

ROWING.

IN dealing with this subject, we will first treat of the boats and their fittings. As a rule all boats used in racing are built and fitted as outriggers—from the twelve-oars, eight-oars, four-oars, pair-oars, to the sculling boats. The term “outrigger” is understood to mean the iron framework fixed to the boat’s side to support the rowlocks, and is generally applied to any boat fitted with this contrivance (Fig. 1). Another name for them, which is but seldom used now, is that of the “Clasper boat,” from the builder, Henry Clasper, of Newcastle-on-Tyne, who is supposed to have invented this simple but most useful addition to our old-fashioned boats. The sculling boat is composed of two portions: the body or boat proper, and the projecting irons or outriggers to support the rowlocks, which necessarily are placed one on each side, exactly opposite one another. The body is generally built of cedar-wood, in lengths, with ribs or “timbers” of ash, edible chestnut, or sometimes beech, fixed to the inwale, at the upper part (the inwale is a long strip of deal running lengthwise down the inside of the upper edge of the boat), and below, into the inner keel or kelson. Upon the inner keel is fastened a long piece of wood, generally fir, which rises in the centre, under the thwarts or seats, which are fastened to it, to their level, and tapers off fore and aft; the object of this false kelson or backbone being to impart strength to the floor of the boat and to assist in carrying the thwart. The inner keel, kelson, and inwale are first laid down, bottom upwards, on the frame upon which these boats are usually built, and, when built on moulds, the moulds next. The skin is then laid on to the inner keel, inwale, and moulds by the application of hot water, and fastened to the inner keel and inwale; this having been done, the boat in her then condition is turned over, right way uppermost, and firmly fixed on the stocks or frame; the timbers are then put in, and the moulds removed as their places are thus supplied.

Some builders, however, cut out the timbers by rule, and, using no moulds, fasten the skin at once on to them, before turning the boat over. The stem and stern are made of solid pieces of wood, which is sometimes mahogany, cedar, fir, or arbeal, at the option of the builder, and the skin worked up to them; the stem is usually protected by a brass clamp, and the nails used are all made of copper. In addition to the ordinary kind of timbers, larger or “outrigged timbers” are inserted where the iron outriggers will be fixed, and to them the latter are fastened. The interior of the boat is divided into three portions by bulkheads, upon which are fastened the wooden decks, at whose upper corners are small holes for allowing the water to run out, when leaky, by turning the boat topsy-turvy. The washboard rests upon the forward deck, and prevents rough and broken water from coming in. The breakwater runs round the sides of the boat to the coxswain’s thwart, and

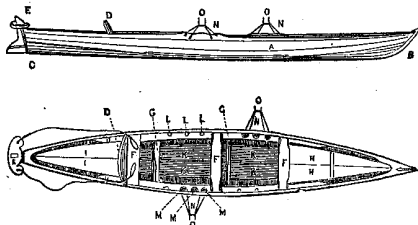


Fig. 1.—SIDE VIEW AND PLAN OF PAIR-OAR OUTRIGGER.

A, Skin; B, Stem; C, Stern; D, Backboard; E, Yoke; F, Thwarts; G, Stretchers; H, Fore Sheets; I, After Sheets; K, Bottom Boards or Burdens; L, Timbers; M, Outrigged Timbers; N, Outriggers; O, Thowls.

crossing the boat abaft his thwart, so ends. The remainder of the boat is covered over with what is technically known as the "canvas," but the covering is made of linen, well varnished, stretched, and nailed to the inwale. It is supported by a long strip of wood running longitudinally down the centre, and called the rising piece, and by cross-beams, which run transversely from the rising piece to the inwale. The canvas is nailed on the outside through the skin to the inwale, and its edge is hidden by a thin beading which runs fore and aft. The skin meets in the centre of the boat at the joints, and is fastened into the inner keel; and there being no outer or visible keel, the bottom is round. The lengths of which the skin is composed are joined by "scarves," put in opposite one another. There are usually four scarves, two on each side, and the boat is thus divided into three lengths of skin, one long and two short; but this rule is not universal. The centre portion of sculling boats is called the "box," and of oar boats the "body."

