Luigi Lang - Dyer Jones

the Twelve Metre Class

with the collaboration of Jan Slee

LTYachting Editions

LUIGI LANG - DYER JONES

THE TWELVE METRE CLASS

LTYachting Editions

The Twelve Metre Class played a significant role in the development of yachting in the 20th century.

Large graceful yachts, with good racing speed and manned by large numbers of crew, they were designed by some of the world's greats: Johan Anker, William Fife, Alfred Mylne, Charles Nicholson, Olin Stephens: it was inevitable that they would make their mark in history.

Moreover, in her second life after the World War II, she has been the protagonist of the America's Cup from 1958 to 1987: a important part of the yachting history, a perfect training for the most renowned designers of the period and for the test of some of the most advanced and innovative materials and technical solutions.

And here, at last, is the long awaited definitive book of this spectacular Class which its followers have been looking for.

It brings to life the history of this very special Class, focusing on its designers, owners, skippers and crews, and telling the story of how the class was conceived, its development, and its influence on the evolution of yacht design.

Illustrated with historic and contemporary photographs and original lines plans of the boats, it also includes a complete register of every Twelve Metre ever built, giving details of designer, builder, first and following owners, current home port and sail number.

This beautiful tribute is a complete history of the Twelve Metre Class ever completed of which a remarkable number of the early designs have survived.

Luigi Lang is Italian and comes from an Italian family that has always been passionate about the sea and yachting. One of the founders of the A.I.V.E. (Associazione Italiana Vele d'Epoca), and its' Executive Secretary for more than twenty years, he has been also an active member of the C.I.M. (Comité International de la Méditerranée) and he has played an important role in the great racing seasons of classic yachting in the Mediterranean and in the implementation in the rating rules for classic and vintage yachting. He has studied the history of the Twelve Metre Class for many years and has compiled a huge treasury of information about the evolution of the Class. Together with Dyer Jones, Lang is the author of the first fundamental text on the International 12 Metre Class. He has also written the volume *Grandi Yacht a vela dal 1880 al 1930* and is the co-author of several monographs and related studies.

William H. Dyer Jones is American and has been the President of the International Twelve Metre Association until 2006 and at present he is deeply involved in the America's Cup organizing body. His involvement with the Twelve Metre Class started in 1967, while racing on a Twelve Metre yacht during the defender trials in Newport, Rhode Island. During the unforgettable 1983 match between *Liberty* and *Australia II* he was chairman of the Race Committee, and in 1991 and 1992 was Commodore of the New York Yacht Club. He has been involved in the preservation and restoration of several classic yachts. Dyer Jones leaves in Newport, Rhode Island, and enjoys sailing with his family and friends on a beautiful 1936 Herreshoff "S" Boat.

Jan Slee is American, a lifetime sailor and 12 Metre enthusiast, got involved in the 12 Metre Class when he moved to Newport in 1998. He is presently the 12 Metre Class President and Registrar and with his family owns 12 Metre *Enterprise* US 27. Mr. Slee continues to be involved with 12 Metre events around the World.

Cover photo by James Robinson Taylor:
Vim, 1939

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ADVANCE • AILE • ALACHIE • ALANNA • ALEXANDRA III • ALKOR II • AMERICA II • AMER

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ECOSSE • ELEKTRA • ELFE II • EILEEN • ELLA • ELMARI • ELSA • EMILIA • EMMELINE • E

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OSTWIND • PHOENIX • PRINCESS SVANIVET • PTARMIGAN • RAAK • RAFAGA • RAGNA III • R

SCEPTRE • SCHWANHILD • SCIROCCO • SEESCHWALBE • SEVEN SEAS • SEVEN SEAS OF PORT

SKEAF V • SKEAF VI • SKUM III • SOLILOQUY • SOLVEIG I • SOLVEIG II • SOUTH AUSTRALIA

STARS & STRIPES '85 • STARS & STRIPES '86 • STARS & STRIPES '87 • STEAK 'N KIDNEY • ST

SYRIN • TATJANA • TEMERAIRE • TENDEREN II • TERESITA • THEA • TITANIA • TO

TRUE NORTH • TRUE NORTH II • TRULL • TYCOON • ULL II • ULLABRAND IV • USA • UWA • VALE

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Luigi Lang - Dyer Jones

the Twelve Metre Class

with the collaboration of Jan Slee

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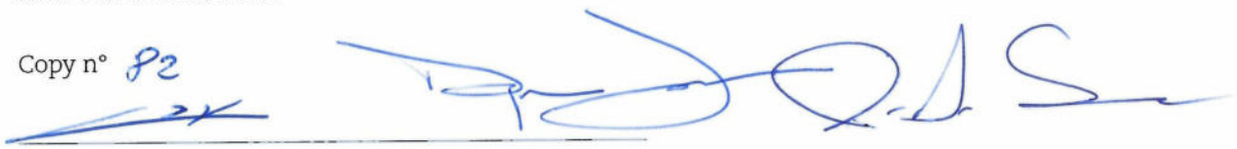


CONTENTS

Over the years the 12 Metre Class has anchored the yacht racing community. In the era of the largest yachts the 12s found their place as the smallest of the largest, and when the trend turned smaller they became the biggest of the smaller classes, filling many and varied demands. Whether in good times or bad, 12s have been there, fitting the times and rewarding the owners with prestige and good sailing. The authors, calling on their association with the class, have now filled a gap in the story of yachting, with a full class history.

It is a class which has been blessed with stability. Breakthrough changes, such as the separation of the keel and rudder and the use of the wing keel, have occurred, but only at intervals. Structural requirements have changed but have been kept strong. Since the acceptance of the Second International Rule, the coupling of the fairly generous displacement with the waterline length has set a stable class character with the power to be fast to windward and roomy below with good headroom under a flush deck.

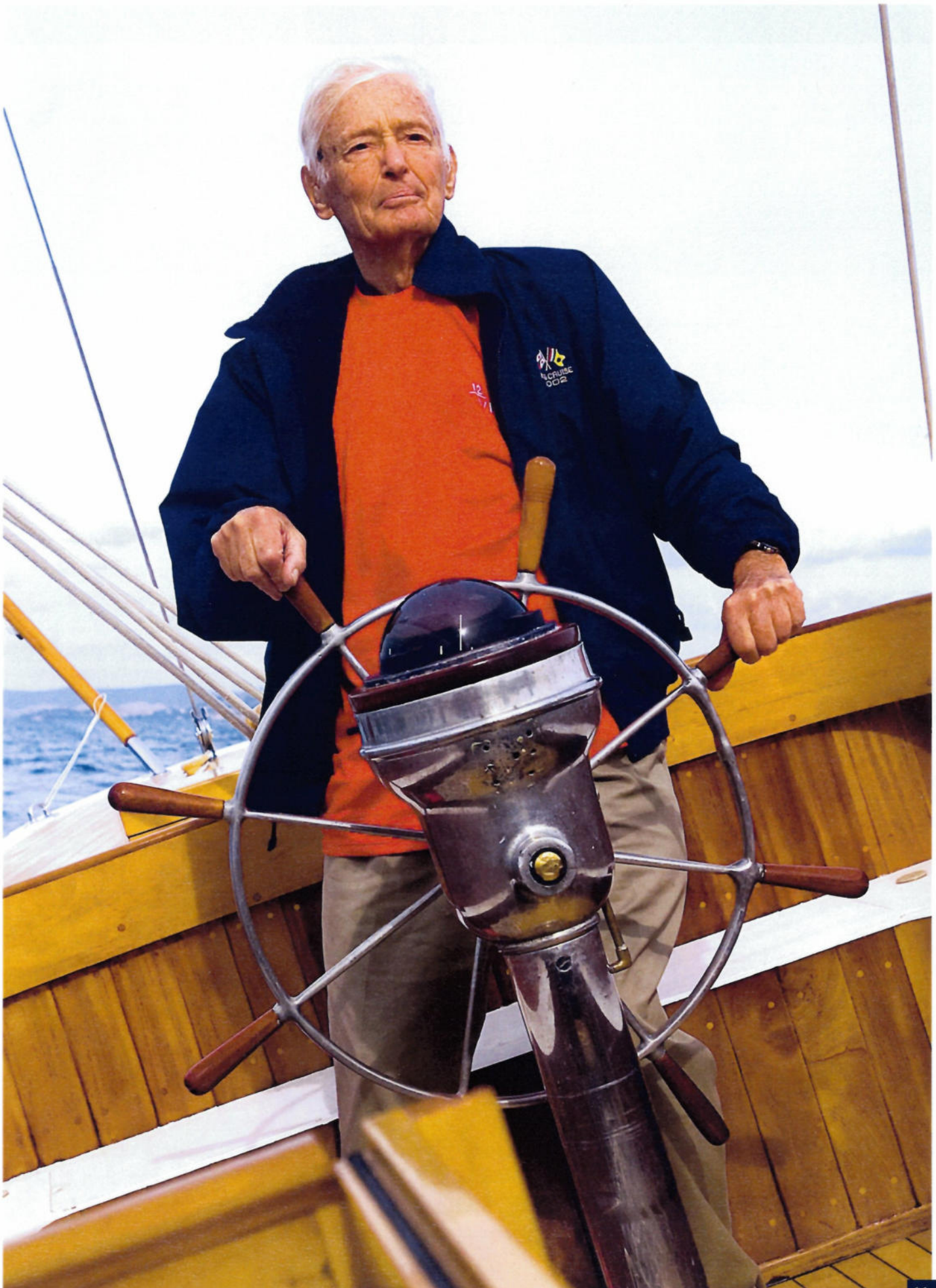
Happy in a long life, I can relate to the class back as far as 1928, soon after the introduction of the class to America. That May as a young designer and an enthusiastic sailor, I made the trip from New York to Halifax, Nova Scotia. In compliance with American customs requirements, a group of German built yachts, 8 Metres and 12s, had been unloaded from a freighter and rigged to sail to the United States. I was to crew in an 8 but I admired the beauty and power of the large Burgess designed 12s, the first of the class I had seen.
The new boats raced on Long Island Sound and on the New York Yacht Club Cruise, but in the financial depression following 1939 the class was less active. It happened that prior to the 1934 season, Drake Sparkman, my partner, had arranged the sale of the British 12 ***Mouette***, to an American client who feared that he might have no competition during the difficult summer. Accordingly he chartered one of the Burgess boats which my partner and I raced against him and a scattering of others. It was a summer of easy sailing in a professionally crewed yacht. Our wives as well as us thoroughly enjoyed it and when we were able to beat the newer boat, as we did to win the Astor Cup of the NYYC, we felt it was a triumph.

Our authors will tell us more of the widespread growth of the class as it prospered in Europe and Scandinavia up to the time of the war. In America the first designed and built 12s were, in 1935 and 1937, those designed by Clinton Crane for himself and his friend Van S. Merle-Smith. They were followed by Bill Strawbridge's Francis Herreshoff designed ***Mitena***. Later, in 1938, I came to know the class through three designs, one of which was Harold Vanderbilt's ***Vim***. He sailed her

successfully in England in 1939, the last season before the Second World War.

After the war inflation made the 12 Metre class, in its medium size character, seem a better choice than the big Js for the renewal of the America's Cup. By then the International Rule was common to Britain and America. The class was chosen after some legal work made that possible by modifying the previously required dimensions. In America four new boats were built for the 1958 revival. ***Columbia***, an S&S design, became the successful defender, bringing me back to the class. The class continued as the vehicle for the Cup until 1987. My association with the 12s continued until I retired in 1980. They proved themselves a good choice by opening, for a number of countries, the door to the Cup. The class grew and spread. The authors will describe in these pages how the boats, their history and their wide popularity has continued over the years.

Olin J. Stephens II



▲ Olin J Stephens II and *Vim* (2004)

One of the most important influences on yachting in the 20th century was surely the "The International Rule for Measuring and Rating yachts".

The greatest marine architects worked within the confines of the International Rule, while boatyards all over the world received metric class commissions for a century. Most modern innovations in techniques and materials of yacht construction derived from the construction of the International Classes; they then went on to write some of the most glorious pages in the history of yachting.

