Mea-
t, is three-quarters of a mile long. There is a passage into the harbour
either side of Look-out island, but the eastern channel is fit only for
boats on account of the many shoal spots in the approach to it.

LIGHTS.—Two lights to serve as a range for entering Point au
Baril Harbour are erected, the front or western light being close to the
extremity of the point where the harbour takes its name. The tower is
painted white, with dwelling attached, and at an elevation of 38 feet
shews a *fixed white* light visible 10 miles.

The back building stands upon an island three-quarters of a mile
further eastward and consists of an enclosed room and lantern painted
white, supported upon an open framework painted brown and exhibits at
an elevation of 57 feet a *fixed red* light visible in the line of the range 10
miles. The two lights in one E. by S $\frac{1}{4}$ S. lead in with not less than 15
feet at mean water.

Minnie rock, 2 feet high, is half a mile north-westward of the front
light-house, and on the north side of the ship's track. It lies off the
point dividing Nares inlet from the bay north-westward of the front
light-house, and may be approached to 100 yards.

Armstrong rocks, 9 feet high, are situated opposite the latter, the
middle and largest one having at the present time an isolated balsam
tree near the south extremity. The distance from these rocks to Minnie
rock is 300 yards, but the navigable channel is further contracted by a
rock with 7 feet water lying 100 yards north of the largest island. This,
together with the little flat off Minnie rock renders it necessary that the
line of the range lights should be rigidly adhered to. Fishing boats pass
between Armstrong rocks and Look-out island.

O'Brien islands are the outer two of the string stretching south-
westerly from Look-out island, the larger and inner one of the two being
8 feet high; they are sometimes called the inside Black Bills.

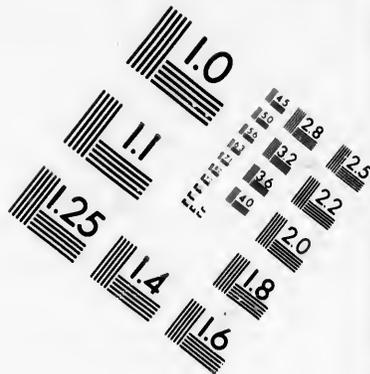
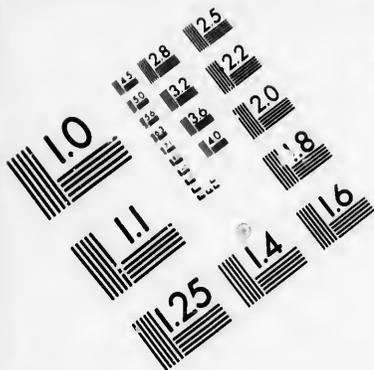
Doran rock, 6 feet high lies S. S. E. $\frac{1}{2}$ E. nearly two-thirds of a mile
from the outer O'Brien island.

Challenger rock, with only 2 feet water over it bears N. W. $\frac{1}{2}$ N.
nearly $1\frac{1}{4}$ miles from the same, and 300 yards north of this shallow spot
is a patch with 9 feet on it.

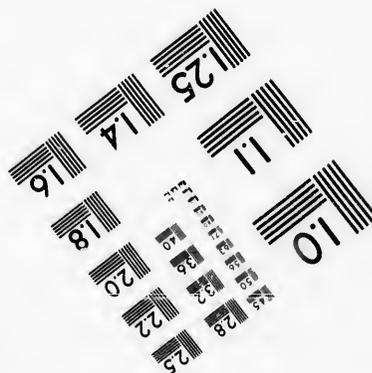
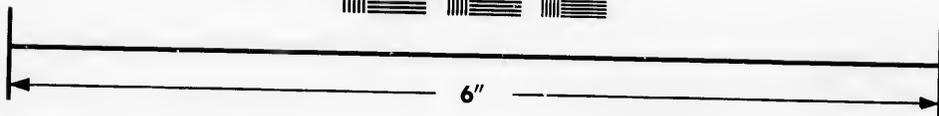
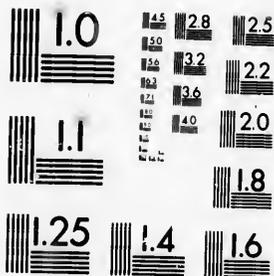
Corner rock, with 16 feet over it, is the most outlying shoal
in this locality and from it the front range light is over the centre
of the largest of the Armstrong rocks. The shoal is half a mile south-
ward of the range, and nearly $2\frac{1}{4}$ miles from the front light house.

Beacons.—Two white beacons are erected upon the shore 2 miles
north-westward of Point au Baril front range light-house which, kept in





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line bearing N. E. $\frac{1}{2}$ E., will lead a vessel north westward of Corner rock, and all the shoals between Point au Baril and the Black Bills.

BLACK BILLS.—These islets, or more strictly speaking bare rocks are situated S. W. $\frac{1}{2}$ W. nearly 3 miles from Look-out island, Point au Baril. The highest rock is 9 feet above the water and offers a good foundation for a light-house at some future day. These rocks occupy a space of about half a square mile and are surrounded by shallow water; the space between them and O'Brien islands being totally unfit for the passage of anything larger than a fishing boat. The most important sunken rocks near the Black Bills will now be described.

Lindsay rock just covered and generally breaking is situated N. N. W. $\frac{3}{4}$ W. nearly $1\frac{1}{4}$ miles from the highest Black Bill.

Meaford rock with 6 feet water on it lies W. $\frac{1}{2}$ N. nearly half a mile from Lindsay rock.

Vail rock with 10 feet water over it lies S. S. W. nearly half a mile from the same.

A bank with 5 to 9 feet on it stretches from the Black Bills in a W. by S. $\frac{1}{2}$ S. direction nearly half a mile.

South-east rock as its name indicates is the south eastern of the Black Bills. It stands alone, is 5 feet high and a shallow bank makes off from it in a S. by E. direction half a mile. A vessel should not shoal to less than 7 fathoms in the vicinity of the Black Bills. As before remarked there is no passage for a vessel north-east of the Black Bills.

KENNEDY BANK is one of the most dangerous shoals yet discovered, there being only 9 feet in two places.* The eastern shoal spot bears nearly West and is distant nearly 4 miles from the highest Black Bill island, the second patch with 9 feet on it being 400 yards farther west. These spots are the shoalest parts of a large bank which under the depth of 6 fathoms is $1\frac{1}{2}$ miles long north and south with a maximum breadth of two-thirds of a mile. The soundings on the east side of the bank give no warning of its vicinity there being 14 fathoms at 100 yards distance, and much the same depth until within $1\frac{1}{4}$ miles off the Black Bills, but from all points westward of south and north, good indication is given with the lead, and if a vessel keep in not less than 7 fathoms she cannot touch either patch.

Buoy.—A spar buoy painted with white and black horizontal bands is at present moored 200 yards north of the east patch, and a quarter of a mile east of the western spot.

McIntosh bank with least water 21 feet is separated from Kennedy bank by a hollow, half a mile wide and 14 fathoms deep. This rocky

*At low stages there might be 2 feet less water.

bank under the depth of 6 fathoms is nearly a mile long by one-third of a mile in breadth. When from the south-eastward, if a vessel shoal her water to the depths on this bank, deepen it and shortly shoal again, she will likely be in the proximity of Kennedy bank.

Heart bank with least water $4\frac{1}{4}$ fathoms is a somewhat similar shoal northward of Kennedy bank. At the depth of 10 fathoms it is a little over half a mile in diameter, and the centre of it bears N.N.W. a little more than 3 miles from the shoal part of Kennedy bank. A vessel therefore on a S.S.E. course in thick weather getting a sounding of from $4\frac{1}{4}$ to 7 fathoms, then deepening the water from 12 to 16 fathoms for $1\frac{3}{4}$ miles, and again shoaling to less than 10 will probably be on part of Kennedy bank, and in danger of running on one of the spots of 9 feet.

The western shore of the large group of islands which shelters the inside passage from Point au Baril to Twin island is very ragged and shallow, and no vessel has any business inside the line joining Black Bills and

McCOY ISLANDS.—This name is given to the two north-western wooded islands of the large group extending to the Minks, and called by Bayfield in Chart No. 327 the Indian islands. From the western and smaller McCoy island (which is 16 feet high) dry rocks and bare islets extend between W.S.W. and N.W. a distance of $1\frac{1}{10}$ miles.

South-west island is the name given to an almost bare islet on the first mentioned bearing and distance from the smaller McCoy island. Its flat summit is 14 feet high, and the depth of 10 fathoms approaches within half a mile of its western side.

Colin rock, a wash, lies N.N.W. $\frac{1}{2}$ W. two-thirds of a mile from South-west island, and another rock of similar character called Duncan rock lies N.N.E. nearly 600 yards from Colin rock, both situated a quarter of a mile north-westward of the outer islets.

Kenneth patches with 10 to 15 feet over them extend rather more than a third of a mile south-westward of Colin rock; there being 12 fathoms close to these shoals, the lead in thick weather will give little warning in approaching them.

Point au Baril to Twin island by Shawanaga passage.—The distance from the front range light to Twin island is $9\frac{1}{2}$ miles and 14 feet water may be carried from one to the other.* Speaking generally this passage may be divided into three divisions or reaches, that from Point au Baril to Abbott island taking the name of the former, Abbott island to Turning island may be termed the Middle reach, while the remaining portion is really a part of Shawanaga bay.

* At low stages there may be 2 feet less water.

Beacons.—A series of 14 small red and white beacons have been erected on the turning points of the islands—hereafter alluded to—which border the passage, and by means of these and the directions here given, together with the chart, a vessel drawing 11 feet water should have no difficulty in getting through. In colouring these beacons the channel has been considered as leading to Parry Sound, and these beacons are painted red which a vessel must leave on her starboard hand in proceeding thither from Point au Baril. In strict conformity with the Canadian system of buoyage those beacons on the port hand should have been painted black, but as white is more conspicuous against the dark trees and rocks it has here been adopted. There are no dangers in the Point au Baril reach until in the vicinity of Lauder island.

A rock with 7 feet water on it lies a third of the distance across the channel from Lauder island. To pass north-east of this rock keep nearer the north-east shore and the pair of small white beacons in the bight in line. At 100 yards north-west of Lauder island there is a shallow rock which is connected to the long and shelving point nearly opposite it (marked by a white beacon), by a ridge narrowing the channel and limiting the depth to 14 feet at mean water.

Passage island 10 feet high, small and in two parts lies near the junction of the Point au Baril and Middle reaches above spoken of. Vessels have hitherto passed eastward of this little island, and between it and Sedgewiek point, taking care to pass exactly through the middle of the channel to avoid a shoal rock on either side. The channel is very narrow but has a depth of 17 feet and the sunken rock on either side can be seen from the deck.