It is almost needless to observe that all these boats are well varnished outside and in. The stretcher against which the rower's feet are placed is a strong piece of fir fitted into a rack with brass thumbscrews, and this shifts according to the length of the rower's leg; a leather strap for the toes is fastened to it by a small staple. In some boats there are bottom boards or burdens, and in others there are not. If you go to twenty different boat-builders, each will have a different way of putting the work together and of fitting out his boats; it is therefore of no benefit to enter into a lengthy description of all the small technicalities of their business, as it would not answer our present purpose.

The iron outriggers now in use are made of four round stays; not so long ago they were of square iron, and the two lower or middle stays were then crossed. The two upper stays are the shortest, and, with the rowlock-plate, are in one piece; the thowls, which are generally made of beech-wood cased with iron, are separate, and, being fitted with shoulders through holes in the rowlock-plate, receive the lower stays, fastened underneath by means of nuts screwed tight and firm. All four stays are fastened (at their lower extremities) through the outriggered timbers by means of nuts and bolts. When required, cross-stays are also placed inside the boat. The thowls are known by the names of "thowl" for the fore one, and the "stopper" for the after one; across their tops there is generally fixed a piece of twisted string, to keep the oar or scull from unshipping or jumping out of the rowlock.

The sculls and oars are made of white deal, and consist of three parts or divisions, known as the handle, loom, and blade. The handle and loom occupy the length from the rowlock to the middle of the boat, where they should (for river rowing) overlap one another from four to six inches for the style of sculling known as the "overhand," in which one hand passes over the other; but to avoid this the rowlocks are sometimes constructed far enough apart to allow a sufficient length of loom without such overlapping, so that the length of the outrigger irons and half the breadth of the boat, when added together, give the length of the inboard part of the scull, which may be generally taken as something over two feet; but for the overhanded arrangement the boat should not be less than twenty inches wide, and the outrigger must project at least fourteen inches beyond the side of the boat. The handles of sculls or oars are made round for the width of the hand, but the makers are careful not to polish or make them too smooth, usually leaving them just as finished by the rasp.

From the handle to just outside the rowlock most sculls are made square, with an oblong leather "button" nailed fast to the upper side, which corresponds with the back part of the blade, so as just to bear or butt against the inside of the thowl, and keep the scull or oar from sliding out. The "Clasper oar and scull" is different, as it is quite round and covered with leather, with a very peculiarly

shaped "button" encircling three-fourths of the oar at this part, and projecting nearly an inch. Outboard the scull or oar is round at the back for some distance, and square in front; then it gradually becomes oval in section, tapering till it reaches the blade, which gradually spreads out till it forms a breadth of thin wood some four inches wide, or in some cases even more. This blade is curved, the centre being nearly two inches deeper in the hollow than at either end, and is hollowed out something like a spoon in shape, with a web or strengthening piece running from the loom half down the middle, very much the same as the raised rib in a spade; the back of the blade is a little rounded, and the end is usually guarded and finished with a strap formed by a narrow strip of copper carefully nailed on so as to prevent the wood splitting. The oar or scull should be nearly balanced at the nut or button, but in all cases must fall out rather inboard. In racing boats the sculls should never be less than ten feet or more than ten feet four inches long.

The rower in the modern outrigger sits nearly in the middle of the boat, that is to say, about on that part which is one-third of the length of the thwart from the side opposite to his rowlock, where his mat or pad is firmly tied, and upon the front edge of this he sits, bending his knees, separating them about a foot, and placing his feet, with his heels close together, firmly against the stretcher, exactly in front of the middle of his body. Thus he sits quite square to his work, and will then be sure to swing backwards and forwards exactly in a line with the boat's keel, or parallel with it. If his feet are nearer the side of the boat than they ought to be he will swing towards the middle, or "row into the boat;" and if they are too near the middle line he will "row out of it," both being bad faults, and making the boat rock and roll very considerably; the stretcher should be adjusted to such a convenient length that in the stroke the oar should just clear the knees, and the strap should be buckled tightly over the inside foot, which is the one upon which most strain falls in feathering the oars. The thwart on which the rower is seated should be of such height that the rower may have a good command over his oars, but sufficiently low to let him get well over his knees; the lower the seat the more likely is the rower to depress or drag his boat's bow under water, and the higher in reason that he sits—so that his hands clear his knees—the lighter and smarter will be the stroke, and the less will be the boat's dip when she is hanging on the rower's hands (Fig. 2).