Furthermore, the International Rule is not simply a rating rule. For the first time, the authors of the Rule created a system which would consider the ratings, measurement rules, construction regulations (the scantling rules drawn up by Lloyd's) and the racing rules as one.

Notwithstanding it's age, the Rule is still in force and new boats are produced in the 5.5, 6, and 8 Metre Classes and recently also in the one of 12 Metre. Every year World Championships or Continental Championships are held with wide and intense participation, indicative of the widespread interest in these classes.
The 2001 12 Metre Class World Championships, held in occasion of the America's Cup Jubilee in Cowes, saw a record number of thirty five yachts participating, representing the complete history of the Class from it's conception in 1909 to the last Cup challengers. The World Championships that followed were also successful with many returning yachts, notwithstanding the notable logistical problems related to yacht shipments and crew transfer.

Many metric yachts are also present at classic yachting events. In an age marked by a constant search for new solutions, it seems significant that there are so many projects to reconstruct or rebuild the great boats of the past: J class, 23 Metre I.R. or the "Big Boats", projects which proceed from the talking stage to designer's tables. Probably the sheer beauty of the older boats, their speed, and finally, the desire to step back a moment from the modern world and its frenzy, inspire these projects.

Of all the older classes, perhaps the Twelves are the most fascinating, certainly the most long-lasting. Being a protagonist for nearly thirty years of America's Cup racing certainly gave new youth to a class which already had a splendid history. The 12s are not only the protagonists of the most famous cup of yachting history; if we take the time to read this book, and some of the descrip-

tions in the "Twelve Metre Register", we will be caught up in events and traditions of the past century. These yachts and their bigger brothers (J Class, Big Boats, 15, 19 and 23 Metre I.R.) were yachting's protagonists in the evolution of technique and construction, great races, and social encounters which, on some occasions, brought together royalty and high society. Equally important, these yachts were the passion of owners who lived and raced on and for their yachts.

Some points to make reading easier.

The hundred years of the International Rule can be divided into four distinct periods:

- 1907 - 1920: this is the period of the First Rule, the first experiences with the Formula, the first races, the Olympic Games; here the Twelve is the little sister of the 15 and 19 Metre;
- 1922 - 1939: the season of great races, famous owners, grand society events connected with the races, here too brought to an abrupt end by war;
- 1958 - 1987: America's Cup period; the 12s represent the cutting edge of sailboat technology both in the design and the construction: to this period pertain some of the most advanced technical solutions of which, still today, seems to enjoy the passionate sailor
- 1988 - present: after a long interlude the Class is once again in fervid activity, with attention given both to racing and the restoration of older Twelves dating from before the last war. Many 12s, both those designed before the war and America's Cup versions, were still available in the early 1980's. But today almost all the pre-war 12s have been restored; most of the America's Cup period designs have been modernized, and a few adapted for living aboard. And most recently, building has begun on an Anker's design never before built.

If at the end of the Eighties it had been difficult to organize a races circuit interesting vintage 12s in France and in Italy, today the Class calendar is full of events with three main centers:

- the United States North East with races entered mainly by modern 12s and by a small, but well known, fleet of vintage 12s
- the Mediterranean with a fleet of modern 12s racing in France
- the North Europe, in the Baltic sea, with an important fleet of vintage 12s protagonists of important and well attended regattas

If there were a dozen nations active in the design and construction of 12s, it was England and Norway who dominated the first fifty years, with the United States dominant in the last fifty years. These three nations produced the largest number of designs, from the drawing tables of a few important designers: William Fife III, Johan Anker, Alfred Mylne, Charles E. Nicholson and Olin Stephens.

There were also important owners, often members of the same family, and often, contrary to more recent times, the skippers of their boats. Among these let us cite the Coats brothers, Charles McIver, Henri Horn, Alfred W.G. Larsen, the Olsens, the von Erpecoms, John Payne, Richard Fairey, William Burton, Arthur Connell, Thomas Sopwith, Ralph Gore, Hugh Goodson and Harold Vanderbilt.

All were protagonists of splendid pages of yachting history and tradition, in addition to their important positions in national and international yachting. Here we must also mention the three ITMA (International Twelve Metre Association) presidents - Dyer Jones, Paul Buttrose and Jan Slee. All were instrumental in recent years in stimulating and motivating the Class, to the extent that today we can say once again – changing the title of a well known book – "a new summer for the Twelves".

That is why this book was written – as a history of the many tales and past glories, and as a testimonial of the continuous progress in technological evolution and of the dependence on the past of the many solutions and products that we talk about on the docks, without knowing that they were promoted and experimented by the Twelves, an International Metre Class.

Luigi Lang

the 19th Century
the Search for a Rating Rule

Introduction

The beginning of the 20th century is of primary importance for international yachting. In 1903 Herreshoff's Universal Rule was born in the United States, while in 1906 - 1907, during a series of meetings and conferences, the majority of European nations created the group of rules that together are known as the International Rule. These are epical decisions for the sailing world; this community will enjoy the advantages of these decisions for over a century. The Twelve Metre Class, the subject of this volume, will be profoundly affected.

To better understand the facts that brought about the birth of the Class, and their place in history, it is opportune to go over the history of yachting in the 19th century, concentrating our attention on the evolution of yacht design under the new rules.

Although there are many publications that deal in greater depth with the International Rule (and whoever wishes more detail should consult them), but our main purpose here is to illustrate the Rule's development in a specific moment of yachting history. The birth of the Rule was not simply the brilliant idea of a single designer, nor an isolated occurrence, but the logical development of specific facts and needs, evolving over time.

The brevity of this essay must necessarily limit us to the Thames, the Solent, the Clyde, and the Northeastern coast of the United States. Influences from other European countries, specifically Norway and France, will be mentioned, but if we are to deal with the development of formulas the most important changes in yachting took place in Great Britain and the United States.

The beginning of yachting

The first traces of yachting as such are recorded halfway through the 1600's in Holland, while the first "competition" seems to have taken place in July 1749. The term "regatta" was first used in England on the 28th of June 1775, when "***several respectable gentlemen proprietors of sailing vessels***" decided to race each other while escorting the competitors of a rowing race at Battersea. Evidently the initiative was so successful that on July 6th the London newspaper ***The Public Advisor*** published the following race instructions:

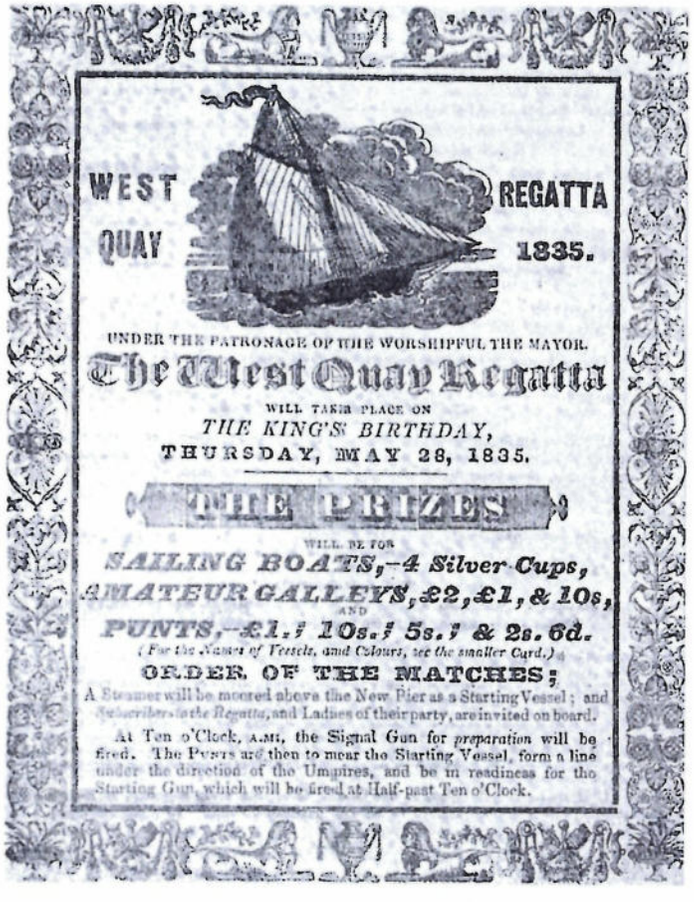
◀ *Cintra*, 1909

"A silver cup, the gift of His Royal Highness, The Duke of Cumberland, is to be sailed for on Tuesday, the 11th Instant, from Westminster Bridge to Putney Bridge and back, by Pleasure Sailing Boats from Two to Five Tons burthen, and constantly lying above London Bridge. Any gentleman inclined to enter his Boat may be informed of particulars by applying to Mr. Roberts, Boatbuilder, Lambeth, at any time before Saturday Noon Next."

That same summer members of the *Cumberland Society* created *The Cumberland Fleet*, which later became *The Royal Thames Yacht Club*.

Here we already have the first subdivisions among yachts: the tonnage limited between 2 and 100 tons, and the separation of the competitors into two classes: "below Bridge" for the larger yachts with the sea keeping qualities necessary for the Thames estuary and the Channel, and "above Bridge" for the smaller open yachts.

Bear in mind that the then current definition of yacht referred not to expressly designed vessels,



WEST QUAY REGATTA 1835.

UNDER THE PATRONAGE OF THE WORSHIPFUL THE MAYOR.

The West Quay Regatta

WILL TAKE PLACE ON

THE KING'S BIRTHDAY,

THURSDAY, MAY 28, 1835.

THE PRIZES

WILL BE FOR

SAILING BOATS,—4 Silver Cups,

AMATEUR GALLEYS, £2, £1, & 10s,

AND

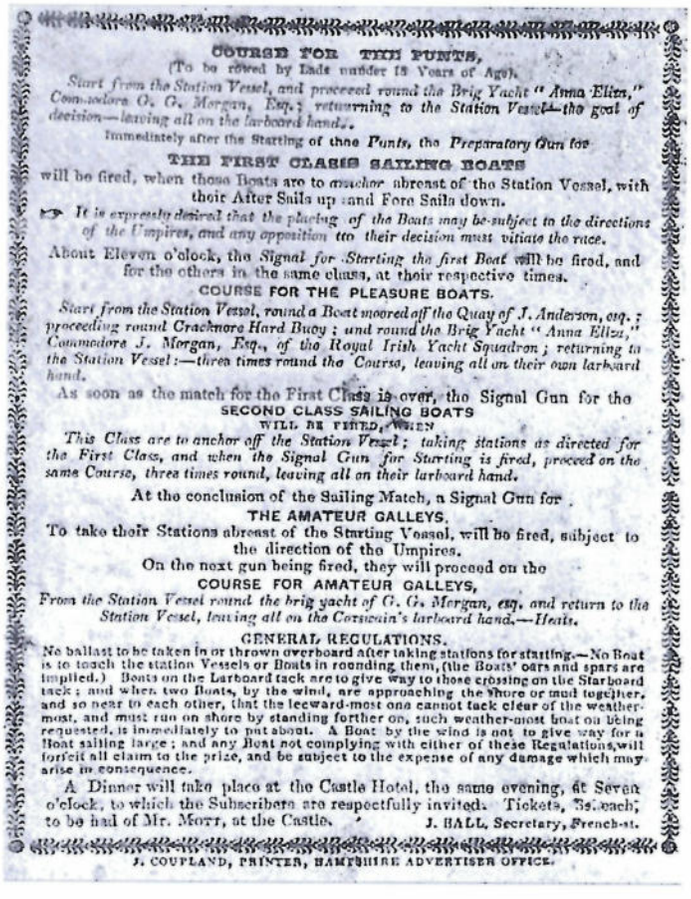
PUNTS,—£1.; 10s.; 5s.; & 2s. 6d.

(For the Names of Vessels, and Colours, see the smaller Card.)

ORDER OF THE MATCHES;

A Steamer will be moored above the New Pier as a Starting Vessel; and Subscribers to the Regatta, and Ladies of their party, are invited on board.

At Ten o'Clock, A.M., the Signal Gun for *preparation* will be fired. The Punts are then to moor the Starting Vessel, form a line under the direction of the Umpires, and be in readiness for the Starting Gun, which will be fired at Half-past Ten o'Clock.



