

### THE LAUNCH OF "SHAMROCK II."

In the contest for the "America" cup the present holders have very wisely preserved each successful defender as far as possible unaltered to act as a trial horse with that which succeeded. In Britain, where there has been a variety of challengers, and an occasional change even in the designer, this course has been impossible, and the challengers' chances of success have always suffered from the fact that each succeeding boat was practically an independent experiment. In the yacht which was launched at Dumbarton on Saturday a change has been made for the better, for she represents the first real attempt of either side to produce a cup racer on lines governed entirely by scientific experiments.

Before definitely deciding to accept Sir Thomas Lipton's commission to design an "America" cup challenger, Mr. G. L. Watson entered into correspondence with Messrs. Denny Brothers, of Dumbarton, who rank as the most scientific of Scottish shipbuilders, and arranged with them for the carrying out of an exhaustive series of experiments in their test tank, which has a length of 200 feet, and is one of the most perfectly equipped testing tanks in Britain. These experiments were started in June, 1900, and proceeded for fully nine months before Mr. Watson was satisfied that he had sufficient data to justify him in proceeding with the designing of a cup racer. There were no less than eleven different models made, and sixty different modifications of these models were tried in the course of the experiments. Mr. William Fife, Jr., designer of "Shamrock I.," lent a willing hand in this part of the work, and the result is that it was possible to test absolutely accurate models of "Shamrock I." and "Valkyrie III." one against the other, and to experiment fully with modifications of the model of each of these boats.

How far the result of these test tank experiments can be made applicable to the conditions of actual racing remains to be seen, but there can be no question that Mr. Watson has introduced a feature of much importance and one that promises to make the British boat a more formidable opponent than has ever been brought against an American defender of the cup.

So far as the general characteristics go, "Shamrock II." is a boat of the ordinary type, with a shallow canoe-like body, steadied by a deep bulbed keel under water and drawn out into long, sharp ends above. In the little information which leaked out regarding the result of the experiments in the test tank, it was hinted that the new boat would be found to throw back, to some extent, to the old "cod-head and mackerel-tail" type, favored by the designers who worked before any attempt had been made to wed mathematics and yacht designing. There is some truth in this suggestion, so far as it concerns that part of the yacht which is above water; for the bow lines of the new challenger carry the beam of the boat further into the forward overhang than has been the case in any racing yacht ever built on the British side. In the afterbody, also, the description is justified to some extent, for the quarters and the counter are drawn to a finer point than has ever been attempted in a yacht of this size on either side of the Atlantic.

The point of extreme beam, which is forward of the mast, has a width which is certainly not under 24 feet, and is probably fully 25, but the drawing in of the afterbody has been so thoroughly done that the long counter is tipped with a taffrail which measures not more than six or seven feet across. The American boats have generally been fuller in the bow than

"Shamrock II.," but there are other features less noticeable, but still well worthy of attention. The under side of the forward overhang is beautifully formed, with sections which give almost perfect segments of a circle. Under the bow, the shape is exactly that of the forward end of a soup spoon, and this shape, together with the great beam, gives the impression of a yacht which has little danger of developing the great fault of "Shamrock I."—that of burying her head when hard pressed.

In her sections the yacht is noteworthy chiefly for the easy curves of bilges and garboards. She is very much easier in this respect than Sir Thomas Lipton's last cup challenger, and she is easier even than "Columbia." The floor has a fair amount of dead rise, and the turn where the fin and the hull join is also sweet and easy. In drawing the big deck plan down into the small underbody there was a danger of making some hard and awkward turnings, but this

has been successfully avoided, and the yacht shows fair, true lines of much beauty. Over all, the yacht tapes about 135 feet, and the waterline length is within an inch or two of the allowable limit of 96 feet. The draught is about 19 feet. The casing of the hull is carried right down to the point of extreme draught of the fin, and the lead is run inside, the construction being similar to that of "Independence."