A glance at the chart will show that a wider and a deeper channel exists eastward of Abbott island, situated 400 yards further westward, care being taken to avoid the rocky spit extending 100 yards from the south-west point of the island situated between Abbott and Passage islands.

A red beacon stands upon the east point of Abbott Island.

Abbott island to Turning island.—This portion of the the inside channel constitutes Middle reach, and a description of its north side will first be given.

Duke rock, 7 feet high with a boat passage between it and the shore is small and round and is situated a quarter of a mile eastward of Passage island.

Pym rock about 40 feet square, and 3 feet high, lies 200 yards off the north shore and E. by N. $\frac{1}{2}$ N. half a mile from Duke rock; it has fairly good water all round it. A white beacon is erected upon Pym rock.

Pollard island half a mile in length, and situated that distance eastward of Pym rock, has a small wooded islet 10 feet high, and a cluster of dry rocks about it lying close to its south-west extremity, and close to which the water is deep.

Mackey island lies at the junction of the upper portion of Shawanaga bay (or Franklin inlet) with Middle reach. Its southern extremity is just separated from an islet 11 feet high, 50 yards west of which is a shallow sunken rock.

Turning island as its name indicates marks the turning point from Middle reach into the main body of Shawanaga bay. The island is small, has a few bushes on it, and being 17 feet high, presents a good object to steer for. A shallow rock lies 50 yards off its south-west extremity,—marked by a white beacon,—and two dry rocks 3 feet high lie 300 yards north-east of Turning island; also a rock with 9 feet over it lies N.E. $\frac{3}{4}$ N. a third of a mile from the same.

Nadeau island 48 feet high, has lying close to its north-east side a wooded islet and cluster of islets and dry rocks, off which a bank 10 to 15 feet water over it makes out to within 150 yards of Turning island. The channel is between this bank and Turning island with a depth of 4 fathoms.

Returning westward by the south shore of Middle reach the next island worthy of note is High-pine island, situated N. W. by W. $\frac{1}{2}$ W., nearly half a mile from Turning island; two bare islets lie 200 yards south-east of High-pine island.

Stairs island, partially burnt and about 20 feet high, lies nearly one-third of a mile north-westward of High-pine island, and in the bight between the two a vessel will find good anchorage in 6 fathoms over mud.

Rigg rock with 9 feet water over it, lies N.W. $\frac{1}{2}$ W. one-third of a mile from the north-east extremity of Stairs island.

Carey rocks 5 feet high are situated two-thirds of a mile north-westward of Stairs island and 100 yards west of an islet 7 feet high with bushes on it. Shoal water makes off 200 yards north-east and north-west from Carey rocks.

Sultan rock, 2 feet high, is the name given to a small bare rock 270 yards southward of the coast of the north shore near Duke rock.

A rock with 11 feet of water on it lies 100 yards northward of Sultan rock, narrowing the ship channel to 150 yards, in which however there is a depth of 6 fathoms.

Ripple rock, with 6 feet water over it, is situated N. E. $\frac{1}{2}$ E. nearly 300 yards from Sultan rock, and is a very awkward obstruction necessitating keeping close to Duke rock. Sedgewick point, Passage and

Abbott islands in line lead north of it. There is no passage southward of Ripple rock on account of another with 3 feet over it.

Directions Abbott island to Turning island.—After emerging from the beaconed channel between Point au Baril and Abbott island haul gradually to the eastward passing not less than 200 yards from the island between Abbott and Passage islands already alluded to and about 70 yards from Duke rock, and so as to bring the south extremities of Abbott and Passage islands, together with Sedgewick point in line W. $\frac{1}{2}$ S. When abreast of Pym rock, haul to starboard so as to bring the north fall of the bluff at the Indian cove open north of Turning island the breadth of the latter S.E. $\frac{1}{2}$ E. until a quarter of a mile from Turning island, when alter course so as to pass about one hundred yards west of it and proceed as hereafter directed.

Turning island to Twin island.—The principal features and dangers on the eastern side of the passage will first be described.

Mosley island 8 feet high and bare marks the southern point of a deep indention, in the south-east corner of which is a small wharf and store belonging to the Shawanaga Indian Reserve, situated further inland.

O'Connor rocks nearly a mile northward of Mosley island mark the north extremity of this bay. A line drawn from O'Connor rocks to Maekey island marks the northern limit of the survey of Shawanaga bay, although it is reported that vessels can proceed much further north.

Bald rock 13 feet high and indicated by its name, is nearly $1\frac{1}{4}$ miles southward of Mosley island.

Young island 7 feet high is situated N. N. W. four-tenths of a mile from Bald rock; shoal water connects it to the rocks on the east shore but between it and Grave Island the water is good.

Lloyd island, in two parts quite bare and 9 feet high, lies 300 yards north-eastward of Grave island, the ship channel passing between them. A white beacon is placed on the summit of Lloyd island.

Green island is the next conspicuous feature on the east shore, it is partly wooded 16 feet high, and stands prominently out from the southward. It is $2\frac{1}{3}$ miles northward of Twin island, and is separated from Green point by a boat channel.

Green island bank extends in a general N. by W. $\frac{1}{2}$ W. direction one-third of a mile, in which position there is 7 feet. To clear the whole of this bank keep Turning island just its breadth open east of Grave island N. $\frac{3}{4}$ E. The coast between Bald rock and Green island is indented by several sandy coves. The shore from Green point trends in a general south direction in a series of bays to the north entrance to Shebeshekong bay. It is wooded, 30 to 50 feet high, with bare patches near the water.

Jack reef is a dangerous obstruction with 5 feet water over it lying N. E. by E. one-third of a mile from the north extremity of **Twin island**. The west shore of this portion of **Shawanaga bay** will now be described working northward.

Callady rock 2 feet high, is situated N.N.W. nearly two-thirds of a mile from the north extreme of **Twin island**.

Pease rock with 10 feet water on it lies nearly mid distance between **Callady rock** and the north end of **Twin island**.

Anchorage in 4 fathoms mud may be had 300 to 400 yards southward of **Callady rock**, and excepting the little sea from the southward perfect shelter will be had with all winds. This will be found a very useful anchorage when overtaken by darkness in the navigation of these inner waters.

McCormick island 12 feet high, lies quarter of a mile northward of **Callady rock** to which it is connected by shallow water. In leaving the anchorage for the northward this island should receive a berth of 300 yards.

Anchor island about 30 feet high is so named from being situated a quarter of a mile southward of the anchorage in 4 fathoms mud near the eastern mouth of **Frederic inlet**. Being about 30 feet high, bare and level, it is easily recognized. It is a little over $1\frac{1}{4}$ miles from **McCormick island**. A boat and possibly with the assistance of a few bnoys a small tug may pass through **Frederic inlet** to the outside shore.

Josephine rocks are a cluster 5 feet high lying more than half a mile northward of **Anchor island** and south-west from these, rocks with less than 6 feet water over them extend 300 yards, which should be carefully avoided.

Grave island, called by some **Bald island**, is a prominent feature standing as it does near the ship's track and having an elevation of 22 feet. It is connected to the west shore of **Shawanaga bay** by a chain of dry rocks. From the south-east point of the island—marked by a red beacon—a reef extends 50 yards; it is otherwise steep-to.

Jane rock with 4 feet water over it lies with **Turning island** just shut in behind the south-east point of **Grave island** distant from the latter 600 yards. Another spot with 6 feet on it lies 120 yards nearer **Grave island**.

MacGregor rock with 11 feet on it is a small lump lying S. by E. 300 yards from the south-east extremity of **Grave island**. The east extremity of **Maekey island** touching the west side of **Turning island** just leads west of this rock. For vessels drawing over 10 feet there should be a buoy placed on this rock.

Nudean island has been already alluded to in connection with Middle reach, and marks the junction of it with Shawanaga bay. Midway between Nudean and Grave islands is a small partially wooded island about 20 feet high, called Chowne island, off which the water is deep.

Directions, Turning island to Twin island.—Having passed as before recommended about 100 yards west of Turning island, Twin island will be seen between Grave and Lloyd islands. Steer for it so, and with west end of Turning island in line with east end of Mackey island N. $\frac{3}{4}$ E. This range leads 100 yards east of Grave island, and when past MacGregor rock keep Turning island its breadth open east of Grave island N. $\frac{3}{4}$ E.

This mark should be kept on astern, the vessel heading for about the north-west extremity of Twin island. When a quarter of a mile from the latter a vessel will be midway between Jack reef with 5 feet, and Pease rock with 10 feet over it, and North-west Oak island of Shebeshekong bay a little open eastward of Twin island when the course may be altered to pass about 150 yards eastward of Twin island. A red beacon is erected on the south-east extremity of Twin island.

Twin island to Point au Basil.—Pass 150 yards eastward of Twin island beacon and coast along its north-east shore, keeping North-west Oak island in sight until Turning island appears its own breadth eastward of Grave island. Keep the islands in this position bearing N $\frac{3}{4}$ E. with the north-west point of Twin island astern. When nearing MacGregor rock, and not wishing to pass over it, keep the north-east extremity of Mackey island touching the west wide of Turning island until up to the latter.

Pass 100 yards west of it, steering northward until the north fall of the wooded bluff in Indian cove comes northward of Turning island the breadth of the latter. Keep these objects in this position astern, with Pym rock ahead bearing N.W. $\frac{1}{2}$ W. When 200 yards from the latter, the south points of Abbott and Passage islands will be seen in line with Sedgewick point. These should be kept so in order to lead north of Ripple rock. Pass between Abbott island and that next eastward of it, and follow the line of the red and white beacons, taking care to pass eastward of the sunken rock in the bight eastward of Lauder island by keeping the pair of small white beacons in line astern.

When Sidney island is reached, Point au Basil will be seen and may be steered for, passing close to the beacon on the north point of Double island to avoid the rock with 4 feet water over it lying mid-way between Double island and the main shore. Pass close to the front lighthouse and bring the lights in line astern to lead out into the bay.

Anchorage.—Excellent anchorage will be found eastward of Double island, by dropping anchor in 6 fathoms, with the front lighthouse over Double island and rather farther from the last mentioned than from Johnny rock.

CHAPTER VI.

MILDGRAM POINT TO ST. JOSEPH ISLAND (CHART NO. 909.)

VARIATION $2^{\circ} 40'$ W.

Mildram Point, alluded to on page 141 of *The Pilot* in connection with chart No. 908, is backed at a distance of 300 yards by a cliff about 300 feet high, mostly obscured by the trees.

A fringe of shoal water extends from this portion of the shore for a distance of 150 yards; a large draught vessel from lake Huron therefore should not hug the point too closely.

COCKBURN ISLAND.—This island belongs to Canada and is about 8 miles in diameter; it is easily distinguishable by a broad and partly cleared hill $2\frac{1}{2}$ miles back from the village of Tolsmaville, called McQuaig's hill, about 430 feet high. As its north coast only is surveyed the other shores will not be alluded to.

