

David S Carment

The final painting in the Beecroft collection at the Royal Sydney Yacht Squadron dates to 1933. The subject is David Shallard Carment, the son of David Carment about whom I have written previously. David S. Carment was the official measurer for the Club for many years and it is this aspect of his sailing career which Beecroft has focused upon.



The painting shows Mr. Carment holding a slide rule with a red book in his left hand. The book has the initial Y. R. A. on its cover which stands for “Yacht Racing Association.” A plumb-bob is hanging from the side of the yacht on the slipway and these were standard equipment for obtaining accurate measurements in days gone by. Now it is done digitally with a scanner. Mr. Carment is wearing his Squadron uniform and smoking a pipe, of course. At the bottom left, Carment is quoted as saying “She works out to 8.3 metres!” which is intriguing because there

was no sign of the metric system in Australia in 1933. Ratings however were expressed in that scale.

The Carment family has documented their extensive family history and with their permission, I reproduce the following:

David Shallard Carment was born in 1884 at Sydney, Australia, son of Scottish-born actuary, David Carment, who was known for being the oldest yachtsman in Australia.

Carment had wanted to become a naval architect, and as there were no naval architecture courses in Australia at that time, he went to Boston, USA to study at the Massachusetts Institute of Technology. Carment was however unable to complete the practical requirements of the course which were to be undertaken at Boston’s naval shipyard, due to his status as an alien. Consequently Carment travelled to the home country of his parents, where he enrolled at the University of Glasgow in 1907 for five years. He took classes in Engineering

Drawing (1907); Natural Philosophy (Physics), Mathematics, Naval Architecture (1908); Intermediate Mathematics, Naval Architecture and Drawing (1909); Engineering, Engineering Laboratory, Higher Physics, Intermediate Mathematics (1910); and in his final year, Engineering IV, Higher Physics, Senior Naval Architecture and Drawing. He gained a Certificate of Proficiency in Engineering Science and graduated BSc in April 1916.

At the outbreak of the First World War, Carment was placed in the Reserve Army due to his occupation, and he gained practical work with his future father-in-law's company, Mackie and Thomson, as well as with John Brown and Company. Carment married Ida Marion Arbuckle Mackie in Glasgow in 1916, and returned with her to Australia, where he embarked upon a successful career as a naval architect with the Australian Commonwealth Shipping Board's Cockatoo Dockyard on Cockatoo Island in Sydney Harbour. He also taught at the Sydney Technical College, and played a role in the establishment of the degree course in naval architecture at the New South Wales University of Technology (the University of New South Wales), where a naval architecture prize is named after him. One of Carment's students, Alan Payne, went on to design Australia's first America's Cup challenger, Gretel.

Carment gained membership, and later Fellowship, of the Royal Institution of Naval Architects, and the Institute of Marine Engineers, and would later play a role in establishing the Australian Branch of the Royal Institution of Naval Architects.

He also took up his father's keen interest and expertise in yachts, and followed in his footsteps by becoming rear commodore and vice commodore of the Royal Prince Alfred Yacht Club, a member of the Royal Sydney Yacht Squadron and the Sydney Amateur Sailing Club. He was also a foundation member of the Royal Prince Edward Yacht Club.

In "Sydney Sails", Mr. Carment receives some extensive coverage.

*"Walter Reeks's successor (in 1925) as official measurer was **David S. Carment**, a graduate in naval architecture of Glasgow University, and owner of Athene. He had joined the Squadron in 1922. He fulfilled the exacting demands of yacht measuring, not only for the Squadron, but also for the "Prince Alfreds", the "Prince Edwards", and the Sydney Yacht Racing Association. With the growing interest in interstate and championship contests, and the consequent demands upon technical knowledge and accuracy in the rating of competing yachts, the office of official measurer was becoming of increasing importance. David Carment was an expert who gave, and continued to give, yeoman service to the Squadron, and to the sport of yachting, over the years.*

In a learned and lengthy paper by the Squadron's official measurer, David S. Carment, B.Sc., which was given before the Royal Institute of Naval Architects (Australian branch), the evolution of yacht design and yacht measurement was traced from the seventeenth and eighteenth century concepts of "tonnage" rating, to the Royal Thames Yacht Club rating rule of 1854, the British Yacht Racing Association's "1730" rule of the year 1882, and later developments including the "Linear Rating" rule introduced in 1901, and the first and subsequent international rules (ratings in metres according to formula) introduced in 1906 and modified in 1920 and 1933.

These formulas, intended to make classification and handicapping scientific, were of such mathematical complexity that only naval architects and other experts could readily understand them. The intention in general was to put emphasis on skill in handling yachts during races, by equalizing, as much as possible, the factors of hull design and sail-area. The accepted formula in the mid-1950s, as stated by D. S. Carment, was:

$$\frac{L+2d+VS-F}{237} = \text{Rating}$$

In this formula, L represented modified length, d the difference between skin girth amidships and chain girths, S

sail-area, and F mean freeboard. The method of measuring the components in this formula would seem too difficult for laymen to comprehend. As David Carment explained it:

The rule is by no means as simple as the formula would suggest. For instance, “L” is the length measured at a height 15 per cent of the class rating above L.W.L. plus one and one half times the difference between the girth at the bow section, measured to points 5 per cent of the rating above “L” and twice the vertical height from “L” to those points plus one-third the difference between the girth, covering board to covering board at the stem ending of this length, and twice the vertical height at the side of the yacht at this station. The minimum difference of girth at the bow station as above defined to be 30 per cent of twice the said vertical height.

There were many other restrictions and definitions in the formula of metre rating, as Carment explained them, for example:

No hollows in the surface of the hull between L.W.L. and sheer line, except in the profile of the stem forward of the point of measurement;

Maximum draught, 16 per cent of L.W.L. plus 5 metre;

Freeboard, maximum 008 of rating plus 025 metre;

Sheer, fair continuous line;

Tumble home, not to exceed 2 per cent of extreme beam;

Displacement in cubic metres, (02 L.W.L. + 015);

Beam, minimum specified for each class;

Maximum height of sail plan, class rating multiplied by 2 plus one metre;

Size and number of sail battens, also the maximum height of the fore triangle and balloon jibs, the size of spinnakers, the number of crew, the cabin fittings, and the dimensions and minimum weight of masts, all fixed;

Booms fixed in size and height above deck;

Scantlings as laid down by the various class societies.

The foregoing extracts from D. S. Carment’s technical exposition are not quoted as comprehensive, but solely to indicate the complicated and scientific system of measuring, classifying, and handicapping yachts that was adopted in Australia, following international practice, in the 1950s.”

Mr. Carment died in 1976.

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