

**Hydro-surfaces:**— Two sets forward 5 feet from bow, one set aft five feet from stern. Each set consisted of three blades, curvature 1:15, spaced 6 inches apart, and the hydro-curves were all set at an angle of 5 degrees. The blades were all  $3\frac{3}{16}$  inches wide from fore to aft. In the front sets the top blades were 30 inches long from side to side, the middle blades 24 inches and the bottom blades 18 inches. In the after set the top blade measured 26 inches from side to side, the middle blade 24 inches, and the bottom blade 18 inches.

**Exp. 1** The "Query", running under her own power with double propellers covered 100 meters in 28 seconds.

The engine however was not running very well. The "Query" did not lift out of the water, although her bow lifted to about amidships. The stability was all that could be desired, but the aerial rudder did not steer her. This was probably due to the fact that the rudder had been placed almost directly over the front set of hydro-surfaces which would naturally prevent her from turning. In this experiment the auxiliary ports of the engine were open.

**Exp. 2** The auxiliary ports were then closed and the engine did much better; but, as the rudder was useless, no estimate of speed could be taken. During the course of this experiment Baldwin shifted his position as far forward as possible to correct the lifting by the bow. This improved the longitudinal balance but the boat did not rise clear of the water.

**Exp. 3** The hydro-surfaces were then removed and the "Query" tried again without them. The speed was much improved but no measurements were made. Baldwin thinks it was probably more than 15 miles an hour. Steering however proved to be