Channel point is the north-east extremity of Cockburn island, and the west entrance point of Missisauga straits from the North Channel. It is gradually rounding, and might be anticipated steep-to. The survey was carried only three-quarters of a mile southward of this point. The wooded land over Channel point is about 100 feet high.

Robinson bay is a broad indentation immediately westward of Channel point, and a vessel running from lake Huron in a south-west gale, will find good anchorage in 4 to 6 fathoms over sand, by not approaching the bottom of the bay nearer than 400 yards.

Tolsmaville is the name given to the village $1\frac{3}{4}$ miles westward from Channel point; it is so called from Mr. Tolsma, who as a Canadian of German origin, formerly carried on an extensive fishing business here.

There are two wharves here, the eastern one being private property, and built by the person just mentioned, while the other belongs to the government. At the latter is a depth of 18 feet, but on account of a shallow bank between the two wharves, the western side of the public wharf is the more preferable one for a vessel to lie at.

At the eastern wharf, the water, excepting near the outer extremity is shallow, but the Owen Sound and Collingwood steamers which call here twice a week, usually stop at this wharf. The public wharf is the better one to lie at for a lengthened period, but in a northerly gale considerable sea heaves in at both. A custom-house officer resides here, and there is a post, but no telegraph office. Vessels running out of lake Huron in heavy weather, will find anchorage in 7 or 8 fathoms, sand and mud in

Tolsma bay a third of a mile westward of the publc wharf, but should not hug Ross point (immediately eastward of the village) too closely, on account of a bank extending 200 yards off the shore. Between Ross point and the wharf is a considerable indentation, with a sandy shore line and bottom, in which the fishing boats are generally moored; it is too shallow and exposed for large draught vessels.

A snug little boat harbour is situated in the north-east corner of this sandy bay, in which the fishing boats take shelter in northerly gales. From the gravelly point sheltering the cove, a shallow rocky bank extends half way to Tolsma's wharf, and in approaching the latter care should be taken to keep northward of it. In proceeding to the west side of the government wharf, keep well out in deep water until the wharf is end-on, and then steer for it and make fast.

THOMPSON POINT is the most northerly projection on Cockburn island, it is low, and wooded, and may be approached to 150 yards. An indentation called by some Burnt harbour is formed under, and eastward of Thompson point, and in the mouth of this cove midway between the point and island 600 yards south eastward of it, a vessel may anchor in 4 fathoms, sandy bottom, with shelter from westerly gales. The island just alluded to on the east side of the bay has shoal water extending 300 yards from its north side.

Foul ground extends eastward from Thompson point, and northerly from Pitman point as the north-west point of Tolsma's bay is called. These rocky patches have not less than $3\frac{1}{2}$ fathoms over them, the outer one being half a mile off shore.

Wiggins bank, with 9 fathoms least water on it, is a raised plateau extending from the north-east side of Cockburn island, the north-east extreme with depth of 20 fathoms being $2\frac{3}{4}$ miles distant from Channel point. The soundings on this bank will be serviceable to a vessel bound from St. Joseph channel to Missisauga straits, if enveloped in the fogs which often roll in through the latter from lake Huron in spring.

Monk point is situated $2\frac{1}{2}$ miles westward of Thompson point, and may be considered the eastern entrance point to False Detour passage from the North Channel; a flat extends 300 yards from the eastern part of the point. Speaking generally, the northern coast of Cockburn island may be considered free from dangers, there being nothing farther off from the shore than a stranger would naturally keep.

DRUMMOND ISLAND is United States territory, but its north and north-east shores were not included in the American survey of their shores of the great lakes. Only the portion of the coast line of Drummond island forming part of the southern shore of the North Channel of lake Huron has been surveyed by the government of Canada, viz.,

Marble head to Chippewa point, consequently only this portion will be treated of in these directions.

Pilot cove, or **harbour** as it is sometimes called, is a snug little indentation on the north-western extremity of the gradually rounding headland about 100 feet high, known as Marble Head, and forming the western entrance point to False Detour passage from the North Channel of lake Huron. It is possible to take a short vessel drawing 9 feet water into Pilot cove, inside which she will be perfectly sheltered from all gales. The narrow channel having a sharp turn in it is difficult of access without the assistance of warps. A vessel, if seeking shelter, from heavy weather will do better by rounding Marble Head and anchoring under the eastern shore about half way through False Detour passage; a vessel will here find a good berth near some pound-net stakes in 4 to 5 fathoms clay bottom.

Glen point is $1\frac{1}{4}$ miles north-west of Pilot cove, the coast between them taking the shape of a bight, named Sitgreaves bay, in which a vessel will find anchorage with suitable winds in 7 to 8 fathoms mud bottom. A shallow gravel spit extends N. W. $\frac{1}{2}$ N. a quarter of a mile from Glen point, and a small vessel will probably be able to ride out a north-east gale in a depth of 12 to 15 feet under this spit, which would prevent any heavy sea from rolling hence. In taking up this berth the west shore of Glen cove should be kept on board to clear the gravel spit above mentioned. There are a few shanties here looking as if it were occasionally a shipping place for ties and telegraph posts.

Shoal point.—From Glen cove just mentioned, the north-east wooded shore of Drummond island runs fairly straight 3 miles to Shoal point.

Lindsay bank with 13 feet least water over it is situated with its eastern extremity bearing S. E. by E. $1\frac{1}{2}$ miles from Shoal point; vessels of large draught should not pass over this bank.

Humphrey rock with 11 feet least water on it is an extensive patch bearing E. by N. $\frac{1}{4}$ N. three-quarters of a mile from Shoal point. Other patches having $3\frac{1}{2}$ to $4\frac{1}{2}$ fathoms over them lie southward and north-westward from Humphrey rock.

Poe point kept open of Birch point W. N. W. leads well north of all this ground. Northward from Shoal point itself, not more than 9 feet will be found at the distance of a quarter of a mile.

Colton bay, the mouth of which is blocked with stones is situated two-thirds of a mile northwestward from Shoal point, and off this bight a shallow rocky flat makes out nearly a quarter of a mile.

Raynolds point is rather nearer Chippewa point than Marble head, and its timber gives it the apparent height of 100 feet, its limestone shore

is quite steep to. On the west side of the point, Reynolds bay stony and shallow runs in half a mile.

Poe point, 2 miles westward of Birch point, marks a slight change in direction of the north shore of Drummond island, and the coast between it and Reynolds bay may be approached to 150 yards. For one mile westward of Poe point the shore should receive a berth of 200 yards.

Chippewa point is the name given to the north-west extremity of Drummond island, and marks the limit of the survey in this direction. Shoal water extends 400 yards northward from Chippewa point, and the shore is foul as far as the point one mile eastward of it, when the deep-water again comes close in.

Chippewa bank with $3\frac{1}{2}$ fathoms least water on it, lies N. W. by N. nearly three-quarters of a mile from Chippewa point.

Ontario bank is an extensive elevation of the bottom somewhat similar to Wiggins bank of Cockburn island, and occupying the same relative position to Drummond island. The least water on Ontario bank is 7 fathoms rocky bottom, and the remarks about the soundings on Wiggins bank, are equally applicable to this bank for a vessel proceeding into lake Huron by False Detour passage from St. Joseph channel.

The southern boundary of this portion of the North channel having been described, the coast of Algoma on the northern side will now be taken up from Supply point alluded to on page 129 of the Pilot.

Siccorde point is the name applied to the most outstanding island $1\frac{1}{4}$ miles westward of Supply point, and being almost joined to others, gives this portion of the broken up coast the appearance of a point.

The bight between Siccorde point and Joliette islands is foul, and a vessel should not stand into a less depth than $4\frac{1}{2}$ fathoms.

Flat Point or Grande Batture as some of the French half breeds on this shore call it, is $3\frac{3}{4}$ miles westward of Siccorde point, the coast line between them being indented by numerous little bays, and fronted by small islands and rocks. Siccorde point itself may be approached to 400 yards but the bank extending from the shore between it and Flat point gradually widens until abreast of the latter, when only 18 feet will be found two-thirds of a mile from the shore. A reef of day stones makes out from the islet at Flat point 300 yards.

A reef with 2 feet water on it lies S. W. nearly a third of a mile from the outer end of the boulders just alluded to; on the north-west side of Flat point is a broad cove open to the westward, but in which a boat will find shelter in easterly gales.

Dobie point is a slight projection one mile westward of Flat point, and 200 yards south-east of the point is a cluster of dry stones.

Le Sable so called from its sandy beaches, is the name given to the Indian Reserve situated midway between Flat point and Thessalon village. There is about $1\frac{1}{2}$ miles of this beach, the centre of which is due South of Hagan's hill. The coast between Dobie point and Le Sable point is strewn with dry stones and sunken rock, the edge of the three fathom bank extending from it an average distance of half a mile.

Butcher-boy bank with 10 feet water over it, lies rather over three-quarters of a mile from the shore $1\frac{1}{2}$ miles eastward of Le Sable. This danger is also $3\frac{3}{4}$ miles westward of Flat point.

Hagans hill before mentioned is the name given to the partially cleared and conspicuous rise 284 feet high situated $1\frac{3}{4}$ miles in from Le Sable.

Livingstone creek is 2 miles westward from Le Sable and 3 miles eastward of the village of Thessalon. It is not discernible from the vessel's track as it breaks through the shore line at an acute angle. It is too narrow and shallow to be of much commercial value, though logs are occasionally brought down. A small tug can carry 6 feet to the cottage situated 200 yards from the mouth. The shore between Le Sable and Livingstone creek is very foul and not more than 3 fathoms will be found at a third of a mile from the shore.

THESSALON.—This little village with a population of 1160, is situated on the east side of the point whence it derives its name, and is about 10 nautical miles from Bruce Mines, as the crow flies. There is a short wharf on either side of which the local steamers that almost daily call here find sufficient water.

The white spire of the Scotch church is a conspicuous feature, and with the mill stacks and houses render the village easily discernible from the offing. The river of the same name empties itself close westward of the village, and by it a considerable quantity of logs is brought down to the mill. A sand bar prevents anything drawing more than 3 feet of water from entering the river.

The coast between Livingstone creek and the village of Thessalon is very much indented, and fronted by rocks and islets, close to which, however, the water is good.

Thessalon point is a remarkable peninsula sheltering the village from the westward. At three-quarters of a mile in from the extremity of the point, and a quarter of a mile from the mouth of the river, the neck is only 33 yards wide. The extremity of the point may be approached to 200 yards.