COURSE FOR THE PUNTS,

(To be rowed by Lads under 18 Years of Age).

Start from the Station Vessel, and proceed round the Brig Yacht "Anna Eliza," Commodore G. G. Morgan, Esq.; returning to the Station Vessel—the goal of decision—leaving all on the larboard hand.

Immediately after the Starting of the *Punts*, the *Preparatory Gun* for

THE FIRST CLASS SAILING BOATS

will be fired, when those Boats are to *anchor* abreast of the Station Vessel, with their After Sails up and Fore Sails down.

☞ *It is expressly desired that the placing of the Boats may be subject to the directions of the Umpires, and any opposition to their decision must vitiate the race.*

About Eleven o'clock, the *Signal for Starting the first Boat* will be fired, and for the others in the same class, at their respective times.

COURSE FOR THE PLEASURE BOATS.

Start from the Station Vessel, round a Boat moored off the Quay of J. Anderson, esq.; proceeding round Cracknore Hard Buoy; and round the Brig Yacht "Anna Eliza," Commodore J. Morgan, Esq., of the Royal Irish Yacht Squadron; returning to the Station Vessel:—three times round the Course, leaving all on their own larboard hand.

As soon as the match for the First Class is over, the Signal Gun for the

SECOND CLASS SAILING BOATS

WILL BE FIRED, WHEN

This Class are to anchor off the Station Vessel; taking stations as directed for the First Class, and when the Signal Gun for Starting is fired, proceed on the same Course, three times round, leaving all on their larboard hand.

At the conclusion of the Sailing Match, a Signal Gun for

THE AMATEUR GALLEYS.

To take their Stations abreast of the Starting Vessel, will be fired, subject to the direction of the Umpires.

On the next gun being fired, they will proceed on the

COURSE FOR AMATEUR GALLEYS,

From the Station Vessel round the brig yacht of G. G. Morgan, esq. and return to the Station Vessel, leaving all on the Coxswain's larboard hand.—Heats.

GENERAL REGULATIONS.

No ballast to be taken in or thrown overboard after taking stations for starting.—No Boat is to touch the station Vessels or Boats in rounding them, (the Boats' oars and spars are implied.) Boats on the Larboard tack are to give way to those crossing on the Starboard tack; and when two Boats, by the wind, are approaching the shore or mud together, and so near to each other, that the leeward-most one cannot tack clear of the weather-most, and must run on shore by standing further on, such weather-most boat on being requested, is immediately to put about. A Boat by the wind is not to give way for a Boat sailing large; and any Boat not complying with either of these Regulations, will forfeit all claim to the prize, and be subject to the expense of any damage which may arise in consequence.

A Dinner will take place at the Castle Hotel, the same evening, at Seven o'clock, to which the Subscribers are respectfully invited. Tickets, 5s. each; to be had of Mr. MOTT, at the Castle.

J. BALL, Secretary, French-st.

J. COUPLAND, PRINTER, HAMPSHIRE ADVERTISER OFFICE.

Notice of race, 1835 ▲

Sailing instructions, 1835 ▲

but rather to already existing vessels modified for recreation from the fastest successful fishing and trading designs.

Gradually this new form of recreation moved south from London to the Solent and the town of Cowes, already renowned for summer vacationing. This was the period following the Napoleonic wars, and England entered a century characterized by heady expansion and splendor. The Clyde in Scotland and the Solent in the Channel become the centers of English yachting and inspire the development of this new activity among the other European nations.

The 1st of June, 1815, is the birth date of another great English club: forty two gentlemen create the local yacht club in Cowes, shortly after renamed the ***Royal Yacht Club***, and finally the ***Royal Yacht Squadron***.

The first rating problems

Modern yachting has now taken form, and racing proliferates, as does the need to find a system that will allow the large variety of designs to compete among each other while giving even chances of victory to all: the first rating problems are born. The first solutions are oriented towards racing rules and allowances, rather than ratings related to design parameters. Many experiments are carried out: real time racing with the yachts divided by tonnage or by rig; and handicaps according to distance, with the variation in rating calculated at the finish line or determined a staggered starting time.

Here it will be useful to remind the reader that in yachting "tonnage" is a measure of volume, not a measure of weight. The term originally came into use in the merchant Navy during the XIVth century, defining as a "tun" a barrel holding not less than 252 gallons of wine. The number of "tuns" that a vessel could stow therefore determined the vessel's "tonnage". Over time the exact value of a "tun" became increasingly precise, but today "ton" remains a definition of volume, and is used as a tax parameter on cargo carrying capacity.

Let us return to the late 1820's when the prevailing system finally divided the yachts by tonnage. Among yachts of the same class racing is on elapsed time, while between different classes a time allowance is awarded, calculated by the dimensions of the largest yacht. This system, laid down in Cowes in 1829, was known as the ***Tonnage Rule***. The rule divided the yachts into four classes with the following handicaps: the Ist class must give the IInd class one half mile, the IIIrd class 1 1/4 miles, and 2 1/4 miles to the IVth class. Two years later the classes are increased to six, and the first official recognition of the ***Tonnage Rule*** occurs in 1834 when King George IV orders that from then on the King's Cup will use the new system. But the system is too simple; it does not take

into account enough of the variables that differentiate one vessel from another. Owners, of both large and small craft, are dissatisfied. New methods are needed.

The Ackers Graduated Scale

In 1838 the distance handicap is changed to a time handicap. In 1843 George Holland Ackers, owner of the 217 ton schooner ***Dolphin***, perfected his own system of groups and handicaps. The yachts are divided into two categories: cutters and schooners. The cutters are then divided into four groups: from 30 to less than 50 tons, from 50 to less than 75 tons, from 75 to less than 105, and over 105. The schooners are only divided into two groups: over and under 140 tons. An allowance based on one mile is given to each group. This is the first handicap table, and was given its creators name: ***Ackers Graduated Scale***.

The "B.O.M. - Builder's Old Measurement Rule"

Although progress had been made, the importance of a rating handicap, as opposed to a racing handicap, was not yet fully understood. In fact, one of the essential elements of the ***Tonnage Rule*** was the famous 1773 ***Builder's Measurement Rule***, which took into account only hull length and beam. Although modified in 1836, it was still known as the ***B.O.M. - Builder's Old Measurement***:

$$Tonnage\ (Rating) = \frac{L - {}^{3}/_{5}\,B \times B \times {}^{1}/_{2}\,B}{94}$$

where '**L**' is the length of the keel ("length of keel or the length which' treads the ground"), and '**B**' is the beam. This rule was created by an 1834 Act of Parliament to calculate the cargo carrying capacity of a merchant ship, and shortly thereafter adopted internationally. It necessarily fell quite short of indicating the possible displacement or performance of a modern yacht, and we can imagine the protests of the yacht's owners.

We are nearing 1850, and yachting as a sport is becoming increasingly important. There now are at least 16 Yacht Clubs in England, and the ***Royal Yacht Squadron*** counts a fleet of about 100 yachts, while ***The Royal Thames Yacht Club*** fleet numbers about 130.

Yacht owners must deal with the new reality of complex norms that attempt to make vastly differing yachts competitive against one another. ***Acker's Scale*** and the ***Tonnage Rule*** (also known as the ***Old 94 Rule***) are carefully studied, and the yachtsmen soon realize that to win, a lower displacement gives the higher allowance. There were no penalties for waterline length, freeboard, draft or sail area. In the great designer George Watson's words: "...gradually the boat builders rea-

lize that, by increasing draft and ballast, beam can be reduced and that a yacht with the same nominal displacement as before can be built with a longer waterline and increased sail area."

The fact that builders began to take into consideration keel length brought the first designs having an inclined stern post: a shorter keel favors a lower rating with a higher allowance, while increased waterline length gives greater speed. However, we shouldn't think of a rapid revolution in design; awareness is as gradual as evolution in new designs. When the schooner ***America*** arrived at Cowes, the yachts that were waiting for her were as modern as can be expected, yet still of traditional design.

The Tonnage Cheating

The spread of "tonnage-cheating" – looking for loopholes in the rating formulas to artificially better one's own rating – carries on to the present day. It is not necessarily true that these new designs are better than the preceding ones: they are almost always slower and with less pleasing lines; but they simply have a better rating. This results in new designs bought to extremes and non-competitiveness for the older designs: a rule must intervene to keep owners satisfied and keep competition alive.

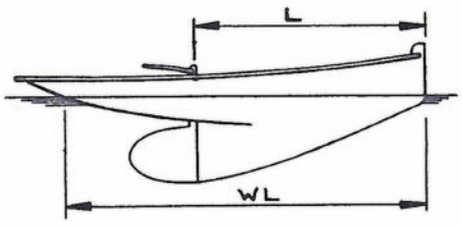
The Thames Measurement Rule

Realizing that concepts prepared for merchant ships cannot be applied to yachts, work finally began on displacement formulas. The Builder's Measurement Rule was finally deemed outdated for yachting's needs. After specifying that the '**L**' of the formula no longer applied to the length of the keel but to the length of the hull, in 1854 the ***Royal London Yacht Club***, followed by the ***Royal Thames Yacht Club***, proposed the first formula specifically conceived for yachts - the famous ***Thames Measurement*** (T.M.):

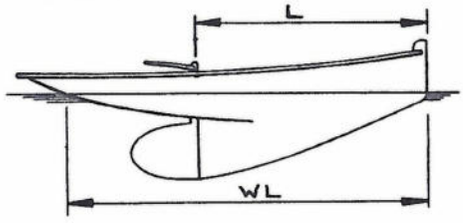
$$\textit{Tons (Thames Measurement)} = \frac{(\mathbf{L} - \mathbf{B}) \times \mathbf{B} \times {}^{1}/_{2}\,\mathbf{B}}{94}$$

The Ackers Graduated Scale

Tons		Diff. of Time	h.	m.	s.
Under	1	**75**	10	28	45
	2	seconds	-	30	0
	3	per tons	-	31	15
	4		-	32	30
	5		-	33	45
Under	6	**70**	-	35	0
	7	seconds	-	37	10
	8	per tons	-	38	20
	9		-	39	30
	10		-	40	40
Under	11	**65**	-	41	50
	12	seconds	-	42	55
	13	per tons	-	43	0
	14		-	44	5
	15		-	45	10
Under	16	**60**	10	46	15
	17	seconds	-	47	15
	18	per tons	-	48	15
	19		-	49	15
	20		-	50	15
Under	21	**55**	-	51	15
	22	seconds	-	52	10
	23	per tons	-	53	5
	24		-	54	0
	25		-	55	55
Under	26	**50**	-	56	50
	27	seconds	-	57	40
	28	per tons	-	58	30
	29		-	59	20
	30		-	60	10



The famous rule cheater proposed by Vanderdecken.
The length L was reduced by moving the stern amidship.



Another proposal consisted in moving the stern post in front of the rudder post.

where, finally, '**L**' is the length measured on deck from the stem to the stern post, and '**B**' is the beam.

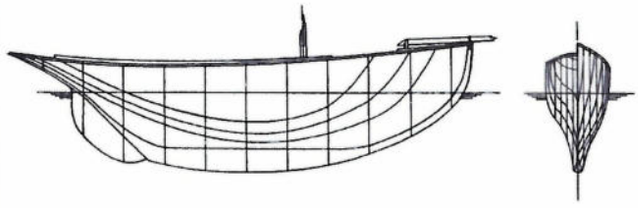
Despite initial criticisms (though never built, Vanderdecken's famous project to decrease L by bringing the stern post amidships is an example), the new formula obtained the desired effect: older yachts were competitive again and the "tonnage-cheaters" penalized.

The yacht *America*'s success in the 100 Guinea Cup combined with the new formula ignited ideas and enthusiasm in English yachting, setting off a quarter century of heady splendor. Owners, designers, and shipyards were all very active, launching the large schooners with famous names which incorporated the lessons garnered from the design of *America*.

Designers and shipyards begin a period of intense activity, while highly experienced seamen, hardened by winter fishing in the northern ocean, become the excellent seamen and captains running the large new yachts during season after season of highly competitive racing.

