standard gear. The rower rows, the passenger steers, what could be simpler? There also has to be a method (a couple of cam cleats?) with which a lone rower can set the rudder.

6. Oars. When it comes to running off the prospective rower, we've really done it with our oars. Oars are heavy, they raise blisters, and they are often difficult to use. The classic example: Put a novice rower into a boat with a nice long pair of well-greased, buttonless ash oars—good, solid, durable oars, the kind that weigh about 6 pounds apiece. The novice will flail around out there for about ten or fifteen minutes. The oars will slide in and out, jump out of the locks, wear the rower down, and make her or him feel like the complete fool. He or she will be out of rowboats and into canoes like a shot.

If all this seems a little heavy-handed, you could try a more subtle approach. Take your bright-eyed hopeful and put her or him into an Adirondack guideboat or, if the guideboat is a little on the tippy side, a nice St. Lawrence River skiff. The oars will be lighter, and they are pinned in their locks so that they stay in their proper place. Being long and slim, both of these boats want a fairly long oar to make them go well. In order to balance the oars, the oar grips are substantially overlapped. New rowers universally hate this, "I keep whacking my knuckles." It does no good to tell them that they'll soon get used to it. The ones with any sense would rather stop than get used to whacking their knuckles.

Ratty had that problem wired too. If the English pleasure rower wanted a wider distance between his oarlocks than he had boat — so that he could get rid of excessive overlap — he added outriggers. The fact is that the traditional English wrought-iron outrigger is too heavy and unwieldy for a boat that has to be car-topped. Light, stiff, easily removable outriggers, perhaps like the ones on the Natoma skiff, can be made in the shop and solve the problem quite nicely.

The point is, in pleasure rowing at least, if you can clearly identify a problem, you can usually find that someone somewhere has already solved it. When this approach to problem solving is applied to the pleasure oar in general, things get pretty lively. If the problem with pleasure oars is that they are heavy and hard to use, we have an inspiration for a perfectly lovely solution in the 3-meter racing oar. The question is whether we can make use of it. The racing oar has been subjected to such intense evolutionary pressure in the name of competition that it must be considered nearly perfect for its purpose. The wonder is not that it is tremendously strong and efficient, but that it works so easily and still weighs only 4 pounds. Unfortunately, it is also difficult to build well, expensive, and fiercely complicated. That's what you get when your chief aim in life is to beat out your fellow man.

We could cheerfully chuck all this talk of complicated, expensive construction and go back to our old muddling oars if it weren't for the tantalizing promise. An example: My Natoma skiff gets along just fine with a 7'6" oar. A pleasure oar this length built to conform to the racer's values of light weight and efficiency would be a marvel. It would only weigh 2-1/2 pounds. It would be so easy to use that a smallish woman could glide along for miles, expending no more effort than she would on a rambling walk.

I have worked out a method for making oars that incorporates the desired qualities of the racing scull. I don't know that the method is particularly easy, but it is inexpensive, and with a little practice a pair can be made in 6 to 8 hours ready for varnish. In the drawing I have tried to explain everything as clearly as possible with the exception of the theoretical background material necessary for modifying the oar design to suit other boats. If you feel a little weak in oar design theory, accompany me into the next section for a short exploration of handle balance weight, inboard/outboard ratios, and perhaps one or two of the other wonders of the pleasure oar.

The rest are thanked and excused!

The Technical Part

Now we can get down to the business of how oars work. It really is fun if you sort out most of the academic garbage. The intriguing thing about a really good oar is how everything works together. The size and shape of the blade are in harmony with the size of the shaft. The part of the oar inside the lock has a real relationship with the part outside. Everything comes together in the oar's weight, or rather, its mass. The significance of mass can be illustrated by envisioning a man walking a big cruising sailboat along a dock. The boat's weight is supported by the water, so all he has to deal with is its mass. He doesn't have to be particularly strong, he just starts pushing, and pretty soon the boat slides along. But he shouldn't wait until the last moment to start slowing the boat down. It'll jerk him right into the water. Mass is sneaky.

I have mentioned my preference for rowing over paddling. One reason is because in rowing, you don't have to support the weight of the oars in your hands; they float in the locks. All you have to do is waggle them back and forth. But oars still have mass. In order to get from point A to the point where the lunch is, they not only have to be started and stopped an awful lot of times, they also have to be raised out of the water at the end of every stroke. This is why racers insist on the lightest oar possible. They're trying to save their strength for pulling. You want the absolute minimum mass necessary to do the job well.