Anchorage.—There is good holding ground and shelter from westerly gales on the east side of Thessalon point in 5 to 6 fathoms about half way between the point and village, but with easterly gales considerable sea

rolls in both at the anchorage and at the docks. In making Thessalon in thick weather it should be remembered that the 10 fathom line approaches the extremity of the point to a quarter of a mile, and the water should not be shoaled to less than this depth until the land is recognised or the mill whistle heard.

Directions for Thessalon.—If from the eastward pass a mile southward of Talon rock and head up W. by N. $\frac{3}{4}$ N., which course, if continued, for $17\frac{1}{2}$ miles will bring a vessel to Thessalon point. If wishing to make fast to the wharf, as soon as Robert's hill (at back of Macbeth bay) is over the end of the wharf bearing N. W. $\frac{3}{4}$ N., the latter may be steered for.

If, from the westward, Thessalon point may be rounded at 200 yards and the wharf steered for.

Macbeth bay is the name given to an excellent harbour 3 miles north-westward from Thessalon point. It is the first land-locked harbour on the north shore westward of Serpent harbour, distant nearly 40 miles, and may come into importance at some future date as a tributary port for the Saulte branch of the Canadian Pacific Railway which passes over the creek at 300 yards from the bottom of the harbour. As a shipping port for ore or lumber it would offer every facility. It is sheltered from the more open water of the North Channel by islands which will now be described commencing on the east.

Gooseberry island, 10 feet high and almost divided in the centre, is situated nearly 2 miles north-westward of Thessalon point. It is separated from Chevalier islands by a channel nearly two-thirds of a mile wide, which although used by the *Bayfield* in the course of the survey, is not to be recommended to a stranger on account of the rocks lying westward of Gooseberry island. A dry shore lies 300 yards westward of the south point of Gooseberry island, and two rocks 7 feet high are situated about the same distance eastward of that point.

Gereaux rock, with 9 feet on it, lies nearly midway between these two dry rocks and the main shore.

A small sparsely wooded island, 7 feet high, lies 400 yards eastward of the north point of Gooseberry island, and between them is a depth of 11 feet. The east and north sides of this little island are steep-to.

A narrow gravel spit makes out in a north-easterly direction 100 yards from the north point of Gooseberry island.

Kalulah rock, 9 feet high, lies West nearly three-quarters of a mile from the south point of Gooseberry island, and on this line and nearly mid-distance is a rock with 7 feet water over it. This spot, together with two other patches with 11 and 15 feet over them nearer Gooseberry island, renders this passage difficult to navigate without the aid of buoys.

A small rock with 6 feet water over it lies W. by N. $\frac{3}{4}$ N. nearly a quarter of a mile from Kululah rock.

Chevalier islands take their name from a French half-breed, who at one time resided on the western and larger of the two islands, which shelter the harbour; the larger island is 28 feet high.

A rock with 10 feet over it lies 300 yards eastward of the eastern Chevalier island, leaving a depth of 3 fathoms between it and the island.

A flat extends 150 yards northward from the west extremity of the big Chevalier island.

St. Ange island, 10 feet high, is the little wooded one on the east side of Macbeth bay, and a little more than a third of a mile from the mouth of the stream. The depth of 3 fathoms approaches to 200 yards of St. Ange island.

Frechette island, 17 feet high, is a round smooth islet a quarter of a mile westward of the big Chevalier island, being joined thereto by rocks dry and sunken.

The best passage into Macbeth bay will be found westward of Frechette island, between it and the little group, 12 feet high, lying close to the west shore. A depth of 13 feet may be carried between this little group and the shore, but as the gauntlet would have to be run between numerous shoals lying between the passage and the south end of Birch island, it is not recommended.

Roberts hill is a sparsely wooded conspicuous eminence 400 feet high, situated $1\frac{1}{3}$ miles from Macbeth bay.

Africa rock 7 feet high consisting of a flat rock with a few blocks of stone scattered about it, is situated E. by N. $\frac{3}{4}$ N. $1\frac{8}{10}$ miles from the south point of Birch island.

A rock awash lies E. by N. nearly 600 yards from the south point of Africa rock, and a patch with 15 feet on it is situated N. E. $\frac{1}{2}$ E. little more than half a mile from the same. Shoal water encircles Africa rock for a distance of 200 yards.

Maggie rock with 13 feet over it, is an outlying patch bearing S. E. $\frac{3}{4}$ E. distant $1\frac{1}{10}$ miles from Africa rock.

Asia rocks 4 feet high close together and dark colored, lie N. E. by E. $\frac{1}{2}$ E. one mile from the south point of Birch island, and a patch with 11 feet water on it is situated nearly 400 yards southward of these rocks. Several shoals lie between them and the main shore, but will not be particularized as the passage northward of Asia rocks is not recommended.

Birch island about 20 feet high is two-thirds of a mile long north and south and half that distance in maximum breadth. Its south point bears

W. $\frac{3}{4}$ N. and is distant $4\frac{2}{3}$ miles from Thessalon point. It is connected to the main shore by a bank on which there is only sufficient water for large boats or small tugs. The south point as well as the islet 4 feet high lying 150 yards eastward of it, are steep-to, and vessels proceeding to Bruce Mines or St. Joseph channel may approach it to 100 yards.

DIRECTIONS—to Macbeth bay from the eastward.—

When a third of a mile westward of Thessalon point steer for Bald roek bearing N. $\frac{1}{4}$ E. Pass 100 yards west of it and 200 yards from the mouth of the first bay north of it, using the lead. When Kalulah rock is shut in with the south point of Gooseberry island a vessel will be passing Gereaux rock (which should be buoyed) about 150 yards westward of her. When across the narrow ridge with 16 feet water, it will deepen to 4 fathoms and a vessel should haul to the northwestward to pass 50 to 100 yards northeastward of the little round wooded island, and thence to the anchorage under Chevalier islands in $3\frac{1}{2}$ to 4 fathoms mud bottom

From the westward.—When past the islet at the south point of Birch island keep it in line with the south point of Cedar island W. $\frac{1}{2}$ S. until the summit of Roberts hill comes over the west end of Frechette island (the beacon if still standing) and steer for this range N. $\frac{3}{4}$ E. until 300 yards from Frechette island. Pass 50 yards westward of the latter; (this side is steep to) haul to the eastward in mid channel and anchor under the two Chevalier islands as convenient. This is the best passage in, and if the range is rigidly adhered to, not less than 5 fathoms will be had until inside Frechette island. In thick weather a vessel should not shoal to less than 10 fathoms between Birch island and Thessalon point.

Cedar island is situated $1\frac{1}{4}$ miles westward of Birch island. It is somewhat larger than the latter, but being flat and wooded presents a similar appearance. It is $2\frac{1}{4}$ miles from Big point of St. Joseph island, and nearly 4 miles from the Mining Company's wharf at Bruce Mines. Its western shore may be approached to 200 yards, but its south point should receive a berth of a quarter of a mile.

Calf island, small, low, and wooded, lies nearly a third of a mile eastward of Cedar island, being joined thereto by a gravel bank on which there is less than 6 feet water. The east side of Calf island may be approached to 200 yards, but its north point should receive a berth of double that distance.

The coast between Birch island and Bruce Mines is indented by several bays, the eastern half being almost hidden by several large islands which afford a smooth channel for boats in rough weather.

Palliceau island is the largest and north-westernmost of the string: unlike the neighbouring islands it is high, the summit attaining an elevation of about 80 feet.

Long island, characterized by its name, is situated a quarter of a mile southward of the last mentioned.

Alicia rock, with 4 feet on it, lies S. E. $\frac{3}{4}$ E. a little more than half a mile from the west point of Long island.

Long bank.—At a distance of 600 yards westward of Long island will be noticed a small rock 3 feet high, and from this little rock a cluster of sunken rocks with less than 6 feet water on some of them, extends under the name of Long bank for a distance of rather more than three-quarters of a mile, the western end bearing S. by E. $\frac{3}{4}$ E. distant half a mile from the small, but conspicuous islet with tall pines on it called Little island.

Patches with 12 to 15 feet water over them lie southward of the main bank, but the whole may be passed southward of, by keeping the south end of Calf island touching the north point of Cedar island bearing S. E. by E.

Joe Dollars bay is the name given to the large indentation northward of Pallideau island.

Eagle point applies to the promontory dividing the last mentioned bay from a broad indentation, the northern shore of which takes the form of two shallow coves, that nearer Eagle point being called Hay bay and the north-western arm

Garden bay.—Between the latter and Jaeks island will be noticed the buildings of the old Bruce mine. In the bay north-westward of Eagle point will be found good anchorage in 3 fathoms over mud with shelter from easterly gales.

Little island already alluded to lies a little less than a quarter of a mile southward from Eagle point, and is a conspicuous feature in approaching the harbour of Bruce Mines from the south-eastward. With the exception of a narrow spit extending 100 yards from the western end the island has good water about it. The track to Bruce Mines passes about a third of a mile south-westward of Little island.

Jacks island, 39 feet high at its southern end, lies between the Wellington and Bruce mining establishments (now closed down), and is connected to the shore by a spit with a few inches of water over it; a depth of 3 fathoms will be found 300 yards south of Jacks island.

A description of Bruce Mines village and harbour will be found in the Directions written in connection with the chart of St. Joseph channel (No. 1507).

Prout rock, also alluded to in connection therewith, bears S. W. by W. $\frac{1}{4}$ W., and is distant two-thirds of a mile from Little island; it is connected to Long bank by a rocky ridge with least depth of $3\frac{1}{4}$ fathoms on it. The channel to Bruce Mines from the eastward passes over this ridge.

DIRECTIONS, Birch island to Bruce Mines.—Pass 200 yards south of Birch island, and steer for Little island, passing a quarter of a mile north-eastward of Calf island; when clear of the spit off the latter, keep a more westerly course so as to gradually bring the south point of Calf island, touching the north end of Cedar island S. E. by E. This range astern will lead between Long bank and Prout rock. When the freight shed on Marks' wharf appears in line with that on the Mining Company's wharf keep them in line N. N. W. $\frac{3}{4}$ W. till the latter is reached.

A vessel may turn off the Calf island range when the tall stack is in line with the south-west side of Jacks island, which mark also leads west of Long bank, and the isolated patches southward of it. Not less than $3\frac{1}{2}$ fathoms will be found on the track until inside the harbour.

If passing southward of Cedar island give its southern side a berth of half a mile, and when approaching Point rock, if the buoy is not on it, bring the freight sheds in line as before mentioned to pass north-eastward of it.

If from the passage between St. Joseph and Drummond islands, a vessel will pass a quarter of a mile west of Prout rock by keeping the gable of George Marks' house in line with the west side of Jacks island bearing N. $\frac{1}{4}$ W.

Both shores of this portion of the North Channel of lake Huron having been described, the outlying islands and shoals will now be located commencing from the east.