The action of rowing is made up of two portions, and therefore twofold, *i.e.*, the stroke and the feather. The stroke is the putting of the oar through the water, with the blade, to which the water offers a resistance in its passage at right angles to the fluid traversed.

Feathering (Fig. 3) is, strictly speaking, the turning of the oar at the conclusion of the stroke by turning the wrists, and thereby bringing the blade into a plane with the surface of the water; but the term is also commonly used as including the carrying back of the oar in the same position or plane and recommencing another stroke, as the oar is then said to be on the feather. This great accomplishment of rowers can be acquired or caught only by the learner carefully watching and imitating masters of the art, and this is succeeded instantly by the oar being restored to its former state, in doing which the wrist is straightened, and both

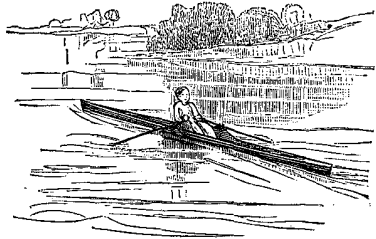


Fig. 2.—SCULLING.

hand and elbow thrust rapidly forward at the same time, to which is added a forward action of the shoulders, so as to carry away the loom from the body at once, and then when the arm becomes straight the body follows as rapidly as is necessary.

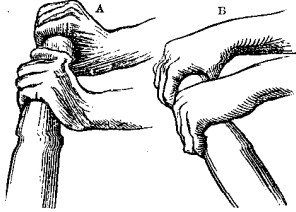


Fig. 3.—FEATHERING—FIRST (A) AND SECOND (B) POSITIONS.

The head is kept well up, and the eyes looking full at the back of the man in front; the chest full, and well to the front; the back straight, the shoulders moving easily forward, and the hands reaching well over the toes.

All these evolutions cannot be carried out in the first few lessons, the pupil gradually learning the first rules of rowing, *i.e.*, the power of swinging his body properly, and of preventing the catching of "crabs" (Fig. 4), which usually result from the water being allowed to catch the oars when the boat is moving rapidly through the water, or, technically speaking, has considerable "way" on her, and turning the blade flat, so that the rower cannot bring it out, and by the impetus of the boat is forced backwards over his thwart.

As a rule the pair-oared outrigger is much the same as the sculling boat, but longer, wider, and sometimes with a keel. They are built much stronger and heavier than the ordinary sculling boat, from the strain not being even on the two sides, owing to the alternate fixing of the outriggers on each gunwale (Fig. 1). Unless a boat is reasonably stiff in her length she will not row well, because at the moment she is being impelled by the oar she trembles and twists, changing for that instant her proper form, as well as taking a slightly serpentine course.



Fig. 4.—"CATCHING A CRAB."

The racing pair-oars are usually about thirty-four to thirty-six feet long, and from seventeen to nineteen inches wide; but they are always built in proportions suited to the weight of the men they have to carry. These boats are usually covered in at the bows and stern with canvas or duck, in place of mahogany or cedar, as in former days,

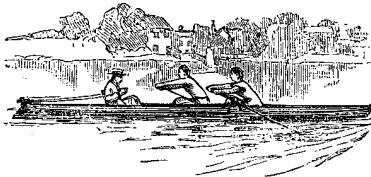


Fig. 5.—ROWING PAIR-OAR OUTRIGGER.

in order to save the weight of the wood, and their skin is usually of yellow pine, though in some cases it is made of mahogany or cedar. The greater length in comparison with the sculling boat is placed in the middle, so as to give room for two men instead of one; and when steering is required, more room is given for the boy to sit when handling the yoke lines (Fig. 5). But this addition is only

allowed in winding rivers, where it is impossible to avoid running on shore without a coxswain. On the Thames such a thing is never seen in a race, but boats do not always follow a straight course, and, as a consequence, lose some distance by overshooting the line to the right or left.