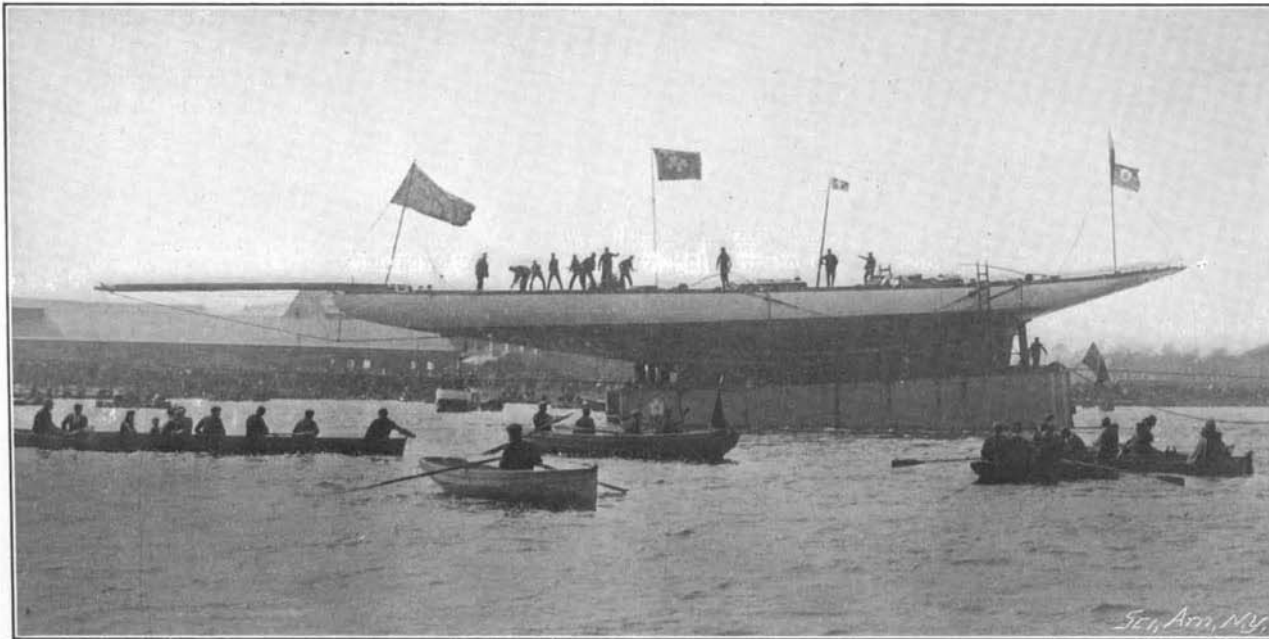
The framing of the boat is of bulb nickel steel, and the plating from keel to rail is in manganese bronze. There will be experimenting with the spars before the cup-racing trim is finally settled upon; but the mast, which was stepped immediately after the launch, is a hollow steel spar, built in such a manner as to allow of a wooden topmast telescoping inside. The boom and gaff are also of the same construction, and lightness has been pushed so far that the gaff is built of plates only 3-16 of an inch in thickness. To save weight and for convenience of construction the bow has been snubbed off, giving it the peculiar appearance shown in our view taken before the launch.

The shallowness of the water on the Leven made it impossible to launch the boat in the usual way, and large pontoons were therefore built on each side of the yacht for the purpose of floating her over the shallows. Incidentally, they had the effect of concealing a large part of the underbody of the yacht when she went down the ways. Supported on these, the yacht was floated at ten feet above her normal waterline, and she was got out of the Leven and taken to Glasgow with little difficulty.

She is announced by British experts to be undoubtedly the most beautifully-lined challenger that has ever been built, and, though there is a possibility that she may sail a little tender in fresh winds, the hull carries with it the suggestion that she will be a

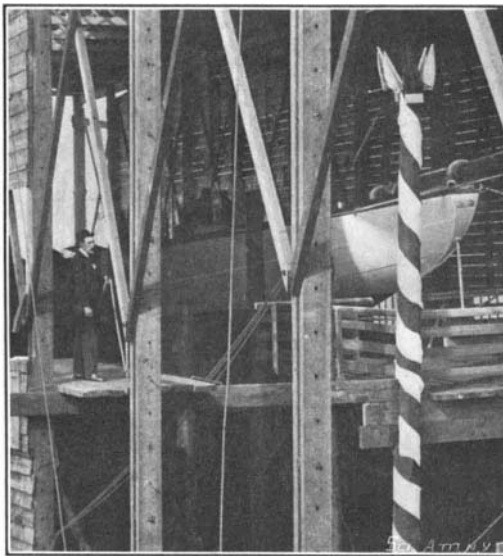
dangerous opponent in anything less than moderate winds.