Cumberland rock, 3 feet high, occupies a solitary position S. W. by W. $\frac{7}{8}$ W., $2\frac{3}{4}$ miles from Talon rock (near La Salle island). It bears also E. $\frac{2}{3}$ S., nearly $2\frac{1}{2}$ miles from the north extremity of East Grant island. A spur makes out 50 yards in a north-east and 160 yards in a south-east direction.

A rock with 15 feet on it lies W. by S. $\frac{1}{4}$ S., nearly a quarter of a mile from Cumberland rock; with these exceptions the water is deep about it.

GRANT ISLANDS.—This name applies to a group occupying a space of $3\frac{1}{2}$ miles east and west. They are called East, Middle, and West Grant islands, the first mentioned being the largest and highest, besides containing the fishing establishment owned by a Canadian named Gauthier. The Middle island is small and separated from the last mentioned by a deep water ship channel. A passage not so deep or broad isolates it from the Western Grant and Birch island northward of it.

East Grant island.—This island has an extreme length of over three-quarters of a mile and attains an elevation of 65 feet. Its north-west side is indented by a broad open bay on the northern part of which is situated an oval shaped island 26 feet high, named Fishery island, con-

taining the fishing establishment and wharf at which there is a depth of 10 feet. A vessel tying up to this wharf will have shelter from all winds, but in a heavy north-west gale there is considerable under tow requiring better fastenings than exist at present. This little island is separated from the main island by a channel 150 yards broad through which 16 feet *may* be carried, but on account of its sharp turn, is not recommended.

A vessel with a steam windlass seeking shelter in an easterly gale, and finding the dock occupied will find anchorage in the bay in 13 fathoms over mud.

In heavy westerly weather a vessel will find good anchorage under West Grant island to be alluded to further on.

A rock awash lies 250 yards north-westward of Fishery island, and generally shows itself by breaking. A shallow spur extends 100 yards further westward. A passage for a light draught vessel exists between the rock awash and the island.

The north side of East Grant island may be approached to 200 yards there being 12 fathoms at this distance. From the north-eastern point a reef extends in an easterly direction 400 yards.

Herbert island, about 8 feet high, is situated half a mile eastward of the southern extremity of East Grant island. On the south side the water is good, but on the east and north-west sides shoal spits make out 200 yards.

A cluster of dry stones lies a quarter of a mile northward of Herbert island and the same distance from the east side of the main island. Shallow spits extend 200 yards in a north-westerly and opposite direction from this cluster. The east side of the main island should not be approached nearer than two-thirds of a mile, at which distance there is 12 fathoms.

An **isolated lump**, with not less than 15 feet on it, lies 200 yards off South point of East Grant island.

Ivor rocks, the highest of which is 7 feet high, lie close to the extremity of the long point forming the south side of the bay already mentioned, leaving a narrow passage for a small tug between them and the point of the main island.

The depth of 12 fathoms will be found 100 yards westward of the largest Ivor rock, but in proceeding to the wharf the northern small rock of this group should not be approached nearer than 300 yards.

Middle Grant island.—This island about 30 feet high is triangle-shaped, the sides being about 300 yards long, and deep water approaches close to its north-west side. Shoal water makes out from its south-west

side 200 yards, while eastward and northward from it are the following isolated rocks:—

Leo rock, with 6 feet water on it, lies N. by E. $\frac{1}{2}$ E. nearly a quarter of a mile from the north gravelly point of Middle Grant island. To pass northward of this rock keep the north-west point of West Grant island in sight northward of Anchor island W. by S. $\frac{1}{2}$ S.; there is a depth of 7 fathoms between Leo rock and Middle Grant island.

A rock with 11 feet on it lies E. by S. $\frac{1}{4}$ S. 300 yards from the same extremity of Middle Grant island.

Two rocks with 10 feet and 5 feet over them lie S.E. $\frac{3}{4}$ E. two-thirds and one-third of mile respectively from the same point of Middle Grant island.

Fishery island of East Grant shut in with the point east of Ivor rocks N.E. leads south-east of both these patches.

West Grant island.—This island is beset by shoal water and very much indented, the shallow bay on the south side of it (containing the remains of a small fishing establishment) almost dividing it.

Bird island 12 feet high, and in two parts, is situated 600 yards northward of the main island, and helps to shelter the anchorage hereafter mentioned. With the exception of a spur making out 50 yards from its eastern extremity both it and the little dry rock north of it are steep-to.

Anchor island 6 feet high lies on the north side of the main island and rather nearer to it than Bird island, from which it is separated by a passage 270 yards broad with a depth on it of 5 fathoms. Anchor island is joined to the north-west point of the main island by a chain of shallow sunken rocks, affording no passage for anything but boats. A narrow gravel spit extends 100 yards from its southern extreme towards the main island.

A rock with 13 feet water on it lies in a line joining the eastern part West Grant to Middle Grant, and is rather nearer the former. A shallow flat makes out a quarter of a mile in a south-easterly direction from the same extremity of the West Grant island.

A reef with 5 feet water over it lies a quarter of a mile off the old fishing cove on the south side of the island and almost joining the shore.

Horne rock awash and generally breaking is situated one-third of a mile south-westward of the western end of West Grant island. Shoal water runs from the rock half way to the west extremity of West Grant island leaving a passage 150 yards wide through which 4 fathoms *may* be carried in an emergency.

Rocks with less than 6 feet water on them extend 350 yards northward from the western extremity of West Grant island and serve to break

the sea, and so smooth the water at the anchorage. In passing between Bird and Anchor islands the master of a vessel must be careful to keep northward of this shallow ground.

Barrett bank with 10 feet water on it lies with its south end bearing W. by S. $1\frac{1}{10}$ miles from the west extremity of West Grant Island. To pass westward of this bank keep East hill at back of Thessalon in line with the north-east extremity of Bigsby island N.N.W. $\frac{3}{4}$ W.

To pass between Barrett bank and Horne rock keep Roberts hill a little inside the same extremity of Bigsby island N.W. $\frac{1}{4}$ N. The north end of East Grant island in line with the north side of Bird island E. $\frac{3}{4}$ N. leads northward of Barrett bank, and a vessel may approach the south side of the bank until the south points of East and West Grant islands are in line E. $\frac{3}{8}$ N.

Fisk reef with 2 feet water on it is a dangerous obstruction of solid rock and stones, 400 yards long south-west and north-east, situated with the first mentioned extremity bearing S. by E. $\frac{3}{4}$ E. $2\frac{1}{4}$ miles from the west point of Bigsby island. This shallow patch stands near the south end of a bank, which under 10 fathoms is $1\frac{1}{2}$ miles in extent. On this same bank there are two patches with not less than $3\frac{1}{4}$ fathoms on them.

A deep channel nearly 2 miles broad exists between Fisk reef and Bigsby island, and another $1\frac{1}{2}$ miles broad, to the eastward of it.

Care must be taken at night or in thick weather when passing the rock as 10 fathoms will be found only 200 yards off the south-west side. To pass southward of the shoal and northward of Barrett bank keep the north extremities of East Grant and Bird islands in line E. $\frac{3}{4}$ N. The south extremities of East and West Grants in line E. $\frac{3}{8}$ N. will lead over half a mile south of Fisk reef. The south ends of East Grant and Anchor islands in line with the north point of West Grant E. $\frac{1}{2}$ S. leads close northward of this reef. The East hill mark for leading west of Barrett bank also leads two-thirds of a mile eastward of Fisk reef, but over one of the $3\frac{1}{4}$ fathom patches about which however there need be no anxiety as it has been well examined.

The west fall of Hagan's hill in line with the east extremity of Bigsby island bearing N. $\frac{1}{8}$ E. leads west, and the opposite end of Bigsby island under East hill N.N. W. $\frac{1}{2}$ W., leads very close east of Fisk reef.

Anchorage under West Grant island.—Good shelter in westerly gales may be had north of the eastern part of West Grant, sheltered from the northward by Bird island from the westward by Anchor island and the spit from its south end, and by the shoals which break the sea between Anchor island and the west point of West Grant island. A vessel should anchor in 4 to $4\frac{1}{2}$ fathoms clay bottom, just sufficiently far off shore to swing clear of Anchor island spit (which is steep-to) and the shore of the main island. The steamer *Bayfield* in the prosecution of the survey

found the anchorage very useful and safe in westerly gales. In easterly weather a vessel will be more comfortable at the East Grant.

Directions for passing between the Grant islands.—If from the eastward pass a quarter of a mile or less southward of East Grant island, and steer to pass about that distance off Ivor rocks to make sure of being eastward of Middle Grant shoals. When the west extremity of West Grant opens northward of Anchor island, Leo rock will be passed and a vessel may steer for Bigsby island.

A vessel may pass through between Middle and West Grant islands by keeping the gap in the two parts of Bird island in line with the north-east extremity of Bigsby island N. W. by W. $\frac{1}{2}$ W. She may pass on either side of Bird island and steer thence for Bigsby island.

To pass between the Grants and Bigsby, see the various leading marks for clearing Fisk reef and Barrett bank previously alluded to.

At night or in thick weather do not shoal to less than 10 fathoms on the south side of the Grants and Fisk reef.

BIGSBY ISLAND is low, wooded, and almost divided into three distinct islands by shallow bays. Considering its ragged shape the water is deeper about it than would be expected. The west side is the foulest there being only 7 feet, nearly a third of a mile from the sharp stony north-west point. Shoal water makes out nearly 400 yards from the south and south-east sides. The otherwise boldness of the north-east gravelly extremity is spoilt by a narrow shallow gravel spit extending nearly 100 yards from shore. A stranger would scarcely think of rounding the island at this short distance.

A flat makes out south-westward from Bigsby island but not less than $3\frac{1}{2}$ fathoms was found. This patch lies three-quarters of a mile westward from the west point of the island. In passing southward of Bigsby island it should receive a berth of one-third of a mile.

Sulphur island is 800 yards long north and south, and including the small islet called Maggs island on the west side, is about the same breadth. It is distant from Drummond island a little over $2\frac{1}{2}$ miles, the boundary between Canada and the United States passing between them.

Light house.—At about 120 yards inside the southern extremity of Sulphur island is erected a white square wooden tower, exhibiting at a height of 45 feet a *fixed white* light visible 12 miles.

The light-house point may be approached to 150 yards, and the east side of the island is quite steep-to, but from the north and north-east sides a shallow ledge makes off 300 yards.

Shallow water extends the same distance from the south-west shore of this island, and 400 yards north-westerly from Maggs island.