The two rowlocks are known as the after or "stroke rowlock," and "bow rowlock;" the former is generally bolted to the left side, in front of the "stroke" man's thwart, and between the two thwarts on the other side is bolted the bow

rowlock; the exception to this is when the stroke-oar cannot row on the stroke side, in which case the rowlocks are reversed, and he is said to row stroke on the bow side. The oars are in form merely enlarged sculls, being somewhat longer, and the square of the loom is gradually rounded off into it for about five or six inches, for the greater convenience of holding it with the inside hand. When all are on board, pair-oars are very little higher out of the water than sculling boats, being about four inches and a half between the water-line and edge of the gunwale. The strakes or skins are put on in breadths or sheets of the same size as the boat from keel to gunwale, and are generally in two lengths, scarfed together about four feet apart on the two sides, so that each side is divided into two unequal portions, one having the greater length of plank forward, the other the greater aft. The skin is of the same thickness or substance as the sculling boat, but the timbers or ribs are considerably stronger, and are carefully framed into the keel, which is now usually strengthened by what we may call a backbone, which is a piece of deal or other light wood, running longitudinally fore and aft along its surface, and shaped so as to rise up to the under surface of the thwarts, which are securely nailed to it.

The four-oared outrigger of the present day is constructed just like the pair-oared, except that it is some eight feet longer. It is generally forty-two feet long, from twenty to twenty-two inches wide over all, and one foot deep amidships, seven inches and a half at the bow, and six and a half at the stern; the distance from the thwart to the thowl of the outrigger is one foot one inch. The midship oars are twelve feet five inches long, and the buttons are fixed on at a distance of three feet five inches from the end of the handle; the bow and stroke oars are twelve feet four inches long, and have the buttons put on three feet four inches from the end of the handle. The space between the coxswain's thwart and the stroke's stretcher is one foot, the breadth of coxswain's thwart being eighteen inches. Formerly these boats were built forty-eight feet in length, and only twenty-one inches in width, even for a heavy crew, but the present proportions are found to be a marked improvement, for when they were so very narrow and long they did not offer sufficient resistance to the burying power of the stroke, and were forced deep into the water while "on the hand," rising again in what is technically termed "the shoot," the consequence being that the boat made a succession of dips, causing a great loss in her speed. For many years the idea prevalent was that the only limit to diminution of breadth and increase of length was the difficulty in making the boat of such stiffness as to stand up under the weight of her crew. These reasons, derived from experience, have been the chief cause of the length and breadth and depth now adopted, the proportions named offering the right amount of resistance to the downpull when the rowers are in full swing. Up to recent times rudders have always been used in four-oared boats, a thwart being fixed for the coxswain, who is usually chosen for his light weight. Now, however, four-oared races are rowed without coxswains, stroke or some other man steering by means of an apparatus coming to his feet as they are on the stretcher, when he is rowing.

The eight-oared outriggers are constructed in exactly the same manner as the pair-oared boat, except that they require more space for extra men. They are much longer, being fifty-six feet in length, two feet two inches wide over all, and one foot one inch deep amidships. The old-fashioned boats were commonly sixty-five feet long, in some cases even seventy feet, and two feet three or four inches wide. The outriggers are placed four on each side, and must be suited to the men who are to row in her, as the position that will suit one will not do for another; the six amidship oars are twelve feet six inches long, the bow and stroke twelve feet five inches in length.

Twelve-oared outriggers have been built, but are not often used. They are simply elongated eight-oars, and need not be further described.

Before purchasing any boats, or taking them over if built to order, they must be carefully tested and examined, to see if they are sufficiently stiff to prevent their getting "screwed," *i.e.*, getting out of shape when rested on either end. A crooked keel, resulting from a strain, is always an annoyance, as it causes the boat to bear more on one hand than the other, and, from requiring constant steering on the side affected, impedes her way. Of course no boats are mathematically correct, as a practised eye will detect some little deviation from an exact correspondence between the two halves of the boat when standing at head or stern, and looking down the centre line.

Since the introduction of the sliding seat, the art of rowing has undergone material changes, but it is open to question whether style has gained by the alteration in the seat. The sliding seat is an American invention, and consists of a seat which is capable of sliding backwards and forwards, through the motion of the oarsman's body. This has the effect of reducing the swing forward to a great extent, as the crew slide forward in a more upright position than was formerly the case.