But even this formula is far from perfect: once again beam was excessively penalized, creating yachts designed with the narrowest possible beam. Stability is not completely sacrificed, as the Rule allows only internal ballast, yet quite soon it became evident that the T.M. gives a very long and fine hull. Nor are any sail area restrictions contemplated.

This reduction of beam causes G. L. Watson to declare that we are getting ever closer to Euclid's definition of a line: all length with no thickness! Ever narrower, ever more sail area: T.M. yachts sail almost on their beam ends. They exhibit unexpected, though fast, movement through the water.



One plank-on-edge in its extreme form.

In the plank-on-edge cutters hull shape was not the only extreme factor. The tonnage rules did not measure sail area and therefore the sail plans were huge, extending beyond both extremes of the hull and huge top sails were set in light weather.

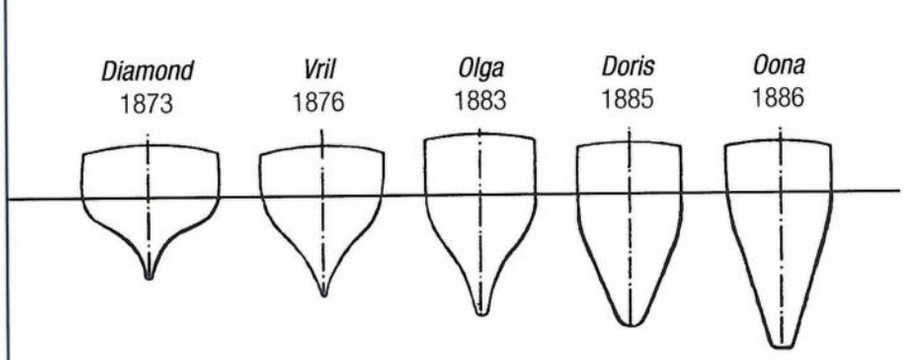
The plank of edge

Carvel construction is born, accompanying an ever-increasing length/width ratio: from a value of 4 (where length is four times beam) when the ***Thames Measurement*** was first applied in 1854, in 1882 the ***Spankadillo's*** ratio was an incredible 7,2 (with a LWL of 11 meters, only 1,90 meters of beam). The most extreme case was ***Oona*** in 1886: her LWL was 10,33m, beam 1,67m, displacement 12 tons, and a sail area of 185 square meters. Her first voyage was never completed as she foundered with all hands (including her designer, Payton) in a storm off Ireland.

The ***Thames Measurement***, even after the period when it was actively used as a racing handicap, continued to be used to identify yachts. The 1980 edition of Lloyd's Register of Yachts still had a **T.M.** column for considerable number of entries.

But let us return to where we left off. The extreme designs caused disillusionment among yacht owners who were disturbed by the confusion that reigned throughout the racing world. Each yacht club had its own racing rules, its own rating criteria and interpretation of **T.M.** It became complicated to race among clubs, let alone internationally. The time was ripe for new changes.

Two interesting developments came about in 1875: the first was the launching of the ***Jullanar***. Designed by her owner, farm machinery manufacturer Ernest H. Bentall, ***Jullanar***'s lines were innovative: fine entries to reduce waves, the longest possible waterline length combined with the least possible wetted surface to increase speed. Despite a lukewarm reception, Bentall's creation won everything for the next three seasons.



The series of different sections testify the collapse of the British tonnage based formulas (all yachts shown are 5 tons). Despite the efforts to improve the formulas, year by year beam has narrowed while draft increased until the most extreme plank-on-edge *Oona*, lost with all the crew.

Y.R.A. and Dixon Kemp

The second, and far more important development, was the founding of the ***British Yacht Racing Association*** (YRA) on the 17th of November 1875. Due to increasing discontent with the ***Thames Measurement*** (in May during a race on the Thames River all the yachts lowered their Club pennants in protest), the YRA's first secretary Dixon Kemp immediately addressed the two major issues that had given rise to the protests: new scantling rules to avoid further construction of unseaworthy yachts, and the definition of a handicap rule which would be accepted by all the clubs and resolve the series of problems that had emerged over the last fifty years.

Many yacht clubs promptly joined the new association, although the two most important, the ***Royal Thames*** and the ***Royal Yacht Squadron***, delayed entering until 1881 when the Prince of Wales became president of the YRA The last barriers to their joining fell, and the YRA became truly representative of English yachting as a whole.

The ***Thames Measurement*** is first modified by redefining '**L**' from length measured on deck from the stem to the stern post, to length at the waterline (LWL).

Although progress is made, the race for narrower hulls continues. In 1877 the first yacht with external ballast, ***Hilda***, is built. There are limits to what can be expected from a poorly conceived rule, and it appears that successive changes in a rule cannot correct its intrinsic defects.

The 1730 Rule

This is borne out in 1881 by the YRA's "**1730 Rule**", an attempt to increase maximum beam. The formula is:

$$Rating = \frac{(\mathbf{L} + \mathbf{B})^2 \times \mathbf{B}}{1730}$$

Unexpectedly, yacht designers do not follow the "suggestion" which would increase beam with increasing length, and the race towards "longer and thinner" continues.

Time is ripe for a radical change in the rule; owners are of the opinion that a handicap rule is not, like the tonnage rule, law; and if the system does not work, then change the system. And if the following numbers from Peter Johnson's book on ratings are accurate, yachting is no longer a sport for the chosen few: 50 yachts in 1812, approximately 500 in 1851; in 1864 there are 862 registered yachts, which rises to 1,601 in 1878. The 1891 edition of ***Lloyd's Register*** lists 2,428 yachts in English waters, with another 1,413 registered in the rest of the world.

At the beginning of the 1870's naval design is influenced by William Froude's new studies on hull resistance and hydrodynamics, and his formula became an important reference point for new designs. In 1880 Dixon Kemp proposes a new rule, for both sides of the Atlantic: adopted immediately in the United States The YRA only agrees to its use in 1886. Displacement tons are abandoned, beam is no longer an element, dimensions are no longer limited: only factors relating to a hull's speed and power are considered - the product of waterline length and sail area divided by a constant.

The Length and Sail Area Rule

The new formula is called the "***Length and Sail Area Rule***":

$$Rating = \frac{\mathbf{L} \times \mathbf{S}}{6000}$$

The constant 6000 was chosen as a factor which would keep the new rating's value close to its predecessor in tons. And even though the product of length and area gives as result a cube to be measured in square feet or tons, the yachts are divided or "rated"; hence the name "raters": 20, 40 or 50- raters and so on. Together with the new formula the YRA also published the "***Rules of the Yacht Racing Association***", a conversion table to calculate the rating in minutes per mile.

The formula proved itself technically valid and innovative, bringing designers back to fuller waterline forms, less wetted surface, bow overhangs, and above all a more normal beam without excessive ballast.

The formula is embraced promptly by the smaller yachts; there are many 40 and 20- raters, and even smaller (1, 2, and 5.5- raters). With the larger yachts, hampered by the Tonnage Rule's heritage and fiercely critical of all aspects of the new rule, the YRA's most recent formula had difficulty taking hold.

Even if the 1887 G.L. Watson designed America's Cup challenger ***Thistle*** was defined as a 120 rater, by 1891 only three other large yachts had followed (***Valkyrie*** (77- rater), ***Iverna*** (117- rater), ***Yarana*** (62- rater), all with widely different ratings.

1893 is the turning point, with Watson's ***Valkyrie II***, commissioned by the Duke of Dunraven for an America's Cup Challenge. ***Valkyrie II*** was to be designed with the American rating in mind, but competitive in English waters too. The usual criticisms changed to eager impatience when it became known that the Prince of Wales had ordered a similar yacht from Watson, designed according to the "Length and Sail Area Rule": ***Britannia***. ***Callunna*** by Fife, and Soper's ***Satanita*** soon followed, the latter the largest "rater" built, with a LOA of 40 meters and LWL of 29,8 meters. Numerous smaller raters, designed to the latest criteria, soon followed.

The American yacht ***Navahoe*** crossed the Atlantic in 1893, followed shortly thereafter by ***Vigilant***, and raced in English waters for three seasons against ***Britannia***, ***Satanita***, ***Valkyrie II***, ***Callunna***, ***Meteor***, and ***Ailsa***.

The racing, run under the "***Length and Sail Area Rule***", proved highly competitive, for Dixon Kemp's formula had revitalized the languid English yachting scene of the 1890's. And Watson's ***Britannia*** was such a revolutionary design, that never "such a balanced and better built yacht has ever

20 - Tonner, Thames Measurements Rule, **1879**

20- Rater, Lenght and Sail Area Rule, **1890**

20 - Tonner, Thames Measurements Rule, **1879**

20- Rater, Lenght and Sail Area Rule, **1895**

crossed a starting line." In designing her he applied his fundamental beliefs on how a vessel should be built and act: lightness combined with strength and a hull that will slip over the water and not cut through it. After her long career and years of victories, ***Britannia*** became a reference for yachting the world over, and we must say that she is one of a dozen milestones in the history of yacht design. In 1931 her lines were still considered competitive in respect to the last America's Cup winner, the ***Enterprise***.

The formula's weak point is its value for length. Reducing waterline length as much as possible, sail area can be increased without affecting the rating, and long overhangs will optimize speed. With all this canvas, lateral stability is obtained by increasing beam, narrowing the stations, and deep bulb keels. In smaller vessels, the hulls are very light and difficult to steer, with no headroom or accommodations below decks.

If the ***Thames Measurement*** produced plank-on-edge, the ***Length and Sail Area Rule*** produced skimming dishes and fin keels. We must remember that the smaller yachts almost always sailed on protected estuaries, so designers felt free to exasperate a boat's lines and sacrifice some seaworthiness to gain in overall speed.

This tendency is less visible on the larger ocean going yachts, though ***Gloriana***, which we will deal with farther on, is a good example of the American formula that inspired Watson's ***Britannia***, though with more normal lines and greater elegance.
Once again it becomes obvious that the Rule is still inadequate; in 1892 the most important designers wrote to the YRA asking to revise the formula with the aim of limiting the current extremes in design.

52ft - Linear Rater, Linear Rating Rule, **1896**

15m I.R. - International Rule, **1909**

52ft - Linear Rater, Second Linear Rating Rule, **1901**

The Linear Rating Rule

A new solution was found in 1896 with Froude's formula, elaborated by R.E. Froude, son of the famous yacht designer William Froude. It became known as the first ***Linear Rating Rule***:

$$\frac{L + B + {}^{3}/_{4}\,G + {}^{1}/_{2}\,\sqrt{SA}}{2} = \textit{Rating in feet}$$

The formula is quite similar to the ***Length and Sail Area Rule***, with two important additions: first, the value '**G**' (***skin girth***), measured vertically from one waterline to the other, along the outside of the station 60% of waterline length from the bow; second, that the rating is expressed in feet, instead of the traditional tons, therefore giving the denomination ***linear*** to the formula.

The rating should correspond to the waterline length in feet. It was hoped that by introducing beam, girth, and by diminishing the importance of sail area, the inadequacies of the previous formula could be corrected.

Almost immediately critics of the new formula point out that, instead of resolving previous defects, the ***Linear Rating Rule*** exacerbates them. Yacht designers continue to design lighter and more over-canvassed boats since no limit is placed on minimum displacement, and the decreased importance given to sail area tends to cause an increase in its amount.

The new formula's impact in the smaller classes is explosive, hulls become even wider with shorter waterline, excessive sail area, flat bottoms with deep torpedo fin keels. The new racers have a very short life and are often outdated in their first season by newer designs (the Duke of York's Sibbick built 1-rater ***White Rose*** was commissioned under the condition that it was to be built in eight days, to be sure that she would be the latest fashion at Cowes that year).

The difficulties with the Formulas have at least one important consequence: to avoid early obsolescence and exaggerated spending, owners and designers spent more effort on developing One-designs like the Solent 8 Tonner, the first English One-design.

The "Big class" also has it's share of problems. ***Meteor II***, the new Watson designed yacht for the German Emperor built expressly to beat ***Britannia*** and ***Ailsa***, was lighter with the same waterline length as ***Britannia***, but with a lighter displacement and 200m² more sail area as now allowed by the formula, balanced by greater beam and increased ballast.