Shepherd reef with only 5 feet water over it is a dangerous obstruction lying N.E. $\frac{1}{4}$ E. distant $1\frac{1}{2}$ miles from the north point of Sulphur island; within the depth of 3 fathoms the shoal is 400 yards in diameter, the whole of which may be cleared by attention to the following ranges:—

To pass southward of Shepherd reef keep Chippewa point of Drummond island in line or closed with the north-west point of Sulphur island bearing S.W. by W. $\frac{1}{2}$ W. The whole of Maggs island open north-west of Sulphur island S.W. $\frac{1}{2}$ S. leads north-west. The south point of Cedar island in line with the south-west extreme of Thessalon island N.W. $\frac{3}{4}$ W. leads 300 yards north east, and the same part of Thessalon island touching the north point of Cedar island N.W. $\frac{1}{4}$ N. leads the same distance south-west of the shoal.

In thick weather when in the vicinity of the reef, a vessel will be clear of it on the east and south sides by not shoaling to less than 12 fathoms. If approaching the reef from the westward a ship will be in close proximity to it with a less depth than 9 fathoms.

Gull island, small, round, partially wooded and 23 feet high, lies over three-quarters of a mile N.N.W. $\frac{1}{2}$ W. from the north point of Sulphur island and its eastern side is steep-to.

Sam Smith rock with 11 feet over it lies West rather more than half a mile from Gull island.

A rock with 12 feet over it lies S.W. by S. nearly a quarter of a mile from the west side of the same, and to pass south-west of both these shoals keep the light-house point of Sulphur island open south of Maggs island S.E. $\frac{1}{4}$ S. The north side of Gull island may be approached to 200 yards. By keeping mid-distance between Sulphur and Gull islands a vessel will find a depth of 8 fathoms.

In thick weather a vessel will keep southward of Sulphur and Gull island shoals by not standing into less than 10 fathoms.

Thessalon island is situated 3 miles south-westward of the mainland point of that name already described. It is thickly wooded, over a mile in maximum length and is fringed by shoal water on all sides. On its north-east side isolated rocks with a depth of 12 to 13 feet over them prevent a nearer approach than a third of a mile, while from its northern coast shallow water extends 300 yards. Its western shore including the detached island may be approached to 200 yards.

Kangaroo rock consisting of a few blocks of stone, 7 feet high, lies a third of a mile southward from the south-west point of Thessalon island. Its west and south sides are fairly steep-to being approachable to 200 yards. A reef extends 300 yards from its eastern side and a detached rock with 4 feet over it lies 200 yards north-eastward from it, while from this detached rock a bank with 12 feet on it runs to the south-west point

of the island. Between the spit extending 200 yards from the latter, and the 4 feet rock there is a passage for a light draught vessel. Eastward of Kangaroo rock the shore of Thessalon island should not be approached nearer than a quarter of a mile.

Serpent island as a glance at the chart will show is situated $2\frac{1}{4}$ miles south-westward from Thessalon island. The ground of the island is low, but the timber gives it the appearance of a compact little island a quarter of a mile long, north and south. The north point is clean, but shallow water extends 250 yards eastward of the island, and a bank with 13 feet over it makes out a third of a mile from the south-west shore of the island.

East coast of St. Joseph island, Big point to Koshkawong or Milford Haven.—The latter is the name given to a well sheltered harbour on the eastern side of St. Joseph island, and its north point marks the southern limit of the Canadian survey of this shore, as does a line drawn from Beef island to Chippewa point.

Big point.—The northern shore of this point has been described in the Directions for St. Joseph channel and the eastern part of the point can be approached to 200 yards.

Mosquito bay is the name of a shallow boat-harbour situated $1\frac{1}{2}$ miles south westward of the southern part of Big point, the shore between them having shallow rocks lying off a quarter of a mile.

Caradoc point is the next projection southward of Big point, and from it to within a quarter of a mile from Mosquito bay the shore is bold. Detached stones lie 50 to 70 yards off the east shore of Caradoc point, but the deep water comes sufficiently near to allow the point to be approached to 150 yards.

Fox island, about 10 feet high and wooded, is a quarter of a mile long north and south, and 200 yards broad. Its east side may be approached to 200 yards, but from its other sides shoal water extends a greater distance.

Ironsides reef extends over half a mile northward from the north point of Fox island. It has an average breadth of 300 yards and is composed of a few large boulders one to two feet above, and several sunken rocks with very little water over them. The north end of this reef may be avoided by keeping the north points of Gull and Serpent islands in line E. by S. $\frac{3}{4}$ S. The ice-house at Kosh-ka-wong point closed with Pecks point S.S.W. $\frac{3}{4}$ W. leads west of this reef.

West rock, with 7 feet water over it, lies N.W. by W. $\frac{1}{2}$ W., 350 yards from the inside Sandy point of Fox island, the ice-house range before mentioned leads 200 yards west of it.

South bank extends a little more than a quarter of a mile southward from the south point of Fox island, the outer part having only 2 feet water over it. Between West rock and South bank, shoal water extends from the island 300 yards. The south shore of Mosquito bay in line with Caradoc point N.N.W. $\frac{5}{8}$ W., leads clear of South bank.

From Caradoc point the east shore of St. Joseph island trends south-westward one mile to Richmond point, the middle portion being indented by a narrow shallow cove running in a third of a mile. This part of the shore may be approached to 200 yards.

Emily island is the smallest of those which front Richmond bay and the shore between it and Kosh-ka-wong harbour. Its east shore may be approached to 300 yards, but is almost joined to Richmond point by a reef of dry stones.

Wallace island is the middle and largest of the three, being separated from Emily island by a narrow channel through which 3 fathoms can be covered by keeping the ice-house on Kosh-ka-wong point touching Peeks point, bearing S.S.W. $\frac{7}{8}$ W. A flat marks off the north point of Wallace island 400 yards, but its eastern side may be approached to half that distance.

Beef island is joined to the last mentioned by a shallow sand bar with about one foot water over it. A shoal spit makes off from its north point 200 yards, and a reef with 3 feet water on it lies N.N.W. $\frac{1}{4}$ W., a quarter of a mile from the same extremity, leaving a narrow passage between it and the island, through which 14 feet may be carried by keeping on the ice-house range above mentioned. The west and south-east sides of Beef island may be approached to 150 yards.

Richmond bay is the name given to the broad but shallow indentation westward of the point of that name.

Lyon cove is the next small bay south of Richmond bay, and between Lyon cove and Beef island good anchorage may be had in 3 fathoms mud bottom. Anchorage may also be had under the west side of Wallace island, in the same depth and bottom, by entering between Emily and Wallace islands.

O'Donnell island is the southern and larger of the two which lie eastward of Beef island; it is the highest island in this vicinity, is partly cleared, and its south and west sides may be approached to 200 yards.

A rock, with 15 feet water on it lies N.W. $\frac{3}{4}$ N., one-third of a mile from the north point of Colville island and nearly in the middle of the ships passage, but the depth on the rock is not likely to effect the few vessels using this passage at the present time.

Colville bank is an extensive patch with less than 6 feet on it in places, commencing on the east side of Colville island, and gradually

curving to the southward, leaving, however, a passage 250 yards broad, with a depth of 4 fathoms between it and the island next described. The total length of this bank is over three-quarters of a mile, and its south end may be cleared by keeping the south points of Beef and O'Donnell islands in line bearing W.N.W.

Perrique island is a narrow collection of stones and gravel with a few trees on it, 250 yards long north and south, situated three-quarters of a mile eastward of the two islands last described. A spit with 9 feet on it makes off from the north point 250 yards, and a reef with less than 6 feet on it extends 450 yards from its south point; the eastern sides of Perrique island and the south reef are steep-to. The mark for clearing the south end of Colville bank leads also south of the shoal water from Perrique island.

There being no recent survey of the northern part of the passage between St. Joseph and Drummond islands, the following directions from the North Channel are given only as far as O'Donnell island, Koshkawong harbour.

St. Joseph channel to Kosh-ka-wong harbour.—Give the east side of Big point a berth of 200 yards and head for Caradoc point, in order before reaching Ironsides reef to close the ice-house at Kosh-ka-wong with Peeks point. When past West rock of Fox island, the master of a vessel acquainted with the shore may keep the ice-house just in sight until he arrives between Beef island and the main shore. Then by keeping 200 yards off Peeks point the harbour may be entered and the anchor let go in 3 fathoms off the sandy point containing the graves of former residents on the south side of the harbour.

A stranger when past West rock of Fox island should steer for the ship channel between Wallace and Beef islands on the west, and O'Donnell and Colville islands on the east side. After arriving at the south end of Beef island a vessel may haul to the westward for Kosh-ka-wong harbour, or with local knowledge proceed on to St. Mary river.

From the eastward, a vessel should steer to pass half a mile southward of Perrique island, approaching which, the south end of Beef island should be kept open of the corresponding point of O'Donnell island. The latter should not be approached nearer than 200 yards and the entrance to the harbour may be steered for.

CHAPTER VII.

ST. JOSEPH CHANNEL (CHART 1507).

VARIATION $2^{\circ} 10' W.$

ST. JOSEPH CHANNEL* is the name given to the water separating St. Joseph island from the mainland of the district of Algoma, and from Bruce Mines on the east to Sugar island of the United States on the west, is $15\frac{1}{2}$ nautical miles in length. The eastern entrance between Bruce Mines and Big point is broad and the channel keeps wide for 6 miles to the Sister rocks. Hence to Bamford island light-house—4 miles further—the channel is narrowed by islands, being only 100 yards wide at Wilson channel, the name given to the passage half a mile north-eastward of Bamford island light-house.

From this light-house to that on Shoal island, a distance of 4 miles, the channel from shore to shore (called by some, Bear lake) is broader, but the shoals from the north shore limit the width of the navigable passage considerably. After passing the narrows at Shoal island light-house, the channel again widens for $1\frac{3}{4}$ miles to the buoyed channel of St. Mary river.

The two places requiring the greatest care in navigating St. Joseph channel, are the vicinities of Shoal and Bamford islands, on account of the sunken rocks—usually buoyed—and strong current.

A stranger should not attempt St. Joseph channel at night, but will have no difficulty—when the buoys are in position—in navigating in day light, by following the directions herein given, which will lead him over not less than 18 feet water, and no doubt, if sufficient buoys were placed, as much as 24 feet *could* be had in the shallowest place.

A vessel from lake Superior bound to the south-eastern ports of Georgian bay, by using St. Joseph channel and the North Channel of lake Huron, can have 110 miles of comparatively smooth water from Sault Ste. Marie to Badgley island, before emerging into the open waters of Georgian bay, adding considerably to the comfort of passengers in the fall of the year. The distances from the south-eastern ports of the bay are not much increased by taking the inside route as will be seen by the following:—

Owen Sound to Sault Ste. Marie by inside track is 230 nautical miles, by lake Huron 224; Collingwood by inside route 245, by lake Huron 237; Midland 246 and 242 respectively while from Parry Sound the distance by inside track is 220, by lake Huron 222.

In treating of St. Joseph channel, it will be divided into three portions, Bruce Mines to the Sisters, the Sisters to Bamford island light-house, and the latter to St. Mary river.