The three main principles of successful rowing are, first, perfect time, secondly, getting the oar into the water square, *i.e.*, at right angles to it, and thirdly, rowing

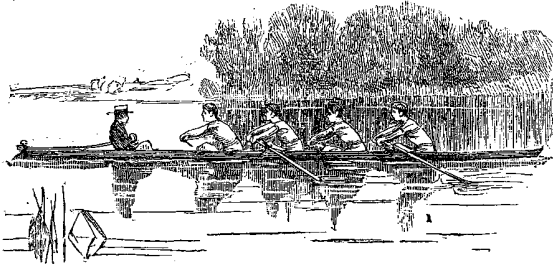


Fig. 6.—A WELL-COACHED CREW.

the stroke right out and using the legs well. With reference to "time," all that can be said in the way of advice to a beginner is, be determined never to remove your eyes from the shoulders of the man in front of you. Follow his every motion, and if the time is wrong you will not, at all events, be to blame. Be careful not to hurry the body forward, under the impression that you may otherwise be late, for this only makes the boat roll, and nothing demoralises a crew more than that. Be sure to bring your hands well up to your body at the end of the stroke, and on no account keep them there longer than you are able. A quick recovery after a stroke and the free use of the legs the moment the oar gets into the water are important agents in the acquisition of that "lift" which is so desirable to obtain in boat-racing. A well-coached crew (Fig. 6) will, when rowing, fairly make their boat seem to jump out of the water at the beginning of each stroke; and the value of all work done in *front of the rowlocks*, *i.e.*, in the first part of the stroke before the blade of the oar comes level with the oarsman's body, is almost beyond estimation. As regards the oar itself, it should be brought straight home to the chest (Fig. 7), the knuckles touching the body about an inch or less below the bottom of the breast-bone, where the ribs branch off, thus every inch of water is made use of. When there, the hands should be dropped straight down, and then be turned over and shot out again along the legs, and the body should follow without the

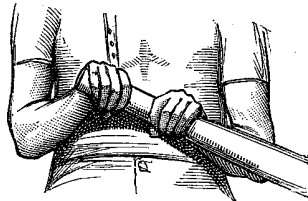


Fig. 7.—"BRINGING THE OAR HOME."

least pause. If this is not done the oar will be feathered under water, and thus the boat will be buried, water will be thrown on the next oar, and the recovery will be impeded. To effect a quick recovery the back must be perfectly straight, the knees must not have been dropped down too low, and the straps must not be used too much; a light touch is all that is needed. The muscles of the body—in this case those that cross the stomach—must be used, and not the boat itself, of which the strap is a part. The body should be swung evenly forward from the hips, not with a jerk or a plunge, or quicker at one time than another, but freely and easily, as if the hip-joint worked well and not stiffly.

Be careful always to get the oar in *square*; if it goes into the water obliquely the blade will get in much too deeply, and the ship will roll; be sure also that the blade of the oar is well covered by water, but no more. Deep rowing makes the boat roll, and if the oar is not in deep enough an insufficient amount of work is done, and a splash is also caused which inconveniences the other men. In swinging backwards and forwards, be sure to do so straight between the knees. Many, otherwise good men, screw across the boat, and thereby not only spoil the appearance of the crew, but make the boat unsteady, and so spoil the pace. Feathering under water is a very common fault in the best of crews, and it consists in commencing the feather before the oar is well out of the water. This is never the case when the stroke is rowed well out, and the hands brought well up to the body before the feather is commenced.

“Holding water” is necessary when the boat is to be suddenly stopped, in which case her crew on both sides reverse the blades of their oars, and, according to the pace at which they have been going, drop them more or less into the water, holding their arms straight, and keeping the inside hand firmly upon the loom, to prevent the water from sinking the blade too far under, and thus causing a “erab.” It is a very difficult manœuvre to execute well, but after a

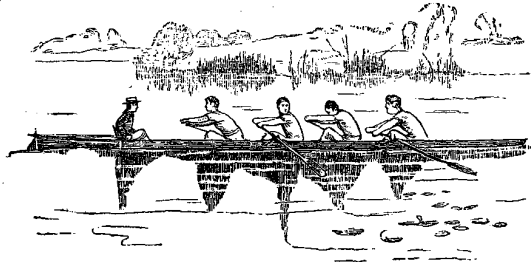


Fig. 8.—A “RAGGED” CREW.

great deal of practice it will be found that by a simple turn of the wrist, so as to twist the handle to or from the body, the blade can be raised or lowered according as it is found necessary to slacken or increase the power exerted to check the boat, *i.e.*, by simply turning the blade with its upper edge downwards towards the nose of the boat the oar sinks, and by depressing the lower or after edge it immediately rises to the surface of the water.