By lowering the bottom limit of the "Big class" to allow the ex-40 Raters to race against their larger cousins, preferring yawls to cutters and recalculating the time on distance handicap, the YRA takes evolutionary decisions that lead to the disappearance of the class. ***Britannia*** is put up for sale, while ***Ailsa***, ***Bona*** and ***Satanita*** move to the Mediterranean to race; there the newest formula had not been adopted. Heckstall-Smith writes in his "***Britannia and her Contemporaries***" that "In 1897, as a result of these modifications, the "great class" created by ***Britannia*** and her contemporaries in 1893 fell into decline and gradually became extinct...The result of the YRA's ruling was a complete disaster. The YRA destroyed the racing of the most important class." The great cutters disappeared from the racing scene, to reappear only in the 1920's under the 23 Metre International Rule.

The Second Linear Rating Rule

After this poor showing, the YRA applied the second "***Linear Rule***" in 1901:

$$\frac{\mathbf{L} + \mathbf{B} + {}^{3}/_{4}\,\mathbf{G} + 4\,\mathbf{d} + {}^{1}/_{2}\,\sqrt{\textbf{sail area}}}{\mathbf{2{,}1}} = \textit{Rating in feet}$$

The innovation is the introduction of '**d**', a new factor created by the Danish chemist Alfred Benzon and successfully integrated into the Copenhagen Formula, widely used by the Scandinavian countries. The value of '**d**' is the difference between '**G**' and the new measurement "Chain" or "chain girth", where Chain is the length of a chain led from one side of the hull to the other, passing below the waterline. This value (not a fixed value, it may fluctuate as the need arises) was incorporated as an attempt to limit the ***skimming dish*** effect in hull design. To avoid the continuous formula changes that characterized the last twenty years it was also established that the formula would remain in effect and unmodified for at least seven years.

This version of the Linear Rule was no luckier than the others. The ever-present loop-holes in the formula still allow for extreme overhangs, shallow draft, exaggerated sail area and fragile construction. These effects are more evident in the smaller classes where owners are increasingly concentrating on one-designs. The larger classes are built according to Lloyd's standards, while the Second Linear Rating Rule is simply used as a reference. Powerful and elegant designs such as ***Brynhild***, ***White Heather***, and ***Valdora*** are built with a more seaworthy fashion and race quite successfully among themselves.

At the time, even though interesting ideas were evolving, it was realized that something innovative was called for: a formula that would satisfy owners, designers and builders, and not provoke mistrust and loophole searching. The YRA decided to deal with the issue and the new secretary, Major Brooke Heckstall-Smith, while unable to change anything as long as the current rule re-

mained in force, opened discussions with other countries to verify the possibility of a common rating formula. The basis for the "International Rule" was laid, but that is another story.

We have dealt primarily with the development of the English formulas, there being no doubt that they were the most influential rules, at least in Europe. However other countries, doted with very competent designers and the long standing traditions of several famous yacht clubs, also produced interesting innovations.

In France

In France the ***Cercle de la Voile de Paris***, the ***Yacht Club de France*** (with the ***Caillebotte formula***) and the ***UYF-Union des Yachts Français*** (with the ***Godinet formula***) created interesting formulas during the 1880's and 1890's. The Godinet Formula was particularly useful when applied to small hulls and was used, with a few minor changes, on Lake Geneva.

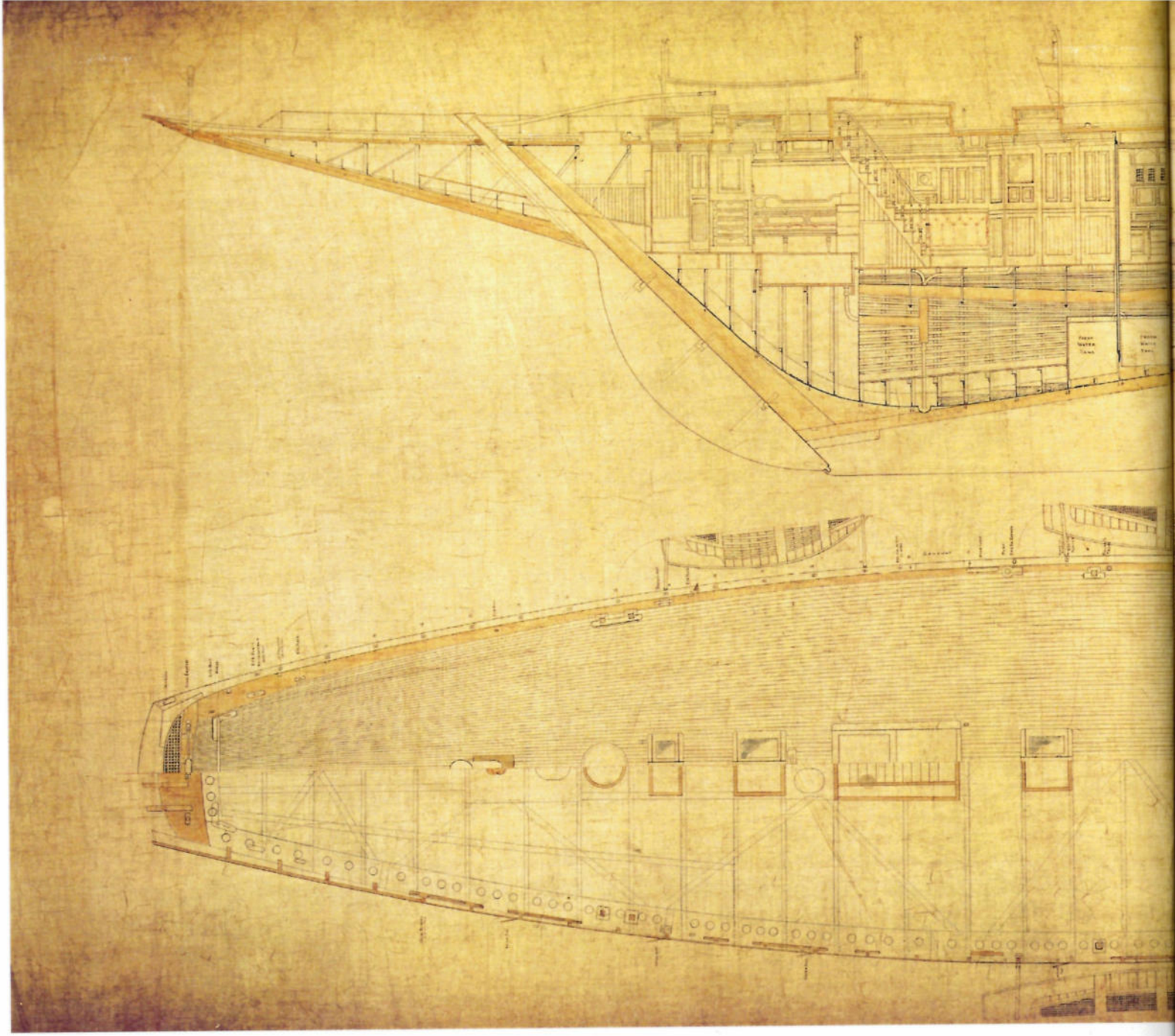
In the Baltic

The Baltic countries were also very active during the 1890's when Denmark, Sweden and Norway created the "***Baltic Rule***", and as we noted above, Benzon (later an important member of what became the IYRU) introduced the "chain" concept.

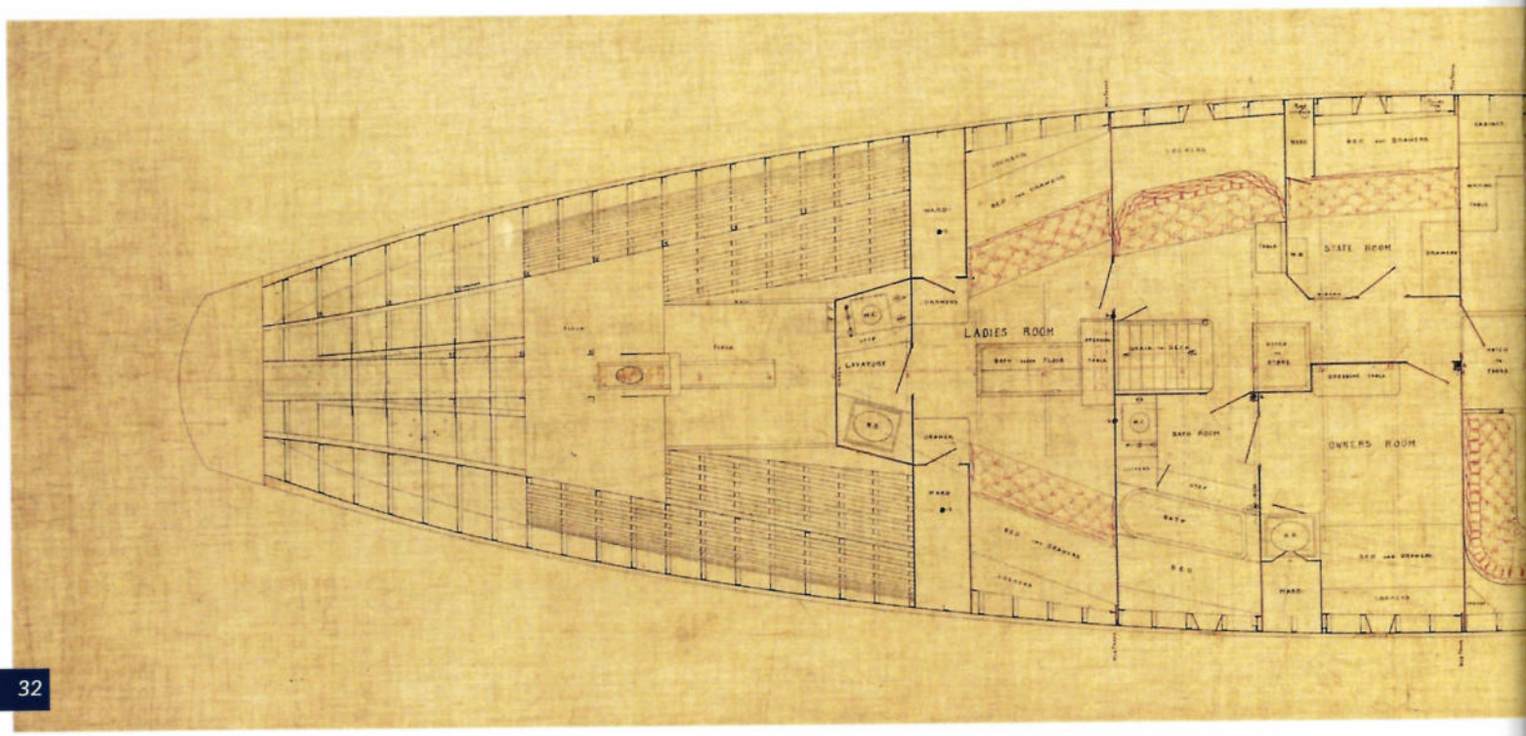
In the U.S.A.