* See chart No. 909 for eastern portion of St. Joseph channel.

Bruce Mines to The Sisters.—The village of Bruce Mines takes its name from the old Bruce copper mine which was opened in 1846, followed by the Wellington in 1858; both belong now to Taylor & Sons, England, but ceased working about 15 years ago on account of the development of richer mines elsewhere. The few families who have remained make a living on small farms in the neighborhood, assisted by lumbering in the winter. The village at the present time has a population of 750, and contains a good general store owned by George Marks, senior, Episcopal and Methodist Churches, and well attended public school. It is a port of entry, and steamboats call almost daily from Collingwood and Owen Sound on the way to Sault Ste. Marie. It has a post and telegraph office, the latter being at the Canadian Pacific Railway station, situated about 2 miles inland. The water in the harbour is not very deep, but 10 to 11 feet can be had at the end of the mining company's wharf at mean water, and the bottom being composed of clay, a greater depth could easily be dredged should future trade warrant it. With a gale at S.S.E. a little sea rolls in to the wharf, but good anchorage may be had under McKay island in 3 fathoms clay bottom.

McKay island is the outer of two islands shelving the harbour from the south-westward. A boat passage exists between McKay island and the other called French island, as also between the latter and McCort point.

A rocky spit makes out 100 yards from the east point of McKay island, to avoid which keep the gable of Marks house, over the west side of Jacks island, N. $\frac{1}{4}$ W.

Prout rock, with 7 feet water on it, and usually marked by a red spar buoy, lies S. E. $\frac{3}{4}$ S., distant nine-tenths of a mile from the east point of McKay island. The mark above mentioned leads west of it, and to pass south of it keep the south end of Birch island touching the north point of Calf island E. by S. $\frac{1}{2}$ S.

McKay reef, just level with the water, is situated S.W. by W. seven tenths of a mile from the same extremity of McKay island: it is usually marked by a white beacon erected on it, but should it be down, the village of Hilton touching north side of Gravel point W. by S. will lead south of it, and the other shoal spots about it.

One Tree island, so called from the conspicuous single pine at present growing on it, is the next prominent feature of the north shore westward of McKay island, bearing from its south-west point W. by N. $\frac{1}{4}$ N. distant $2\frac{1}{2}$ miles. Many sunken rocks lie off this island, and as the passage northward of McKay reef is not to be recommended, only the most outlying shoals near the leading mark will be alluded to.

Jennie rock, with 5 feet water on in, lies S. E. $\frac{3}{4}$ E., six-tenths of a mile from One Tree island.

Ten Rib rock, with one foot over it, lies W. $\frac{1}{2}$ S. four-tenths of a mile from the same, and a patch with 10 feet on it lies due West, 400 yards from Ten Rib rock.

Beer rock, with 10 feet on it, is situated nearly due West, distant nearly one mile from One Tree island. If approaching Portlock harbour from the south-eastward, Woodman point in line with the west side of the north-east Piercy rock N.N.W. $\frac{3}{4}$ W., will lead between Beer and Ten Rib rocks in good water.

Piercy rocks consist of 5 islets, the highest of which is 11 feet above the water; they lie $1\frac{1}{10}$ miles north-westward of One Tree island, and mark the south-east and main channel into Portlock harbour.

Hannah ground is the name given to several rocky patches lying two-thirds of a mile south-westward of Piercy rocks, the least water on them is 13 feet. To pass north west of this ground steer for Piercy rocks bearing E. by N. $\frac{1}{2}$ N.

Plummer island, is the largest of a group separated from Portlock island by a channel through which there is a passage for a light draught vessel.

Plummer bank, with 9 feet least water on it, lies a quarter of a mile south-westward of Plummer island. A vessel steering for the village of Hiltou from a position half way between Sister rock light-house and West Sister—the track hitherto used—will when half a mile from the latter, pass over the western edge of this bank in a depth of 12 feet at mean water. To clear this bank in 18 feet water, keep the beacon on the summit of Walker island in line with the western side of West Sister rock N.N.W.

The Sisters consist of four small bare rocks lying between the eastern extremity of Campement d'Ours and Portlock islands.

Light-house.—On the north Sister rock is erected a white hexagonal tower, on which at a height of 35 feet above the water is exhibited a *fixed white* light, visible 11 miles. Vessels are in the habit of passing between the light-house and West Sisters, but the best lead is between the latter and the small rock 200 yards south-west of it, known as South Sister, the reason for which will be shown later on.

A description of the coast of St. Joseph island forming the south shore of the section of St. Joseph channel we are now treating of, will now be given.

Big point may be considered the south entrance point to St. Joseph channel from the eastward, and with the exception of a flat extending 200 yards off its north side the water is good about it. The land close back of the point is high and wooded.

Gravel point is high and wooded, and derives its name from its high gravelly beach. It bears N. W., and is distant 3 miles from Big point, and between the two headlands are two deep indentations known as Moffat and McMenomy bays. The former is nearer Big point and has good anchorage in 4 to 6 fathoms clay bottom.

Hilton.—From Gravel point, the coast of St. Joseph island trends a little southward of west 2 miles to Hilton or Marksville. It has a customs officer and contains a post office and good wharf with plenty of water for the steamers which call almost daily from the south-eastern ports of Georgian bay on their way to Sault Ste. Marie. The larger steamers of Beatty Sarnia line also call here occasionally.

Fisher rock with less than 6 feet water over it lies 400 yards north-westward of the bay of that name bearing E. $\frac{1}{2}$ S. seven-tenths a mile from the outer end of Hilton wharf. The thickly wooded and uninhabited shore runs N.W. by N. $2\frac{1}{4}$ miles from the village of Hilton to Canoe point the southern entrance point of Desjardins bay, the name given to the eastern half of the boat channel dividing Campement d'Ours from St. Joseph island. In tacking, a vessel will find good water close to this shore.

Portlock harbour is the name given to the water almost hidden to a vessel proceeding through St. Joseph channel by Portlock and Dawson islands, separated from each other by a narrow boat channel. Vessels of light draught can enter Portlock harbour from the westward north of Dawson island, but the main channel is eastward of Piercy rocks and Colby island. By this passage a vessel can carry in not less than 18 feet, and can make fast to the north-east side of Belford island three-quarters of a mile from Piercy rocks, or anchor in 4 fathoms between that island and Dunlevie point. A vessel drawing 14 feet can proceed as far as Wurtele point of Dawson island by passing between Pine rock and Dunlevie point and on either side of Hat island, but as the channel between the banks for so large draught a vessel is narrow, she should proceed slowly and keep the lead going. There is no village at Portlock harbour, but vessels occasionally proceed thither to load pulp wood. The Sault branch of the Canada Pacific Railway passing within a quarter of a mile of the northern shore, together with the possibility of the discovery of minerals, may, some future day, enable so snug a harbour to be resorted to more than it is at present.

DIRECTIONS.—To Sister rocks from Eastward.—If taking the passage northward of Calf and Cedar islands, when westward of the latter bring the south end of Birch island touching the north end of Calf island (as the middle island of the three is called), and keep them astern bearing E. by S. $\frac{1}{2}$ S. for about $7\frac{1}{2}$ miles until the summit of Walker island (the beacon if still standing) is in line with the west side of West

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Sister rock. The Birch island range will lead nearly half a mile southward of Prout rock and McKay reef clear of all the shoal spots lying off One Tree island and Piercy rocks, and a quarter of a mile southward of Plummer bank.

Approaching St. Joseph channel southward of Cedar island, as long as daylight is not seen between Birch and Cedar islands, a vessel will be south of all the shoals on the north side of the channel, and the coast of St. Joseph island is clear.

Proceeding to Portlock harbour.—When approaching Gravel point look out for the entrance to the harbour about a mile westward of One Tree island, and when Woodman point (on the east shore of the harbour) touches the west side of the north-eastern Piercy rock bearing N. N. W. $\frac{3}{4}$ W., keep them so ahead, which range will lead between the shoals before mentioned.

Pass 40 to 50 yards north-eastward of the Piercy rock group, (the two small ones are steep-to), and proceed in mid channel to Belford island, or anchor as before directed.

Approaching Portlock harbour from the westward.—From the intersection of the Walker and Birch island ranges, steer for Piercy rocks which should bear E. by N. $\frac{1}{4}$ N.. They may be rounded 40 or 50 yards distant, and when east of them proceed as before directed.

The Sisters to Bamford island light-house.—The principal features near the ship's track over this portion of St. Joseph channel will now be described.

South Sister rock is small, one foot high, and lies 250 yards south-eastward from Long island near the east extremity of Campement d'Ours island. It is joined to Long island by shoal water.

West Sister, small and 4 feet high, lies W. $\frac{1}{2}$ S. 270 yards from the light-house, and a reef makes out from it in the direction of the latter 50 yards; with this exception the passage between West Sister and the light-house is deep, and is the one hitherto used. The passage between the West and South Sisters is clear, and is the one recommended in these Directions for reasons hereafter shewn.

Carmona rock with 10 feet on it, is an awkward obstruction lying N. W. $\frac{1}{2}$ N. nearly 600 yards from North Sister light-house, and N. $\frac{7}{8}$ W. a quarter of a mile from West Sister.

A rock with 13 feet over it lies N. W. $\frac{5}{8}$ N. a third of a mile from West Sister. The track recommended is between this patch and Carmona rock.

Campement d'Ours island is $1\frac{1}{2}$ miles in diameter, and is separated from St. Joseph island by a channel with not more than 2 feet water in the shoalest place.

Agate island, 44 feet high, lies 300 yards off the north-east shore of Campement d'Ours island and is distant six-tenths of a mile from West Sister. The ship's track is close to the east and north sides of this island on account of a rock with 7 feet water over it bearing N. E. $\frac{3}{4}$ E. distant 300 yards from the north point of Agate island.

Graveyard point is made prominent by a low neck joining it to the higher land of Campement d'Ours island; it should receive a berth of 100 yards on account of a rock which lies half that distance from its north-west extremity. The remainder of Campement d'Ours island westward of Graveyard point is bold.

An inspection of the chart will show a string of small bare islands on the north side of the track, extending from the west side of Portlock to abreast of Graveyard point, the nearest one to the track being Jermyn rock, 17 feet high, lying N.N.W. $\frac{1}{2}$ W, distant 400 yards from the north point of Agate island.

Walker island, 79 feet high, though not near the ship's track is of importance as having erected on its summit a white beacon already mentioned, and to be again alluded to. A quarter of a mile south-eastward of Walker island, a vessel will find a good anchorage in 4 to 6 fathoms clay.

Picture island, 67 feet high, is on the south side of the channel, and is the next large island westward of Campment d'Ours island. It derives its name from a couple of white patches resembling an Indian and squaw with snow shoes over their shoulders.