“Backing” is performed in exactly the opposite manner to rowing, *pushing* the blade through the water, and *pulling* it through the air the moment it leaves the water. The blade should be neatly feathered, care being taken not to dig too deep, and to back in *good time* and with the same length of stroke. In rowing and backing a boat round, care should be taken that it is done as gently as possible, for nothing strains or screws an outrigger so much as force applied under these circumstances. A boat will last as long again as she otherwise would if this point is always attended to.

“Paddling” is simply the act of rowing at about half-power, or a milder form of rowing hard, of which the opposite extreme is spurling; the pace is about

twenty to thirty strokes per minute, according to their length, and according to the amount of strength applied. At this pace one can detect every fault, the keeping of time and stroke, if bad, being very evident; paddling is therefore very valuable for the coaching of crews before venturing on races, especially those that are to be contested over long distances.

"Spurting" is performed by all the crew exerting themselves to their utmost powers to propel the boat through the water with the greatest velocity of which she is capable, whatever the distance may be, a few boat lengths or half a mile at a time.

"Easing," or stopping, and starting, being the exact opposites of one another, are performed differently; the former is merely the ceasing to row, all together, at exactly the same moment, and when the coxswain gives the word "Easy all," which he should invariably do at the end of the stroke, all the oars should not be wholly recovered from the feather.

The length of the stroke is that which all in the boat can well keep up without the forward reach being so far as to make the drop unsteady, or the backward swing being carried so far as to bear too hard on the oar, and thus cause a depressing or downward pull on the boat. The stroke-oar must be very careful not to *over-reach* his crew, though he should be able to do so if necessary, by which a young crew will be greatly improved, and have their style and powers developed to the fullest extent.

Straps have come greatly into use since the present light racing boats have been the fashion, and were introduced to enable the rower to raise himself after delivering his stroke without bearing too heavily on his oar; and now a regular rower could not put forth his powers of muscle, and get the utmost amount of speed from his egg-shell boat, if he were without straps. Some great authorities say that straps are objectionable, as they cause the body to be doubled forward on the oar; but this is more owing to the lightness of the boat than of the straps themselves.

Coaching is a very important portion of a rower's studies, as upon it depends his proficiency in the art; and novices should always learn from an acknowledged master of the oar, as their form will in the future depend entirely on the capacity of their teacher. Beginners should invariably be taught in tubs, to acquire the proper manner of handling their oars, boats, and yoke lines, and their teacher should accompany them in their boat to correct every error, and tell them how to become perfect in each action and movement. It takes a very, very long time to get a crew to row well together; and in commencing it is a vital point to select healthy men, as during their training they have to undergo some trying work, which will tell severely on any but a thoroughly good strong constitution. Some people say that from the waist down in rowing the whole limbs are idle, but one moment's consideration will show the fallacy of such a statement, for the legs, thighs, and lumbar muscles all have to take their share of the work, and are most essential to the proper performance of the oarsman, good thighs and knees being as requisite as shoulders, chest, and arms. The power seems to be in the arms and back, but this force cannot be exerted unless the pushing power of the thighs and legs against the stretcher tended to prevent the body from slipping off the seat and taking its place on the floor of the boat. The man's frame should in all cases be examined, to see if he has a muscular development such as will enable him to put forth the force that will pull the oar through the water in the orthodox manner; for unless the loins are powerfully developed the finest muscle and bone of the arms and shoulders are utterly worthless, and a race may be lost from mere want of attention in selecting a properly proportioned and developed crew. The best way of selecting men is to take them out in an old-fashioned boat or skiff, and before the start everything should be set in

proper order, or the mat, stretcher, oar, or other things may be found wrong, and in the end cause unexpected errors in the pupil's work. The instructor sees that his pupil is in a proper position—*i.e.*, that he is quite square and upright on his seat, his feet pressed firmly against the stretcher, with heels together and toes well apart. The outer hand should be close to the end of the oar, the inner hand about three or four inches from the other, his arms being straight, his shoulders square, chest well out, the head well up, and the knees apart. He must reach out and try a stroke, which is to be closely watched by the teacher, and every movement explained and pointed out to him, and shown at the same time by the teacher himself rowing a stroke or two. The body should bring its weight to bear on the oar steadily, and both the entry and finish be clean and neat, command being kept over the oar from beginning to end of the stroke, for with a novice the oar will, in naval parlance, "take charge," and be the master of the learner.