The New York Central Railroad is trying a kitchen on the Empire State Express. Owing to the great speed at which the train is run, it is not thought desirable to add a dining car. A portion of one of the coaches has been equipped with a small kitchen similar to those used on the regular dining cars.



"Shamrock II." Afloat in Her Launching Pontoons.

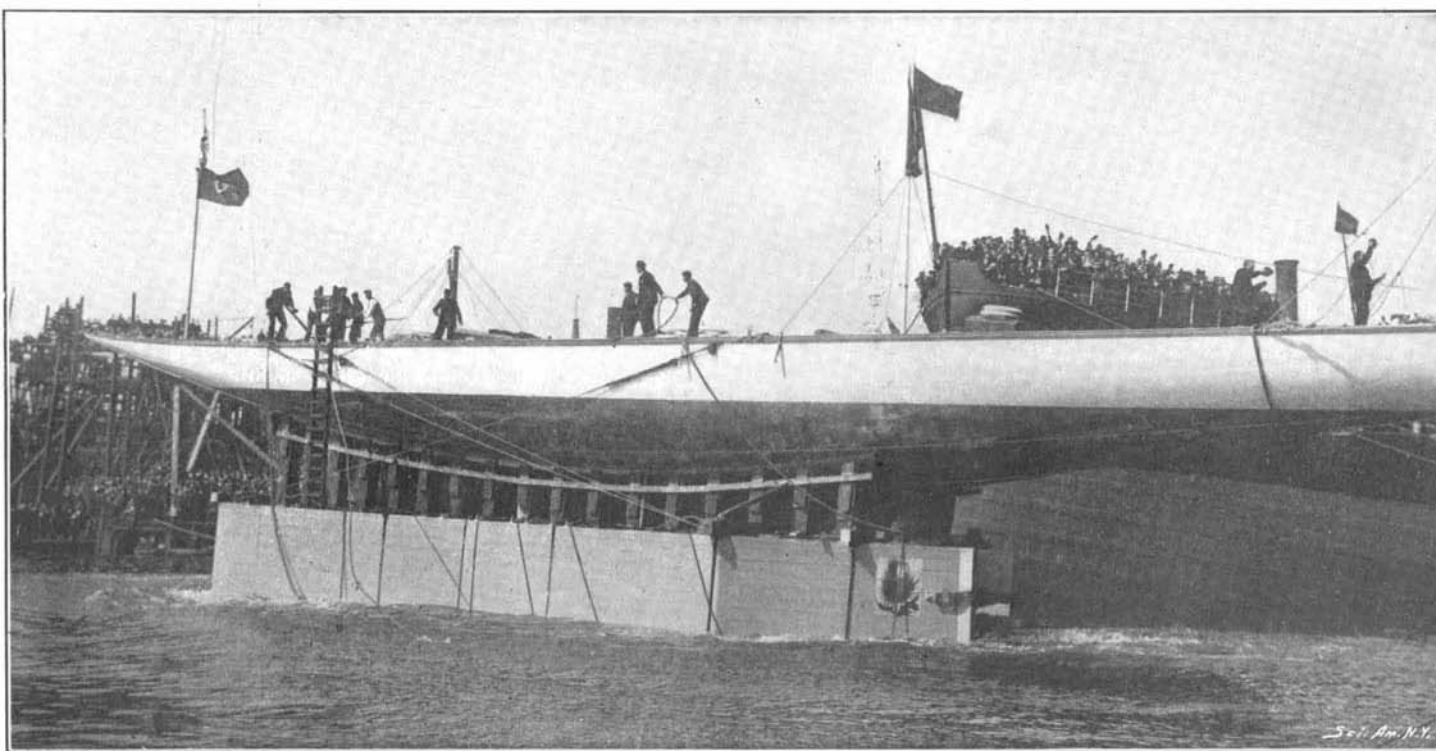
those built upon the British side, so that in one way "Shamrock II." may be said to be coming to American ideas—and carrying them even further; but the fining of the after section is a matter which is only being experimented with and has never been carried to anything like this extent in a cup racer. To the



View in Construction Shed, showing the Snubbed-off Bow.

eye trained to the ordinary type, it looks as though the new challenger may be lacking in power in the afterbody, but it is unlikely that Watson adopted a change of this nature without first assuring himself of its value.

These are the most striking characteristics of



View from off the Starboard Bow, showing the Easy Bilge and the Great Breadth of the Forward Sections.

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