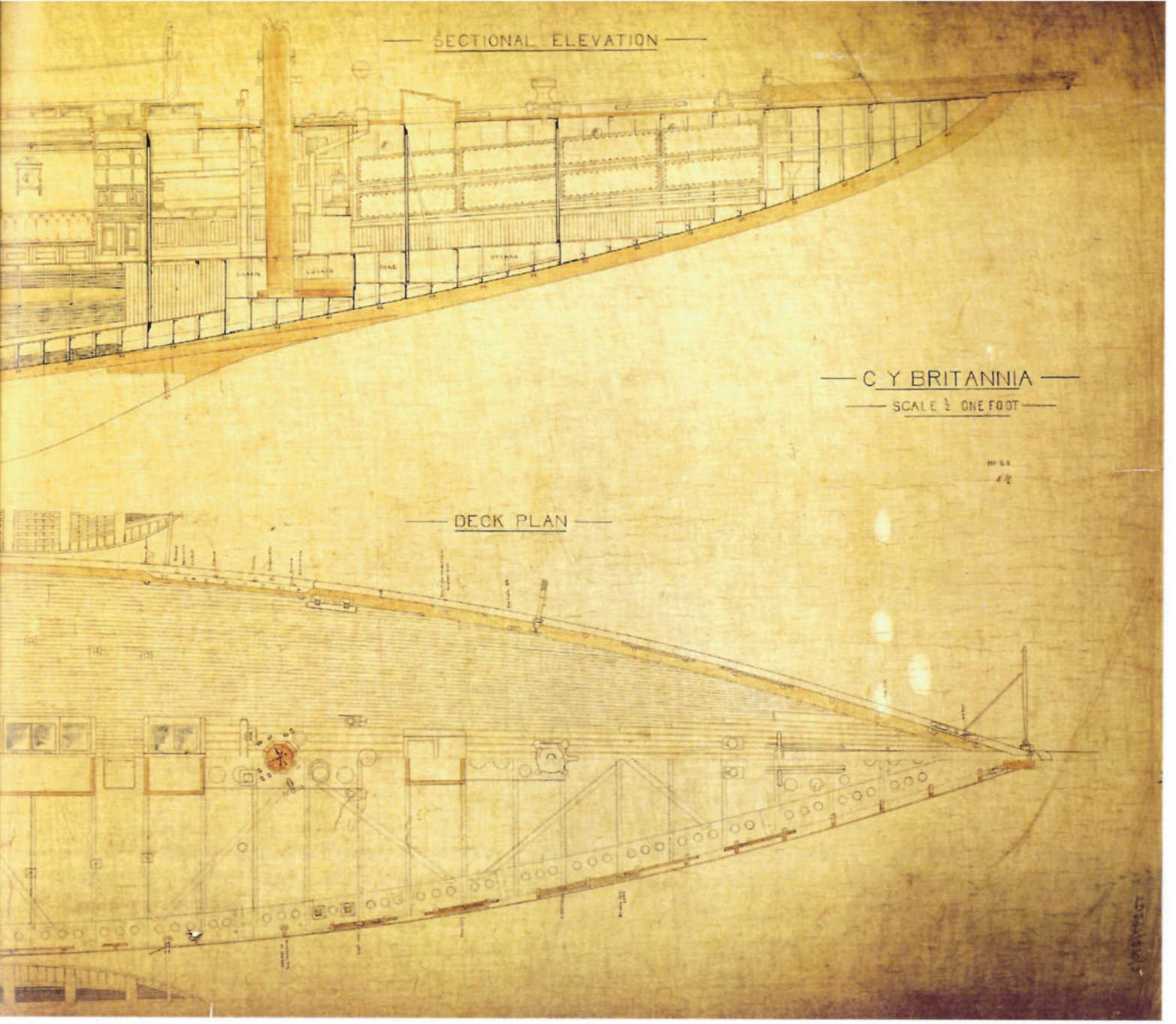
Yet we must admit that the United States, while following a route parallel to England, was the other pole in the development of yachting rules. While most certainly the International Rule was born out of a wide European collaboration, we cannot deny the influence of American ideas on that rule. Let us review the following salient points of 19th century American yachting history that bear directly on the creation of the International Rule.

Given the great distances involved and the lack of a central governing body (the ***North American Yacht Racing Union*** wasn't created until 1926), the American protagonists were the East Coast yacht clubs, principally the ***New York Yacht Club*** and the ***Seawanhaka Corinthian Yacht Club***. The winner of the first race organized by the NYYC in 1845 appears to have been the yacht ***Cygnet***. Racing was governed by local handicaps (***Old Custom Measurement, Custom House Measurement***) based on tonnage and customs regulations; handicaps were adjusted often and awarded in seconds per ton per mile. In the 1850's the NYYC experimented several short term solutions. In 1853 their formulas were based on displacement; after realizing the impracticality of measuring tonnage, in 1856 the formula moved to measuring sail area, with the yachts split into three classes;

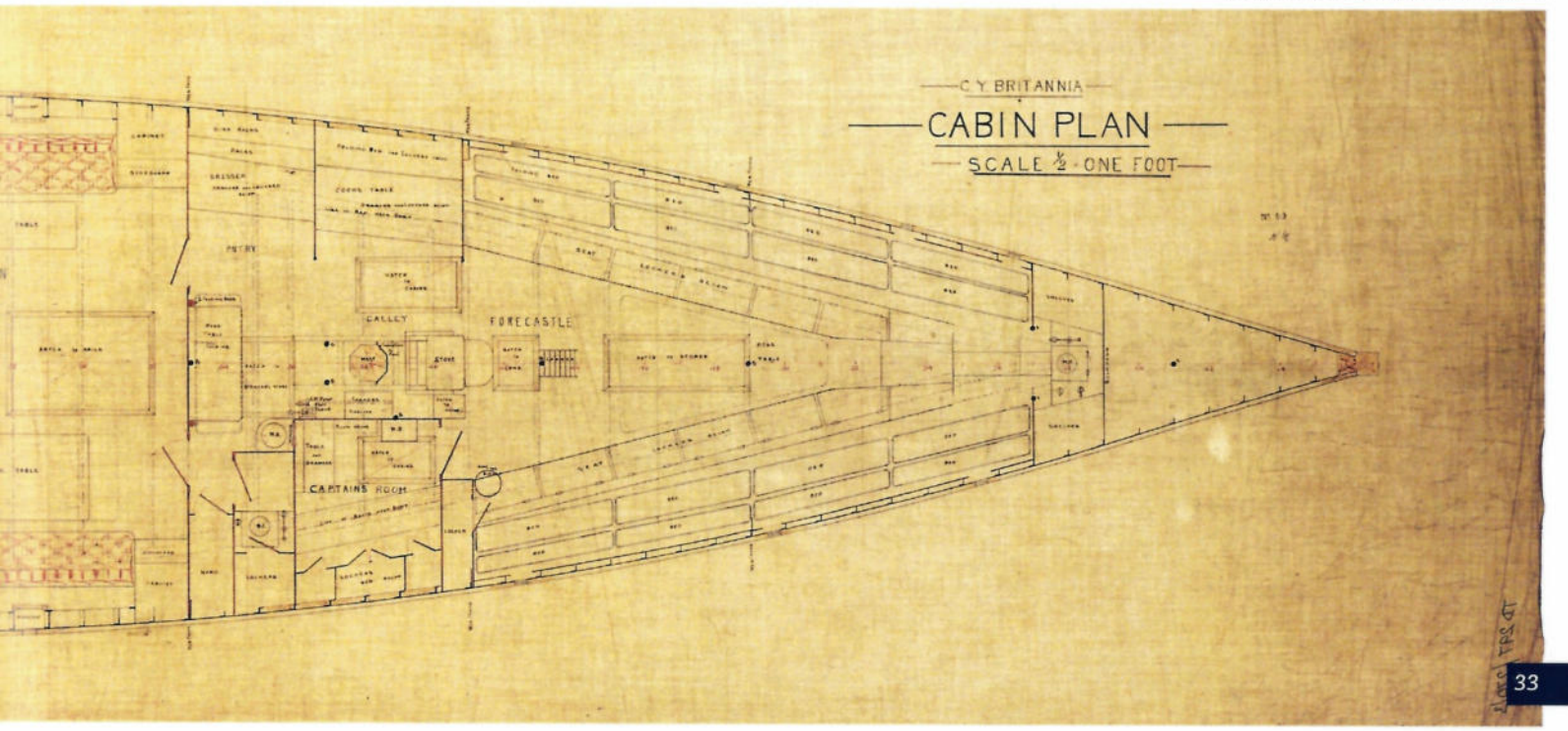


▲ *Britannia*, 1893, construction plan





Britannia, 1893, interior plan ▼



and for the first challenge for the America's Cup of 1870, back to length times beam. For the 1871 Cup the new ***Displacement Rule*** came into effect; it took into consideration the sum of three hull stations and waterline length:

$$Rating = \mathbf{100} \times (\mathbf{A} \times \mathbf{L/4})^{1/3}$$

Rating research here took a different direction from English practice. Displacement is a factor and beamy craft are favored, contrasting with the narrow English designs. Low freeboard, generous overhangs, flat hull shape and lots of canvas characterize the American racers. Though undergoing a few minor adjustments, the ***Displacement Rule*** was to last until the early 1880's.

For the 1876 and 1881 editions of the America's Cup the NYYC, slightly modified the Displacement Rule, creating the "***Cubic Contents Rule***".

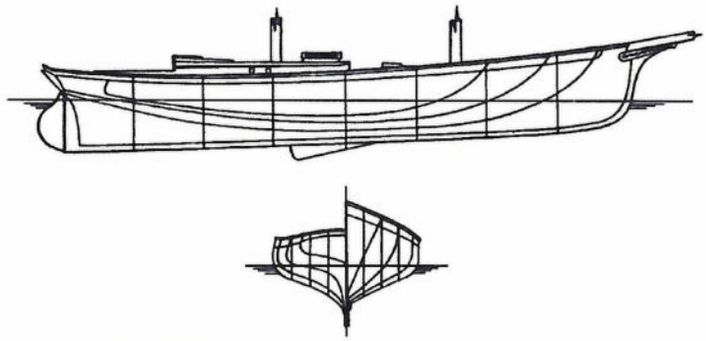
But the search for ever faster yachts leads to extreme consequences even in America. The lack of a limit to sail area created beamy, shallow and over canvassed vessels. These factors lower stability, and several important yachts capsized. In 1876 the schooner ***Mohawk*** (45,7m LOA, 9,2m beam, only 1,8m draft) capsized at anchor when hit by a gust and sank, with the loss of the owner William T. Garner (Vice Commodore of the NYYC), his wife and their guests.

Enough is enough, and the dramatic accident deterred further construction of these unseaworthy craft, orienting research towards newer and safer rating formulas.

When Dixon Kemp and the American yacht designer Edward Burgess began to correspond, the American showed great interest for Kemp's formula (though not yet officially approved by the Y.R.A.). The Seawanhaka Corinthian Yacht Club adopted it, and after slight modifications used it for their 1882 season. Fully satisfied, Seawanhaka suggested that the NYYC should adopt it on a larger scale. The famous "***Seawanhaka Rule***" is approved by the principal American yacht clubs meeting the year after:

$$Rating = \frac{\mathbf{L} + \sqrt{\mathbf{S}}}{\mathbf{2}}$$

Though inspired by Kemp, the ***Seawanhaka Rule*** has made several important changes: '**L**' and '**S**' are now summed, sail area has been brought to a linear value, and the result is expressed in feet. In addition, for the first time sail area is calculated by actually measuring mast, boom, and gaff lengths.



Magic, built 1857, LOA 90ft, was the first defender of the 1870 America's Cup.

Completely different from the British designs, she is a typical example of an American yacht: schooner rig, large beam, shallow draft with centre-board.

The "*Seawanhaka Rule*" lasts for twenty years; the NYYC abandons the "*Cubic Contents Rule*"; the America's Cup is run by the integrating the "*Seawanhaka Rule*" and the NYYC's norms.

Some of the most beautiful yachts were launched under this rule: A. Carey Smith, W. Gardner, Edward Burgess and Nat Herreshoff are the protagonists of the era. Herreshoff's *Gloriana* is a profoundly innovative design; sweetening her lines, Watson created *Britannia*.

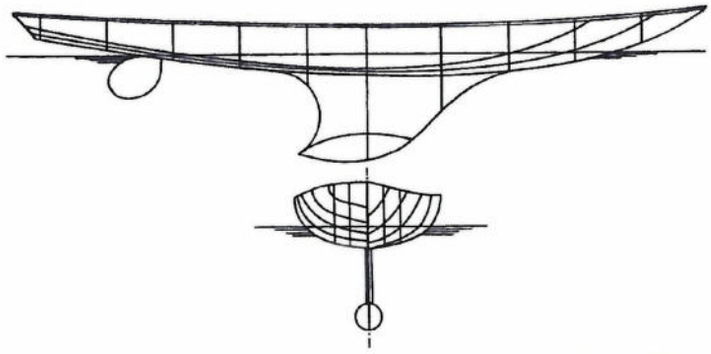
Yet '*rule cheating*' persists with *fin keels* and *skimming dishes* on both sides of the Atlantic, plus *scows* and the first *catamarans* on the North American coast.