These last lessons must not be too long in their continuance, but be frequently repeated for some weeks, till the learner has perfectly mastered the rudiments of the craft. Much good is derived by the pupil occasionally changing places with the instructor, and carefully watching every movement as to handling the oars, and after feeling that he has overcome many little points he could not quite see before, he should again change places, and practise what he previously did not see the way to accomplish.

When he is considered to be a proficient in pulling his oar through the water, he may have some practice with a good oarsman rowing stroke, by which he, in taking the bow oar, can learn to keep time, and see how the oar should be manipulated to get the utmost power out of it in the act of propelling the boat; but it is by no means the case that the best oarsman makes the best "stroke," for many men who are excellent when in a boat, behind others are so wanting in judgment and "time," that the whole crew are thrown out directly they take the after oar. The man entrusted with the all-important post of stroke should under every circumstance be a good oarsman, and possessed of that amount of pluck that will enable him to "spurt" when the critical moment comes, and by sheer force of example put new life into his exhausted crew.

Presence of mind is another much-needed requisite with a good stroke, as it enables him to keep the time of his stroke throughout the race, and avoid any hurry when his antagonists may be pressing him unpleasantly. Many a race has been lost for want of presence of mind; and it seems hard to reproach a man for the absence of a quality that he does not possess.

Every one of the crew should copy the manner, style, and peculiarities of the stroke. During the whole of this practice the teacher must be careful to give a reason for every little thing that he shows his pupil; let him be forbearing and not lose his temper, for on this very much will depend, the end being that the learner will leave off a proficient in all the little niceties and finished actions which make an accomplished oarsman. A coach will soon find after some practice those of his pupils who give the greatest promise of being good oarsmen, and, when the time comes, preference can be given to them if they can be placed in such crews as are to race.

The duty of the coxswain is one of the most important in boat-racing, but at the same time a very simple one, as it often makes a very great difference in the distance to be rowed over whether the men are taken in-shore to save them, or out in the current, when rowing against stream, to tire them, or kept well out in the current in place of along the bank when coming down with the stream. The coxswain should direct each man what to do and when to put forth his strength, give the order when to start, stop, or ease; the yoke lines should be kept "taut," so that the rudder cannot move with the pressure of the water on either side, and by a

careful adhesion to this rule the boat can be moved in any direction by the slightest touch of the lines, as a sharp pull when the boat is going at a rapid rate will send her out of her course far more than is necessary.

In turning sharp curves the outside oars must be pulled hardest, the inside being just kept moving, and in some cases even backing water. The coxswain should call out to his crew, saying, "Pull, bow side," or "Pull, stroke side;" and again it may be necessary for him to say, "Ease, stroke or bow side." But of course these tactics do not refer to the management of a boat during a race. The rudder should be used as *sparingly* as possible in turning, as a sudden use of it will impede the boat's way too much and tire the men, when, by using the oars, all is done that is necessary. Coxswains are chosen for their light weight, and, if possible, they should be men endowed with great presence of mind and decision of action to get the boat out of any position of danger or difficulty in which she may be placed; but this seeking after light-weights should not be carried too far, as a stone or two of greater weight, combined with the requisite knowledge and a cool head, will do more to win a race than having a feather-weight, empty-headed coxswain, who does not think of what he is doing. Races are sometimes thrown away when hanging in the balance by a lamentable want of judgment on the coxswain's part, by his steering suddenly in the wrong direction, or failing to call on his crew at the right moment to make a spurt, which in all probability would have made them win by half a length or so. It requires considerable nerve and determination to keep a boat going on her course when pressed close by an opponent, as, if the coxswain were to give way the loss of the race might be the consequence.

In coming up to a point that has to be rounded the boat must go round in a steady curve, in place of being jerked round at almost an angle. In a heavy wind abeam the coxswain's best judgment is called into action, as then the boat is fast making lee-way, and it will be found very necessary to keep her head pointed somewhat to windward of her true course.

