

will have passed the shoal and deepened her water to nine fathoms, and may safely proceed up the harbour and choose her anchorage by giving either shore a berth of a couple of cables' length. Beating up the Western Channel the deep water will be found on the western shore, with the exception of a small shoal patch, having 18 feet on it, which lies in Obelisk Bight, in a line betwixt George's Head and Middle Head, 500 yards from the former. Avoiding this patch, you may make free with the western shore to within half a cable's length, but in standing over to the opposite eastern side, beware of the 16 feet patch before alluded to as lying West of the Low Light-house; to avoid it do not bring the Light Ship to the westward of S. by W. $\frac{3}{4}$ W. Betwixt George's Head and the upper south-western tail of the Sow and Pigs Shoal, the channel is contracted by an 18 feet detached bank to the width of about 350 yards; to clear this the Light Ship must not be brought so far to the westward as to bring her and the obelisk on the North Head in line until the High Light House is open at least its own breadth north of the chequered obelisk below it; when you will be past the shoal and be able to work up with plenty of room in from 9 to 16 fathoms water.

Vessels of lighter draught than 15 feet can pass over these two shoal patches, and the upper portion of the Sow and Pigs Shoal, and stretch right across from shore to shore by not, when passing to the southward of the Light Ship, coming nearer to her than two cables' length, or not before the line from George's Head to the North Obelisk on the eastern shore bearing E. $\frac{1}{2}$ S. is passed, remembering that the deepest water over the Sow and Pigs, 22 feet, is obtained by closing Elizabeth Mansion behind Bradley's Head and keeping the high windmill which stands on the heights east of the Elizabeth Mansion a sail's breadth open of the Head.

Having cleared the Sow and Pigs Shoal the navigation up the Harbour is free from obstructions, with the exception of a ledge extending a cable's length from Bradley's Head, and a reef of the same extent off Shark Island, the first island that will be approached. A knoll, which lies 500 yards west of the Bottle and Glass (conspicuous rocks forming the south boundary of Watson's Bay), having $4\frac{1}{2}$ fathoms on it cannot, of course, impede a ship which has passed through either of the channels. It is, therefore, only necessary to keep at a cable's length from the shore, and when anchoring to take a berth which will admit of a long scope being veered to southerly squalls.

The following schedule of courses, distances, and soundings, will show at a glance the nature of the navigation in the Western Channel, commencing from the position where the Light House touches the cliffs north of it, and the two western obelisks are in one.

COURSES.	DISTANCES.	SOUNDINGS.
1st.—W. $\frac{1}{2}$ S.	{ $\frac{1}{2}$ mile and 100 yards.	{ From 8 to 7 fathoms.
2nd course.— S. W. by S.	{ $\frac{2}{3}$ of a mile ...	{ 7 fathoms to 4 fathoms, and then suddenly to 21 feet.
3rd course.—S.S.W. to abreast Bradley's Head	{ $1\frac{1}{4}$ miles	{ 21 and 20 feet, and deepening rapidly to 6, 10, and 13 fathoms.
4th course—to Sydney West, passing Fort Denison on either hand	{ $1\frac{1}{4}$ miles	{ Gradually shoaling from 13 fathoms to 7.

EASTERN CHANNEL.

Now that obelisks have been erected as leading marks for the Eastern Channel, it may, in particular cases, be advisable to pass through it, although on account of its limited width in several parts, and the necessity when entering it from seaward, for suddenly changing the course at right angles, it presents less advantages than the Western Channel. It may, however, be safely navigated by attending to the following instructions:—

First, as in the case for the Western Channel, to clear the South Reef you must pick up the line of the two western obelisks in one, W. $\frac{1}{2}$ S., and immediately after passing two cables' length on that course westward of the meridian of the Low Light House two obelisks, at high water level, on the strand of the eastern shore will suddenly unmask, bearing S. $\frac{1}{4}$ E., when they come in one, which they will do very rapidly, haul sharp up for them, carefully preserving them in line for the first quarter of a mile, until on your port quarter you observe the North and Inner South Heads locking, when you may edge off and pass the northernmost of the two obelisks at half a cable's distance, taking care not to open the obelisk on the slope of the North Head (after having once closed it with the Inner South Head) until you observe the spire of St. James's Church, (the only spire which makes out in Sydney), its breadth open of Bradley's Head S.W. $\frac{3}{4}$ W. When the High Light House is seen to the northward of the chequered obelisk you are above the Sow and Pigs Shoal, and may bring up in safe anchorage, or proceed up the harbour, there being no obstructions to the navigation except the reefs off Bradley's Head and Shark Island, mentioned in the directions for the Western Channel.

ENTERING IN THE NIGHT.

Vessels approaching in the night with southerly or westerly winds should keep the sea until daylight, but with winds from the northward or eastward, and favourable weather they may safely enter, observing the following directions:—

The revolving light having been made, it should be kept between the bearings of N.W. and S.S.W. $\frac{1}{2}$ W., until the lower fixed light appears in sight, this light being brought to bear W. by S., a course should be shaped to pass a cable's length to the northward of the breakers on the reef extending from it in 9 fathoms water, which depth is found at a distance of about 450 yards from the Light House. After the meridian of the Low Light is passed, and it has been brought to bear to the eastward of south, a W. by S. course may be steered until the Floating Light bears S. by W. $\frac{3}{4}$ W., when a course should be shaped so as to leave the Light Ship a cable's length on the port hand. After passing the Light Ship the course is S.W. by S., until the Revolving Light bears E.S.E., when you will be above the Sow and Pigs Shoal, and have deepened the water to 10 fathoms, and by hauling up S.E. for a quarter of a mile will find convenient anchorage in eight or nine fathoms, sandy bottom; or may proceed further up the harbour, taking care to avoid vessels and boats lying in the way.

ANCHORAGES WITHIN THE HEADS.

Ships of large tonnage, or drawing more than 18 feet, ought not, with a fresh head wind, to attempt to work through the narrow channels between the Sow and Pigs Shoal and the shore, neither should they anchor to the northward of the Light Ship with the Heads open, but rather bear up for Spring Cove or North Harbour, in