And once again, the current rule begins to show its age, and the yachting community once more shies away from the extreme designs.

Herreshoff himself proposed a new rule.

In 1902 the NYYC sent a letter to the best-known Americans, British, Norwegians, Swedish, French, Danish, Germans, Canadians and Australians designers proposing a revision to the rule and welcoming suggestions. Many contributions were made, however the NYYC adopted Herreshoff's proposal. Any hope of approving a single formula for international use was dashed.

In 1903 the NYYC and the Seawanhaka Corinthian Yacht Club discard the "*Seawanhaka Rule*" and adopt Herreshoff's proposal, which takes the name of "*Universal Rule*" in 1904. Two years later the "*Universal Rule*" is adopted by all American yacht clubs and will be used for all the America's Cup challenges through 1937.



A skimming dish, built 1892, 1-rater under the "Length and Sail Area Rule", design by J.M. Soper, LOA 31ft 6in, LWL 20ft 6in.

The sections are flat, long overhangs, fin keel with bulb; this is the result to take LWL as the only length measurement.

The Universal Rule

The ***Universal Rule*** is written as follows:

$$\textit{Rating in feet} = \frac{\mathbf{L} \times \sqrt{\mathbf{S}}}{5 \times 3\sqrt{\mathbf{D}}}$$

where: **L** is waterline length in feet
S is sail area
D is displacement

In 1909 the rule assumed it's last version:

$$\textit{Rating in feet} = \frac{\mathbf{0{,}18} \times \mathbf{L} \times \sqrt{\mathbf{S}}}{3\sqrt{\mathbf{D}}}$$

The square root of the sail area and the cube root of displacement cause all the measurements to be expressed as linear, and therefore in feet. In addition (very theoretically) the waterline length in feet is proportional to the square of maximum speed multiplied by the constant 1.4.

Nat Herreshoff contributed new ideas both for measuring '**L**' and for calculating '**D**'. With the practical effect of reducing dangerous overhangs, '**L**' is measured at the waterline, but at a height from the waterline of 1/4 maximum beam. As a practical consequence the bow and stern overhangs were reduced avoiding the previous dangerous extreme dimensions. '**D**' will be measured at five different stations along the waterline.

To function, all working rating systems need either a time over distance handicap or a division of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the yachts into classes. Here Herreshoff gave the NYYC (by revising a previously commissioned calculation used to determine allowances) the "*Time allowance tables for every mile in seconds and tenths of seconds*". This is accepted first by the NYCC and later by the North American Yacht Racing Union.

He then divided yachts into classes according to their calculated waterline length, identifying each class with a letter.

We then have, according to the 1930 version of the Universal Rule:

Schooners and Ketches

1st Class	*rating* over 100'
	rating over 30,48m
100 Foot Class A	*rating* from over 88' to 100'
	rating from 26.82m to 30.48m
88 Foot Class B	*rating* from over 76' to 88'
	rating from over 23.16m to 26.82m
76 Foot Class C	*rating* from over 65' to 76'
	rating from over 19.81m to 23.16m
65 Foot Class D	*rating* from over 56' to 65'
	rating from over 17.06m to 19.81m
55 Foot Class E	*rating* from over 46' to 56'
	rating from over 14.02m to 17.06m
46 Foot Class F	*rating* from over 38' to 46'
	rating from over 11.58m to 14.02m
38 Foot Class FF *	*rating* up to 38'
	rating up to 11.58m
38 Foot Class G **	*rating* from over 31' to 38'
	rating from over 9.44m to 11.58m
31 Foot Class X **	*rating* from over 25' to 31'
	rating from over 7.62m to 9.44m
25 Foot Class Y **	*rating* from over 20' to 25'
	rating from over 6.08m to 7.62m
20 Foot Class Z **	*rating* up to but not including 20'
	rating up to but not including 6.08m

* Class added in 1922.

** Included in the N.A.Y.R.U. 1930 yearbook.

Sloops and Yawls

1st Class *	*rating* over 88'
	rating over 26.82m
88 Foot Class I **	*rating* from over 76' to 88'
	rating from over 23.16m to 26.82m
76 Foot Class J	*rating* from over 65' to 76'
	rating from over 19.81m to 23.16m
65 Foot Class K	*rating* from over 56' to 65'
	rating from over 17.06m to 19.81m
55 Foot Class L	*rating* from over 46' to 56'
	rating from over 14.02m to 17.06m
46 Foot Class M	*rating* from over 38' to 46'
	rating from over 11.58m to 14.02m
38 Foot Class N ***	*rating* from over 31' to 38'
	rating from over 9.44m to 11.58m
31 Foot Class P ***	*rating* from over 25' to 31'
	rating from over 7.62m to 9.44m
25 Foot Class Q ***	*rating* from over 20' to 25'
	rating from over 6.08m to 7.62m
20 Foot Class R ***	*rating* from over 17' to 20'
	rating from over 5.18m to 6.08m
17 Foot Class S ***	*rating* from over 15' to 17'
	rating from over 4.57m to 5.18m
15 Foot Class T ***	*rating* up to but not including 15'
	rating up to but not including 4.57m

* Included in the Class in 1912, then "First Class". The same for schooners.

** 100' First Class A - rating from over 88' (26.82m) to 100' (30.48m), later modified.

*** N to T Classes added after 1912.

The "Universal Rule" was used for the America's Cup from 1920 to 1937.

Synthesis of the rating Rules preceding the International Rating Rule

A) In Great Bretain

A.1) From 1829 to 1854 – Tonnage Rule

It is based on the old 1773 formula, known as BOM "Builder's Old Measurement", and registered in its 1836 amendment:

$$\text{Tonnage (Rating)} = \frac{L - {}^{3}/_{5}\,B \times B \times {}^{1}/_{2}\,B}{94}$$

A.2) From 1854 to 1881 – Thames Measurement

It is the most renowned formula, still based on tonnage.
From 1875 YRA extends its validity to everybody:

$$\text{Tons (Thames Measurement)} = \frac{(L - B) \times B \times {}^{1}/_{2}\,B}{94}$$

A.3) From 1881 to 1885 – 1730 Rule

It is the new formula imposed by YRA, still based on tonnage

$$\text{"1730 Rule"} = \frac{(L + B)^2 \times B}{1730}$$

A.4) From 1886 to 1895 – Length and Sail Area Rule

It is the completely innovating formula adjusted by Dixon Kemp

$$\text{Rating} = \frac{L \times S}{6000}$$

A.5) From 1896 to 1901 – Linear Rating Rule

It is the formula studied by Froude; the rating is no more indicated in tons; for the first time the skin girth idea is introduced

$$\frac{L + B + {}^{3}/_{4}\,G + {}^{1}/_{2}\,\sqrt{SA}}{2} = \text{Rating in feet}$$

A.6) From 1901 to 1907 – Second Linear Rating Rule

It is a revision of the Linear Rating Rule; the idea of chain and of the difference between the chain and the skin girth is introduced

$$\frac{L + B + {}^{3}/_{4}\, G + 4\, d + {}^{1}/_{2}\, \sqrt{\text{superficie velica}}}{2{,}1} = \textit{Rating in feet}$$

B) In the United States

B.1) 1871 – Displacement Rule

$$R = 100 \times (A \times L/4)^{1/3}$$

B.2) 1883 – Seawanhaka Rule

It is the enforcement in the Uniterd States of the Dixon Kemp formula

$$\textit{Rating} = \frac{L + \sqrt{S}}{2}$$

B.3) 1904 – Universal Rule

$$\textit{Rating in feet} = \frac{0{,}18 \times L \times \sqrt{S}}{3\sqrt{D}}$$

from 1908

$$\textit{Rating in feet} = \frac{L \times \sqrt{S}}{5 \times 3\sqrt{D}}$$

▼ *Désirée*, 1913

the International Rule

In the early nineteen hundreds, nearly eighty years had gone by since the first serious attempts had been made to regulate handicap yacht racing. And although the situation on both sides of the Atlantic had improved considerably, no definitive solution had been arrived at. The disappearance of the large racing yachts and the proliferation of One-designs were symptomatic of the dissatisfaction and confusion reigning among owners (England at the time had 23 different One-design classes), and new yacht construction concentrated primarily on cruising designs. A new racing design, drawn according to a current rule, would only be competitive for one season.

Despite this unsatisfactory situation, yachting had definitely asserted itself. In 1906 the capable and dynamic secretary of the YRA, Brooke Heckstall-Smith, gathered the following statistics on the numbers of registered European yachts:

• England	2,959	• Norway and Sweden	300
• English domains	311	• Belgium and Holland	191
• Austria and Germany	599	• Denmark	107
• France	363	• Italy	76

As important regattas multiplied in Europe's most elegant venues, Heckstall-Smith gave life to a series of initiatives supporting the owner's desire to race not with the infinite variations of the rules found on the local level, but with an internationally valid, clear-cut rule.

In April 1904, after having first verified that the various national rating rules were not so different from one another, and that all the rules (except for the French) expired in 1907, Heckstall-Smith wrote to the ***Yacht Club de France*** asking if they would extend their rule's expiration date, and participate in the creation of a new, internationally valid rating rule.

When the French accepted, the invitation was then sent to the other yachting nations (including the United States); the proposal was welcomed by all. In May of 1905 the YRA officially invited the representatives of the major yacht clubs to an international conference in London, planned for early 1906.

The agenda for the meeting contained the following three points:

◀ *Désirée*, 1913

Baron Von Preuschen, Austria

Frederik Hegel, Denmark

Alfred Benzon, Denmark

R.E. Froude, England

- verify the possibility of creating a new general rating rule that might be adopted by all the world's yachting nations;
- if this possibility existed, how should the new rule be formulated;
- define the structure of the rule

Unfortunately the New York Yacht Club replied (including a long list of represented American yacht clubs) regretting that it would be unable to participate, since there was no single American organization authorized to represent the others and that their new Universal Rule had just come into effect.

The interest in an event may be measured by it's media coverage; we see that the major European periodicals (especially ***Yachting World*** and ***Yachting Monthly***) had whole pages dealing with the conference, and active reader participation.

The London conference (15th - 19th January 1906)

The representatives of the following countries met at London's Langham Hotel on the 15th of January, 1906:

- Austria: Lieut. Baron von Preuschen (Austrian Imperial Navy)
- Denmark: Frederik Hegel, Alfred Benzon
- England: R.E. Froude, W.P. Burton
- France: Louis Dyèvre, M. Blanchy
- Germany: Ad. Burmester (Deutscher Segler-Verband), Professor Busley
- Holland and Belgium: Jonkeer W. Six, M. von Bernuth (President of the Royal Nautique Anversoise)
- Italy: Count Eugenio Brunetta d'Usseaux (Regio Yacht Club Italiano)
- Norway: Johan Anker, Finn Knudsen
- Sweden: Vice Admiral Jacob Haig, Theodore Alpen
- Switzerland: Jean Mirabaud

H.H. the Prince of Wales, President of the YRA, nominated vice-president Augustus Manning chairman of the conference, and Brooke Heckstall-Smith secretary. A five-day schedule ending on the 19th January and a fifteen point agenda were agreed upon.

The New York Yacht Club sent George A. Cormack, the Club's secretary, to London as an "observer". His trip was paid for by J.P. Morgan. Then, on January 29th, 1908, the NYYC hosted the "Atlantic Coast Conference" at their New York clubhouse. The purpose of this meeting was to discuss changes in ratings, handicaps, construction parameters and racing rules with the major American yacht clubs. Some of the proposed changes were similar to the proposals made in London. In any case, several years will pass before American yachtsmen abandon the Universal Rule (originally known as the Herreshoff Rule) and adopt the International Rule.

A precise summary of the current situation evidenced that all the participants had common rating rule problems, and that the differences that existed between the various rules were fairly minor. France was the only country to elaborate (and at the last minute) a different proposal, very similar to the American Universal Rule.

The delegates were all convinced that just creating a new rule would not solve the problem; a complete and articulated system was needed that would be able to deal with each new situation as it arose.

