

action of his hands (which long and painstaking rows will best attain) he can go into a wager-boat. When first he so promotes himself he must call all his oaranship into play. He must 'sit' the boat for himself; no one else will do it for him. He must not trust to his sculls to steady the boat on the recovery, not let them slobber along the surface of the water to preserve balance. He must drop his hands and lift the sculls boldly out when the stroke is finished. Roll at first he will, but for this he must make up his mind, and must try to counteract it by balance of his body, and by sitting tight, not by sliding his sculls along the surface of the water to steady himself. If he does this last he may counteract unsteadiness, but will never acquire the art of balance, nor cure the faults that caused him to roll—will rather add to them by feathering under water, and will lose inches and inches of shoot each stroke by thus fouling the water. Half the crab-like contortions that junior, and even senior, scullers display (one arm bent over the other, one shoulder shrugged, one arm longer in the reach than the other, or one rowed home, and the other finishing inches away from his chest) may be traced to uneven sculls or work which prevent the body from throwing equal weight upon each arm. It is true that many scullers spring at once to a wager-boat without an apprenticeship in a steady gig, but they do not become proficient any sooner for so doing, and many a sculler in a wager-boat who cannot get his hands in time, and spoils his style and steadiness in consequence, would obviate half his difficulties if he would condescend to do two or three long rows in a well laid-out gig, paying special attention to the uniformity of his hands.

Steering is an all-important accomplishment for a sculler, not only to save distance, but also to avoid risk of fouling when he comes to racing. If the course is pretty clear the sculler will soon learn not to trust to looking round more than to get his boat's head straight for the reach of water in which he is, and then he will keep his eyes on the stern of his boat, and regulate that by some distant object ashore, as an artilleryman lays a gun, so as to keep the straight line in which he has laid his boat. It stands to reason that he shortens the reach of the arm on which side he turns his head to look behind him, and loses his power. As he gets to know a particular course well, he will fall back each time upon the same steerage points for guidance, and those who have sculled to utter distress can appreciate the gain of being able to take up, almost by force of habit, and without any exertion of calculation in the

mind, each necessary steerage point in turn over a well-known course. As he watches his boat's stern the sculler will be able to judge of the evenness of the action of his hands. He can see whether they work evenly throughout the stroke, or whether one rows the other round in the first part, and has to slacken to allow the other to bring the boat straight in the finish of the stroke. If this is done, he will see that not only does he lose ground by the boat's wake being thus an elongated Z at each stroke, but also he loses power by one hand working weaker than the other at one time, and the other at another. If he can bring the the hand that is weakest in the first part of the stroke up to the level of the other, he will gain not only in this, but will also no longer have to waste strength with the other hand at the finish. In his steering he must be on the watch to correct the first beginning of deviation from his course, and to adjust the work of each hand accordingly. In time he will learn to keep his stern-post true to his steerage object, without having constantly to awake to the consciousness that he is many degrees out of his due line, and so having not only to waste strength in rectifying it, but also to lose ground in returning to his lost track. Steerage apparatus now takes much of the labour off the arms of righting the boat in its course; but a beginner will learn best to work evenly with both hands if at first he dispenses with such apparatus. The power of rectifying unevenness by a touch of the foot upon the steerage lever tempts many a man to be careless of studying even work of both hands, which would obviate constant appliance of the rudder. Besides, the best fitted rudder must more or less 'draw' the water, and so check 'way'; and so on smooth water a sculler who can use his hands evenly, and can steer a good course without it, nor has many tortuous corners, to navigate, will go faster without a rudder than with one.

Length of stroke tells in any craft, but more in a sculling than a rowing boat. The longer the stroke the less frequent repetition it requires, and, therefore, the slower can be the swing forward. This latter not only tells upon the physique of the sculler, by sparing the strain of recovery, but it also tells upon the travel of the boat, for a quick rush forward ducks the stern under water, and causes the boat to lose way, not only from being out of the plane of the water, but also from the weight of water lying for the instant upon her canvas, which increases the 'surface resistance' (or the extent of superficies of the hull, which is brought into contact with the water, and so into friction

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