

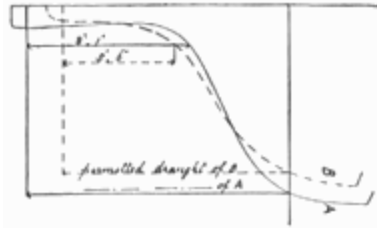
# YACHT MEASUREMENT

THE foot notes appended to comments which have already been published in the June and July issues of this magazine, have shown that these comments were written before changes were made by the Yacht Racing Association of Long Island Sound, and adopted for the time being by the Seawanhaka Corinthian Yacht Club. These changes have been represented as bringing the rules of the clubs included in the organization into near accord with those of the New York Yacht Club. In reality, however, no one of the factors used in the calculation of measurement is the same, and one only is even approximately so. Length of hull is obtained differently, and as formerly, and the same may be said as to additions to length for fullness of water-line ends, and as to the method of measuring sail area. Displacement is now used instead of the area of midship section, but the displacement is calculated from the area of this single section and length of water-line—as well it may be—instead of from five sections, practically three, as by the N. Y. Y. C. formula; and the cube root of the displacement is multiplied by  $5^{1/2}$  to furnish a divisor for length multiplied by the square root of sail area, instead of by 5, as in the N. Y. Y. C. rule, the formula being

$$\frac{L. \times \sqrt{S. A.}}{5.5 \sqrt[3]{D.}} = R. M.$$

Another difference from the N. Y. Y. C. rule introduced by the Yacht Racing Association, and a most material one, is that while the N. Y. Y. C. makes the limit, on draught = .133 (rating measurement) + 2.66, any excess exclusive of center-board being multiplied by 5, and added to the R. m., the Y. R. A. has no limit whatever.

As a rule devised with a purpose to give adequate assurance for the checking of those extreme features which have been present in modern racing yachts, and which it has been the earnest and longing desire of many yachtsmen to see abated, and the study and purpose of observant and thoughtful men everywhere to check in some equitable way, such a rule is as inadequate as would be for its uses a bushel measure with its bottom out. While the mode of limiting draught by the N. Y. Y. C. is plainly open to objection, this one in pursuit of any desirable attainment appears reckless and absurd. With any view to the encouragement of good design, displacement is not a thing to be fostered and stimulated without limit, neither is draught a thing to be unduly restricted. Present and recent conditions show that whatever the form of the racing yacht, or the amount of her displacement, the keel has constituted a disproportionate part of her draught, carried down to extreme and permissible limits to gain the effects of leverage; and shortened in length (to the injury of her steering qualities, as well as steadiness and



strength) to save fractional resistance. Draught in itself is not a thing to be, with equity, arbitrarily checked. To select this dimension for repression, and to leave breadth free to extension is to dictate the character of design by rule.

There is really no good reason why a rule should permit a man to build a yacht 20 feet broad and 12 feet draught, and yet prevent him, if he chose, reversing those dimensions; providing, however, that he used only a needed part of his draught for keel to prevent leeway. It would be otherwise if the body of his boat was shallow, and he used two-thirds of her draught as a lever on which to hang weight. It is not draught in itself that needs to be limited, but draught that is taken up solely by a fin or keel, and if this in order to escape being included in the measurement, is required to be in some proportion to the midship section associated with it, no other requirement would seem to be needed, and the premium of leverage being removed, displacement and the choice of dimensions would be left to free and natural adjustment. Of the limit put on draught by the N. Y. Y. C. rule, it should be noted that it is not regulated by any relation to other hull dimensions, but by reference to racing measurement, into which sail area enters, so that a vessel of the same size as another one but with a larger sail plan can have a greater draught. Another notable feature of this rule is that with restriction on draught, but with none on breadth, the presence of displacement in the rule does not secure a compact form, but permits the retention of the relatively deep keel or fin with a shallow body, the embodiment of displacement by increase of breadth, the development of the center-board feature in the keel yacht, and per contra the handicapping of the true keel yacht of even fairly compact form. The accompanying diagrams which exhibit the midship sections of two racing yachts (A having the greater breadth and sail area) will show the working of the rule in the limitation of draught. B has the more compact form and fills 40 per cent. of its circumscribing parallelogram. A fills only 32½ per cent. of its parallelogram, both measured to the draught limit. The area of A (whole section) is only 5 square feet larger than B, and the difference in draught allowed, exempt from charge, about 21 inches.