difficult to steer a short vessel than a long one, but especially in a heavy sea, when the mode of treatment must be entirely different. A small vessel should be luffed up to meet every large wave in order to bow it as much as possible. She will have but little way on at the time of meeting it and will drop into it easily ; the bow will then fall off, the sails fill, and a run be made parallel to the waves till she is luffed up again. A four-oared gig has been taken through a heavy sea under oars by pulling up to meet every danger­ous crest which could not be dodged, and just before it broke over the bow backing away from it. The smallest amount of sail which can be shown by a main-sail is when it is balance-reefed ; this is accomplished by close-reefing it and lowering the jaws of the gaff close down to the boom, while the peak stretches up that part of the leech above the close-reef cringle. The plan is more frequently adopted by fishing smacks than by yachts or other well-found vessels ; they have a try-sail which, being laced on a smaller gaff, is hoisted by the same peak and throat halyards as the larger sail, and has its sheet secured to a bolt near the stern, while the boom is crutched and secured with the main-sail and the large gaff lashed to it. The try-sail admits of being reefed ; it is a safe sail either on or off the wind in rough weather. The greatest care is necessary when running before the wind to keep the vessel on her course and to avoid gybing. A vessel should never get under way without a small boat, and a cutter should never be without her legs for fear of taking the ground unexpectedly. In racing to windward, if the wind is variable, keep nearly dead to leeward of the mark vessel, as every change in the direction of the wind will then be an advantage ; unless there is a tidal preference for one direction over the other, that will of course decide it.

If taken aback by a change of wind, and wishing to remain on the same tack, put the helm up and haul over the fore-sheet. In a ship haul over the head-sheets and brace the head-yards abox. The way to tack a ship under favourable circumstances may here be assumed as well known, and only a few hints relative to doubt­ful cases given. A few minutes prior to the attempt set all suit­able sail, keep steadily “rap-full " with a small helm, so as to get as much way as possible. If the crew is large enough to list the ship, send them over to leeward, ease down the helm slowly, haul the boom in midships, haul down the head-sails, ease off the fore­sheet, let go the head-bowlines, and check the head-braces. Directly the wind is out of the fore-top-sail, brace the head-yards sharp up again and haul the bowlines. When the wind is entirely out of the main-top-sail, let go the top-gallant bowlines (if those sails are set) and raise tacks and sheets, except the fore-tack, which should be raised after the main-yard has been swung. As soon as the vessel loses her way, shift the helm hard over, and send the men to their stations. If she brings the wind across her bow, hoist the head- sails with the sheets on the same side as before ; if the wind takes them well and the ship is still going round, give the order “main­sail haul,” haul down the main-tack, aft the sheet, shift over the head-sails, haul the after-bowlines. As the main-top-sail fills, or before, according to the rapidity with which she pays off, swing the head-yards to the order of ‘‘ haul off all. ”

If when near head to wind it is found that the bow is falling back and stern-way commencing, it is evident that she has “missed stays.” The helm in that case should not be shifted, as with stern-way it will help her to pay her bow off in the direction it was before. The head-sails should be hoisted, the main-sail and spanker taken in, the fore-sheet hauled aft, the after-yards squared. As the wind comes abaft the beam the mizzen-top-sail should be kept shivering and the main-top-sail just full ; shift the helm as she gathers headway. When before the wind square the head- yards, shift over the head-sheets, and keep them flowing. Set the spanker when it will take the right way ; complete wearing as before described. This is similar to “box-hauling”; it is not necessary to brace the head-yards abox if she will fall off without. The manœuvre of putting the helm down and letting the ship shoot up in the wind before wearing is sometimes adopted for the sake of diminishing the run to leeward. Hauling all the yards at once is very objectionable ; the sails are longer aback and have to be hauled round by main strength against the pressure of the wind.

“ Club-hauling” may occasionally save a ship even in these days of steam, as a paddle-steamer will not turn with her head against a strong gale and a heavy sea, nor will a sailing-ship with an auxi­liary screw-propeller. It may be done when the ship is found edging down on a lee shore, too close to wear, and having a depth of water not exceeding 20 fathoms. It will take two or three minutes to open the hawse-pipe, get the cable clear, and procure hammer and punches for unshackling, and mauls for breaking the cable if necessary. Put the helm down and act as in ordinary tacking till she ceases to turn nearer to the wind ; then let go the anchor, whether she has entirely lost her way or not, as passing the anchor a little will give a greater swing back when the strain comes and allow more time for slipping the cable, which should be done directly the wind has crossed the bow ; at the same time swing the after­yards. If the cable has been slipped successfully, the head-yards may be hauled as soon as the after-yards have been braced up, as

she will soon be broadside on. It has been proposed to run a spring from the after-lee-port to the anchor, but that would take too much time.