The coxswain may very much influence the fate of a race by judiciously *washing* his adversary, that is, giving him the full benefit of the wash from the wave of displacement which usually follows a boat's quarters, for if sent on the bow of a boat it very materially affects the result of the contest.

TRAINING.

If the crew selected to row is a large one, it should be a rule, if possible, to keep them together day and night; and, if this cannot be done, they should certainly have their meals and runs together, and should never, especially at night, be free from "surveillance." Where practicable, lodgings should be taken near the river, but on high open ground, if possible, as low ground on a river bank is very objectionable. If in the summer, the training should take place in the mornings and evenings; but some object to this plan, and say the rule, subject to variations in the time of year and in the weather, should be for all to rise at seven o'clock, and either jump into the river and come out again immediately, or sponge themselves with cold water and be rubbed dry with a coarse towel, getting dressed by half-past seven. They should then take a smart walk, and come into breakfast ready to enjoy it, but free from fatigue. Many trainers, however, prefer to defer the "matutinal tub" until after the men have had their row. This is a matter of opinion, and hardly necessary unless very severe training is being undergone by the crew.

In our opinion the golden rule for all men in training to follow is to keep the body in a state of temperance and sobriety, and to give up smoking and the frequenting of ill-ventilated rooms; above all, the man trained should enter heart and soul into the task before him.

If a man is tall, fleshy, of full habit, powerful frame, and of great bulk, he must be ground down to get rid of his fat; but it is a mistake to reduce a man simply because he is heavy.

As regards diet in training much has been said and written, but we believe that the exercise of common sense has more to do with good condition than the slavish adherence to the rules of any writer. For instance, what medical man in possession of his senses would admit that every member of a crew had an identical constitution? therefore, how is it possible for all to benefit from a similar course of training? Delicate men require a certain amount of coddling; gross men must have plenty of work to get them fit. A mild dose or two of physic in the early stages is beneficial, as it removes internal fat, but after that, as a rule, it is better to keep the bowels open and the blood cool by the free use of green food, such as watercress, lettuces, and cabbage at dinner. As to the diet for ordinary training, which is all we can touch upon here, we strongly advocate chops or steaks, not necessarily underdone, for breakfast, which may be augmented by boiled eggs and marmalade, lettuces, and watercress. Tea is better than coffee, and the less sugar taken the better. Enough food and fluid should be taken, but overcrowding the stomach is most undesirable.

If the crew mean practising in the early afternoon and dining afterwards, a very light lunch is often given about noon; and for dinner good solid joints of beef or mutton, with a few potatoes and plenty of greens, is the best staple fare. Light puddings and stewed fruit may be taken, but no cheese, and some good sound beer is the best drink. Chicken and fish may also be given, and in short, any *nourishing* and easily digestible food can do but little harm. Toast is better than bread upon all occasions, and the less fluid drunk the better. The first few days' training will probably produce an intolerable thirst, but this will soon wear off, and until it does so the mouth can be rinsed out with water, which is a great relief. An orange or a few French plums and biscuits after dinner can do no harm, but a good walk is necessary to assist digestion an hour or so after the principal meal has been partaken of. Supper may be taken about 8.30, and should consist of a biscuit and a *little* meat if the man requires it, washed down by either beer or tea. The hour for retiring should be from 10.30 to 11, not earlier or later, as too much bed is as bad as too little rest. We believe these few suggestions, which can be modified according to circumstances, are all that are necessary for an ordinary preparation, but of course extraordinary events will be met by extraordinary measures, and the services of an experienced trainer most probably engaged.

Many men suffer from diarrhoea or constipation during training. In the former case a cessation from hard work, in the sun particularly, is often imperative, and if the ailment is obstinate medical advice should be obtained. A mild dose of physic, and an extra allowance of vegetables, will usually cure the latter trouble, though it sometimes leads to troublesome boils which require a doctor's aid. Blisters on the hands, too, are often very troublesome, and cause anxiety to pupil and coach alike. The best thing is not to prick them until they are thoroughly developed, and then only enough to let the water out, for the skin should not be removed or a bad sore will be the result. The hands, if uncut or unwounded by blisters, can be hardened by rubbing with powdered resin, or by being frequently bathed in cold water, in which some alum or Goulard water has been mixed.