Killaly point, 80 feet high, is opposite Picture island, the passage here being 200 yards broad with as much as 34 fathoms of water in one place. The south-east extremity of Killaly point is low and grassy, but the middle portion is steep with broken stones on its slope.

For three-quarters of a mile westward of Picture island the channel is bounded on the south by a string of islands with narrow gaps between them, the most remarkable of which is the Devil's gap, between Devil and Copper islands; vessels formerly passed through this gap, but on account of the rock with 9 feet of water on it, lying in the middle of its narrow channel, it has been abandoned.

Wilson channel.—This passage is between Wilson island (the western of the string of islands above mentioned) and the steep, cliffy mainland shore, and 5 fathoms may be carried through.

Crib.—A reef extends 100 yards westward from the north-west end of Wilson island, and the greater portion has been covered up by a crib, on the north side of which a vessel may make fast if overtaken by darkness. About 30 yards of the reef still project beyond the cribwork, being usually marked by a black spar buoy, near which there is 10 feet water.

A reef extends from the main shore at 300 yards from Wilson island crib for a distance of 100 yards, the south end of which is usually marked with a red spar buoy.

A cage beacon painted white is also erected on a small crib about the centre portion of this ledge.

A rock, with 15 feet water on it, lies N.W. by W. $\frac{1}{4}$ W., 80 yards from the end of Wilson island crib, and is difficult to avoid, but as few, if any vessels of that draught use St. Joseph channel at the present time it is not a cause for anxiety.

Bamford island light-house is erected upon the south extremity of the island of that name situated half a mile south-westward from the Narrows of Wilson channel. The building is a white square wooden tower attached to the keeper's dwelling and exhibits from a height of 32 feet a *fixed white* light visible 10 miles.

A rock with 2 feet water over it lies E. $\frac{1}{4}$ N. 300 yards, and another with 3 feet over it lies S. E. by E. 150 yards from Bamford island light-house. The ship's track is on the north-west side of both these dangers, the southern one being usually marked with a black buoy.

A reef extends from the light-house in a S. $\frac{1}{4}$ W. direction 200 yards, where there is a depth of 18 feet; by reason of this reef shoaling very gradually to the light-house it is not of a very dangerous character.

DIRECTIONS.—Sisters to Bamford island light.—Having arrived from the eastward to within a mile of the Sisters by the directions already given, bring the summit of Walker island (the beacon if standing) over the south-west side of West Sister, bearing N. N. W. Keep this course to pass westward of Plummer bank until abreast of South Sister, when steer to pass midway between it and West Sister. Now keep the wharf at Hilton midway between the same two rocks to pass midway between Carmona rock and the 13 feet spot nearly west of it. This range will bring a vessel to a position 150 yards eastward of Agate island, whence the north shore of Campement d'Ours island may be coasted at about this distance until past the little wooded island called Shrove island. Now steer between Picture island and Killaly point, passing which, mid channel may be kept to Wilson channel; haul sharp round the black buoy marking the end of Wilson island crib reef, and steer to pass 100 yards south of Bamford island light-house, and northward of the black buoy which usually marks the rocks lying south-eastward of that light-house. If on the right track, High beacon at Wilson channel will be midway between the cage beacon and that on Wilson island crib; High beacon should now be kept open south-eastward of Bamford island the breadth of the latter, until half a mile from Richards landing.

Bamford island light-house to St. Mary river.—Port Finlay is the name given to the wharf on the mainland situated one mile west-

ward of Baumford island, but as it is so beset by shoals, no master of a vessel should approach it without local knowledge.

Chicora shoal is the southermost of the many dangers lying off Port Finlay, its shoalest part with 6 feet bears N. E. $\frac{1}{2}$ E. and is distant two-thirds of a mile from the wharf at Richards Landing; it is usually marked by two red spar buoys.

McKinnon rock with 9 feet water on it lies W. by S. 700 yards from Humbug point, and 250 yards south-eastward of the ship's track.

Rosseau island, about 20 feet high and partly wooded, is separated from the shore of St. Joseph island by a shallow boat channel.

Rosseau shoal, with 2 feet water on it, lies 250 yards northward of the island of that name; it is 300 yards south-eastward of the ship's track, and is about mid distance between Baumford island and Richard's Landing.

To pass between Rosseau and Chicora shoals, keep High beacon at Wilson channel open south-eastward of Baumford island the breadth of the latter, bearing N. E. by E. $\frac{1}{2}$ E.

Richard's Landing is the small village and wharf at St. Joseph island, situated in the southern part of the portion of the channel previously called Bear Lake; the local steamers call almost daily on their way to and from Sault Ste. Marie. There is a depth of 18 feet at the wharf, the immediate approach to which is free from danger. The coast of St. Joseph island from Richard's Landing to Shoal island takes the shape of a large bay, off the shore of which, a flat under the depth of 18 feet, extends an average distance of half a mile.

Leonard reef, 3 feet high, composed of boulders, with a few bushes growing between them, is situated in the north-western portion of this bay, and nearly a third of a mile south-eastward from Shoal island.

Shoal island is separated from Boulanger point of St. Joseph island by a channel 200 yards broad, through which it is *possible* to carry 13 feet water, but on account of the sunken rocks in it, and the better passage north-eastward of Shoal island, it is not to be recommended. Shoal island is divided by a narrow cross-channel 200 yards from its north-west extremity, and the gap will again be alluded to in connection with the range for clearing the banks between St. Joseph and Neebish islands.

Light-house.—At the north extremity of Shoal island is erected a white square tower with dwelling attached, exhibiting from a height of 32 feet a *fixed white* light, visible 11 miles. Rocks, dry and sunken extend nearly 100 yards off the north-east side of Shoal island, and close to them the water is deep.

A rock with 12 feet water over it at mean water, lies north 70 yards distant from the light-house, the ship's track passing between them.

Horse island, 42 feet high, is the southern large island of the group lying northward of Shoal island, and almost filling the mouth of the extensive but shallow bight known as Maskinongé bay.

Horse island is 2 miles westward of Port Findlay, the intervening shore being fronted by numerous dry stones and sunken rocks.

A rock, with 7 feet on it and usually buoyed lies S. by W. $\frac{1}{2}$ W., 170 yards from the south point of Horse island.

Wabuno bank is a dangerous rocky ledge with depths on it varying from a few inches to 9 feet, lying 200 yards northward of Shoal island and the gap between the latter and Boulanger point; the southern edge is usually marked by a red spar buoy.

Empiæ ledge, with one foot water on its shallowest part, is situated with its south-east extremity almost joining Wabuno bank. Its southern part is usually marked by a red spar buoy, the ship's track passing between it and St. Joseph island. These two ledges together with the 12 foot spot off the light-house already alluded to, render this portion of St. Joseph channel the most difficult to navigate, more particularly on account of the strong current out of St. Mary river. From Boulanger point, the coast of the north-west extremity of St. Joseph island trends in a general westerly direction $1\frac{1}{3}$ miles when it abruptly turns southward forming the eastern shore of a portion of St. Mary river surveyed and buoyed by the government of the United States.

Cambria bank with 10 feet least water on it extends a little more than a third of a mile northward from this north-west extremity of St. Joseph island. To pass northward of this bank keep Brundon-house at Richards Landing over the gap in Shoal island before mentioned bearing S. E. $\frac{7}{8}$ E.

Neebish island $1\frac{3}{4}$ miles long in a S. E. and N. W. direction, is situated nearly a quarter of a mile eastward of the southern part of Sugar island, the portion of St. Mary river between them being known as East Neebish rapids.

The northern shore of Neebish island is divided from the mainland of Canada by a shallow boat channel, while eastward from the island runs in a long bay from St. Joseph channel affording in its southern part excellent anchorage in 16 to 18 feet clay bottom. This bay is separated from Maskinongé bay before alluded to by a narrow peninsula appropriately called Long point.

Bek-wa-be-kong island in three parts, (the eastern and largest of which is 65 feet high), lies in the bight formed under the southern portion of Neebish island; St. Mary river runs between Bek-wa-be-kong and Sugar islands.

Atlantic rock with 9 feet water on it is an isolated spot situated S. by E. nearly a third of a mile from the east extremity of Bek-wa-be-kung island, and the mark given to clear Cambria bank also leads southward of this shoal.

Anchorage.—A vessel having to anchor will find a good berth between Bek-wa-be-kung and the western of the two islands forming the southern extremity of Neebish island in 3 to 4 fathoms mud, taking care to avoid Atlantic rock, which she should pass eastward of.

DIRECTIONS.—**Bamford island to St. Mary river.**—Having passed the light-house on Bamford island, keep High beacon on the cliff at Wilson channel open south-eastward of Bamford island the breadth of the latter N. E. by E. $\frac{1}{8}$ E., to lead between Chicora and Rosseau shoals. When the north side of Leonard reef comes in line with Sam Tweedle's barn (200 yards north-west of his dwelling house, near Boulanger point), keep them in range W. by N. for nearly $1\frac{1}{4}$ miles until Rain's barn (a large red structure on sugar island) touches the north-eastern rock of Shoal island N. W. $\frac{3}{4}$ W., pass close to this rock and the light-house point to avoid the rock with 12 feet water on it, and when north of Boulanger point keep Brandon house at Richards Landing in the Shoal island gap S. E. $\frac{7}{8}$ E., which will lead between Cambria bank and Atlantic rock.

Current.—Between Wilson channel and Bamford island, and again off Shoal island light-house, the prevailing current from lake Superior attains a velocity of from 3 to 4 miles an hour, necessitating careful steering especially at Shoal island.

Directions for St. Joseph channel from the westward.—Before leaving St. Mary river, bring Brandon house at Richard's Landing in line with the gap in shoal island S. E. $\frac{7}{8}$ E. until abreast of Boulanger point, pass shoal island at a distance of 50 yards, and when south-eastward of it, bring Rain's barn in line with the northern rock of Shoal island N. W. $\frac{3}{4}$ W. Keep it so astern until the north side of Leonard reef comes in line with Sam Tweedle's barn, bearing W. by N. When High beacon at Wilson channel opens south-eastward of Bamford island the width of the latter, proceed on that range. As Bamford island light-house is approached High beacon will be seen midway between the Cage beacon and that on Wilson island erib. Keep it so to the erib, when haul to the eastward, keeping the coast of Campement d'Ours island on board until Agate island is reached. Now bring the wharf at Hilton midway between West and South Sister rocks S. S. E. until the latter are passed, when haul a little to the northward to bring the west side of West Sister under the summit (at present marked by a white beacon) of Walker island N. N. W. Although distant, Birch and Cedar islands are easily discernable in clear weather, and when the south end of Birch island touches the north ends of the other two, keep them so E. by S. $\frac{1}{2}$ S. until past Prout rock or Gravel point according to destination.

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