“Backing and filling” is practised in a tidal channel which is too narrow to allow a ship to gather way for tacking. One top sail, with the jib and spanker occasionally, is generally sufficient to give slight head or stem way, to avoid either bank or another vessel, while the tide carries her broadside against the wind ; the less sail exposed the less the lee way. Fore-and-aft vessels having less power to get stern-way should have a boat in attendance with a line and a small anchor.

“Hedging” was a frequent performance before steam-tugs were introduced ; it consisted of a series of movements from one small anchor to another, previously laid out by boats. For a similar purpose harbours that were much frequented were formerly fur­nished with a succession of warping buoys. The large ropes used for transporting ships are called hawsers, and by a strange anomaly were formerly cable-laid nine-stranded. Such rope is hard and stiff to handle ; it absorbs more wet and retains it longer, therefore is less durable ; when new the strength is far inferior to hawser-laid rope of similar size. Manila and coir hawsers float on the water and are therefore very useful.

Dropping through a narrow tidal channel by means of an anchor just touching the bottom is called “dredging” or clubbing ; it can be practised in a passage which is too narrow for backing and fill­ing, such as the upper part of the Thames, where it is done every day. The vessel swings to her anchor and points her stern up (or down) the stream ; by heaving in the cable (for which the steam capstans and windlasses afford great facility) the tide takes the ship on as fast as it is running so long as the course remains clear. When it is desirable to approach either side, a few fathoms of cable paid out will cause it to hold ; the helm and the action of the tide will then sheer the ship as desired, and by heaving in cable she will go on again, so that a sailing-ship should go up at half the rate of the tide at least. With a screw-steamer it is far easier, as the screw will straighten her as well as the tide, and when fairly pointed through an open space she can make a stern-board at five knots an hour while perfectly under control.

A few words may be said about making and shortening sail in bad weather. One point holds good in all cases : the sails should never be allowed to flap, as that exposes them to the danger of splitting. The tack or luff is invariably secured first, while the sheet bears a steady strain enough to keep the sail from shaking. Before hoisting fore-and-aft sails the sheets are steadied aft ; and, should a sheet carry away, the sail is hauled down or brailed up instantly. Spankers and try-sails should be taken in entirely by the lee-brails, the stack only of the weather-brails being at first taken down. A practice has become general in the British navy of securing the top-sail clew-line blocks to the lower cap instead of round the yard, for the sake of saving time when shifting top-sail- yards ; the use of the clew-lines for hauling the yard down and steady­ing it is thus lost ; this is one of many objectionable practices.

There has been a difference of opinion as to the mode of setting and taking in top-sails and courses; but the same rule should apply to all square sails alike : that which is safest for one will be safest for the others. Experience and the balance of opinion favour the hauling home of the weather top-gallant-sheet, top-sail-sheet, and tack of the fore-sail or main-sail first, with a good strain on the clew-lines, clew-garnets, and bunt-lines, to avoid flapping. The lee sheet may then be hauled and eased down by clew-line and bunt­line. Each bowline should also be steadied taut in succession to prevent the leech from flapping. There appears to be no advan­tage in first hauling the lee-sheet partially down. The taking in of these sails has been equally a matter of dispute, and many ad­vocate taking in a top-sail in a different manner from that which they would adopt in taking in a course. Falconer’s rule was often quoted and followed in former times. It runs thus—

“ And be who strives the tempest to disarm,

Will never first embrail the lee yard-ann.”

It must be remembered that the decision there supported by the sea-poet was then a novelty, and opposed to the opinion of the practical seaman. A main-sail had been split by “ letting fly ” the sheet ; but that proves nothing, as all sails will split if the clew flies loose in a gale. The lee clew of an eighty-gun ship’s main­top-sail was blown over the yard-arm in consequence of the weather- sheet having carried away ; that clew was hauled up first. It might not have happened had the bunt-lines been well manned and had there been a small strain on the lee bowline. Either plan will answer if the bunt-lines are well manned and the sheets eased steadily ; but that the weather clew should be set first and taken in last is preferable.

In taking in top-gallant-sails before the wind both sheets should be kept fast till the yard is down. When a top-sail is to be reefed the yard should be pointed to the wind ; and for the first reef the top-gallant-sheets, bunt-line, and bowlines should be hauled taut, for the second reef the top-gallant-sail should be clewed up, to keep the sheets from knocking the men at the yard-arms. In rough