Given their vast experience and direct knowledge of the problems involved, Froude, Benzon, Busley and Anker were the protagonists: as the reader may remember, these men were the rule writers in their respective countries, and Benzon had elaborated the concept of chain measurement that had so changed the most recent rating formulas.

The fifteen points agenda was approved at the conference's conclusion; each participating country was to verify and confirm it, and all were to meet again in June, in London.

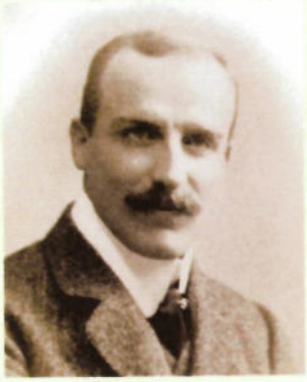
All the countries involved approved the agenda, except for France,

William P. Burton, England

M. Blanchy, France

Louis Dyevre, France

J. W. Six, Holland



Johan Anker, Norway

Admiral Haig, Sweden

Theodore Alpen, Sweden

Jean Merabeaud, Switzerland

which limited the application of the formula to 52- raters and above, and at the same time asked for substantial modifications to the rule for smaller yachts.

The second London conference (June 1906)

The June conference examined the French proposal and rejected it by nine votes to five. The June meeting also approved the new rating formula, dividing yachts into classes, and delegated the application of the formula to a committee made up of Manning as President, Benzon, Busley, Le Bret (France), Burton and Heckstall-Smith as Secretary.

The Technical Committee (Berlin 18th – 20th October 1906)

This committee met in Berlin from the 18th to the 20th of October 1906 and issued very precise and detailed instructions on how the rule was to be applied, nominated the national measurers and authorized them to emit measurement certificates.

The success of the London meetings convinced the delegates to continue.

The Paris conference (14th October 1907)

At the next conference, held in Paris on October 14th, 1907, the racing rules were officially approved and an organization was founded to unite all the European nations with interests in yachting - the International Yacht Racing Union (IYRU).

In two years the yachting world was revolutionized and the basis for 20th century yachting was laid.

The International Rule is divided into the following three sections:

I) The International Rule for Measuring and Rating Yachts;
II) Scantling Regulations;
III) Sailing Rules.

I) The International Rule for Measuring and Rating Yachts

The main points are:

- validity 10 years (from January 1st, 1908, to December 31st, 1917);
- rating formula:

$$Rating = \frac{L + B + {}^1/_2\, G + 3\, d + {}^1/_3\, \sqrt{S} - F}{2}$$

(expressed in linear units - feet or meters)

Where: **L** = waterline length (LWL)
B = maximum beam
G = chain
d = difference between girth and chain
S = sail area
F = freeboard

- the rule defines precisely where and how each term is to be measured;
- no crew is to be on board the yacht while measuring; level marks will be placed on the hull in a clearly visible location, sail area measurements will be indicated (as in America) by black stripes on the yards;
- cabin location and dimensions;
- hollow metal masts are not allowed, nor are hollow wood masts on yachts over 10 meters;
- all yachts must have a certificate from either ***Lloyd's Register of British and Foreign Shipping***, ***Germanischer Lloyd*** or ***Bureau Veritas***. When a yacht has been classified, International Rule yachts will then be given an '**R**' rating;
- yachts will be divided into the following divisions;

:

	Classes	English feet	Max. crew
Class A	over 23 m.	over 75,4"	
Class R International Classes	23m.	75,4"	no limit
	19m.	62,3"	20
	15m.	49,2"	14
	12m.	39,4"	10
	10m.*	32,8"	8
	9m.	29,5"	6
	8m.*	26,2"	5
	7m.	23,0"	4
	6m.*	19,7"	3
	5m.	16,4"	2

* particular attention to be paid for the promotion of these classes by national rating authorities.

- handicaps allowing older yachts to race with their corresponding Metre Class will be given until December 31st, 1909;
- older yachts can be remeasured with the new formula and race in class until December 31st, 1909;
- each yacht must have a valid measurement certificate;
- actual measurements must be carried out in accordance with the relevant thirty-three articles and two appendices.

II) Scantling Regulations

Since one of the more important decisions taken during the 1906 conference was the issue of a Scantling Rules certificate, ***Lloyd's Register of British and Foreign Shipping***, ***Germanischer Lloyd***, and ***Bureau Veritas*** (***Norsk Veritas*** was included later), were asked to draw up an agreement in merit. This agreement was entitled "***Rules for the Building and Classification of Yachts of the International Rating Classes***", better known as ***Lloyd's Scantling Rules***.

The ***Scantling Rules*** were made up of 44 articles: 22 tables in feet and 22 tables in meters. These rules were precise, yet liberal; many types of materials were allowed, as long as the yacht was granted certification by one of the three institutes above.

These certificates divided yachts into two classes; the '**A**' class for yachts of 23 meters or longer and the '**R**' class for the International Classes.

The application of the Scantling Rules gave positive results. A yacht could be well built and still highly competitive and a vessel's seaworthiness returned to normal levels. The Rules were accepted by all, with designers making only a few requests for modifications, primarily to the smaller classes (Linton Hope was an example, with his work on the 6 Metres).

III) Sailing Rules

Here we find the 53 articles that deal with race organization, starts, sailing, protests and handicaps.

They were approved at the Paris meeting and then by the new-born IYRU, and though modified and updated over the years, they still form the basis of today's ISAF racing rules.

And finally, a 1908 meeting set down a handicap, in seconds, for the '**A**' class yachts when racing against '**R**' classes.

Heckstall-Smith also set up a table equating yachts in the different formulas that followed over the years.

LWL	1881-1886	1886-1895	1896-1907	1907 –
50 ft	0 tons	20 rater	52 ft ***rating***	15 Metre
60 ft	40 tons	40 rater	65 ft ***rating***	19 Metre
80 ft	85 tons	140 rater	75 ft ***rating***	23 Metre

The new International Measurement Rule was an immediate success. 771 yachts (including 328 Six-Metres and 35 Twelve Metres) were built in Europe between 1907 and 1914.

There were several reasons for this success.

The boats were better balanced with less extreme overhangs and sail area. The freeboard in detraction factor led to increased freeboard, producing boats which were drier and more seaworthy. The chain measurement and measurement of the difference between girth and chain developed greater displacement and fuller hulls; the closer the values of the two factors became, the rounder hulls became, the lower the rating, and the more sail area and waterline length as speed factors could be developed. In conclusion, hulls were very different from before; much more seaworthy and safe. Finally we were on the right path.

The Rule will be updated twice, in 1919 and in 1933, and in the second half of this century changed into fractions of meters as the boats did likewise. But the direction had been set and will last the whole century.

But all the older European rules didn't just disappear, One-designs are still built and cruising yachts still use the old Thames Tonnage rule.

Only the success of offshore racing will bring new solutions (the RORC and CCA formulas) complementary to the International Measurement Rule.

The season of the 12 Metre International Rating (or more recently, the current International 12 Metre Class) began in 1907 and continues until today with the latest Class Rules updated in 2008 by the International Twelve Metre Association (ITMA).

The last significant Twelves were launched in 1987 for the Australian Cup races, the last America's Cup run using Twelve Metres.

Today we are witnessing a renewed interest in the Class with numerous restorations and even new builds.

Kate, a replica of ***Javotte***, was launched in 2007, while in 2009 the construction of a new Twelve to a never before built Johan Anker design has begun in Germany.

Racing, design and construction: in one hundred years some of the most important pages in yachting history were written by the Twelves.

▲ Twelve Metres racing at the passage of the Needles (Isle of Wight)

▼ ***Rollo IV*** (10M I.R.), and the Twelve ***Erna Signe***, 1911 and ***Magnolia***, 1909


10
N5


E
8
E-4


03
47

First International Rule Twelve Metres (1907-1919)

The first Twelve Metre was launched in 1907, the last for the 1987 America's Cup races in Australia, and the Measurement Rule has been updated in 2008 by the ITMA - International Twelve Metre Association.

Throughout this century of activity Twelve Metre design, construction and competition have contributed to the most important chapters of international yachting, and made it one of the most successful of the metre boat classes.

At the beginning of the 19th century, success smiled upon the International Rule and its Classes. In 1907 a Twelve Metre was considered a medium sized yacht that did not have too high a price, "an ideal middle ground between the larger 23, 19 and 15 Metres and the smaller classes which were inshore raced or day sailed".

Mouchette was described by ***The Gael*** in the June 1908 issue of Yachting World as "like the other vessels in her class, a beautiful, small ship, well equipped under all aspects to race brilliantly but at the same time to be a medium sized cruiser. The hull is much roomier than the taxable dimensions would suggest (author's note: the Thames Measurement has apparently not been forgotten!) and the below decks layout has been designed with the owner's and his guest's comfort in mind..."

Using the Thames Measurement a Twelve Metre measures 27 tons, while a 15-Metre measures 50: almost twice the displacement with only three meters difference in overall length. In this case the Thames Measurement, based on a yacht's volume, is a great help in differentiating the two types. A Twelve is a very competitive yacht, but at the same time has enough accommodation below decks to guarantee the owner pleasant cruises while transferring his yacht in comfort from one race to another.

The first Twelve Metres: Davo II, Heatherbell and Cygne

In 1907 the first Twelve Metres of the International Rule have been built: ***Davo II***, ***Heatherbell*** and ***Cygne***. Apparently, the first Twelve to be launched in 1907 was ***Davo II***, designed by Max Oertz and built in his yard in Hamburg for the Dutch owner C. Vermer. While giving excellent results, she was also the only Twelve built with a centerboard (see plans at page 59).

◀ *Varuna*, 1909

We will talk about ***Heatherbell*** in a few paragraphs, while another International Rule yacht was built in France: ***Cygne***, designed by G. Duperron and built at the Ch. G. De Coninck & Co. Yard in Maison Lafitte. Launched September 7th, ***Cygne*** was actually a cruising yawl with an auxiliary motor, built by the owner's wishes according to the new rule. She will be a winning yacht not in the 12 Metre class races but in the handicap ones.

While the first two Twelves were built for the Dutch and the French, it was the English designers and shipyards, followed closely by the Norwegians, who dominated the class. Out of 41 Twelves built between 1907 and 1919 according to the First version of the Rule (***Thea*** in 1917, ***Tatjana*** in 1918 and ***Heira II*** in 1919 were built to the Second Rule), eighteen were of English design and construction, twelve Norwegian, eight German, two Swedish and one French. While the French interest in the Twelves lasted only one season with ***Cygne***, their value as an international class was confirmed by diffusion beyond the Clyde to the Baltic, Holland, and even Argentina.

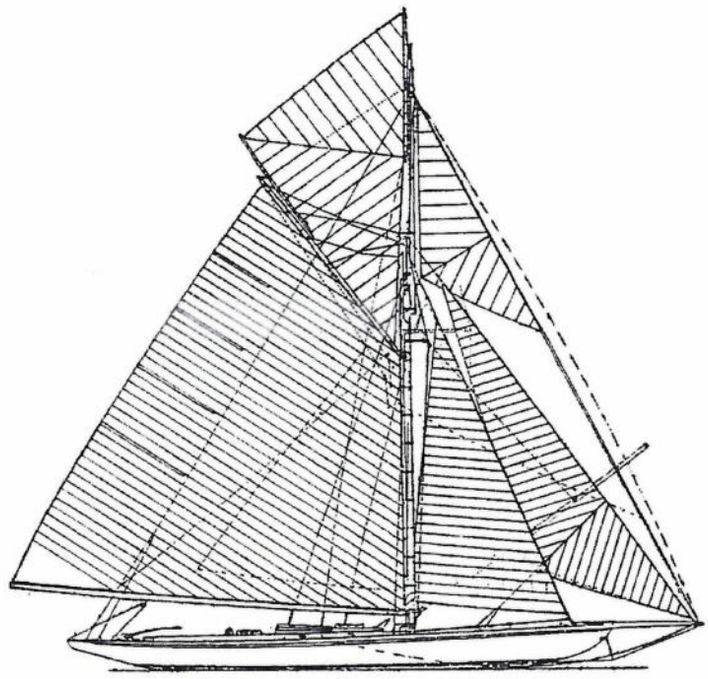
In Great Britain

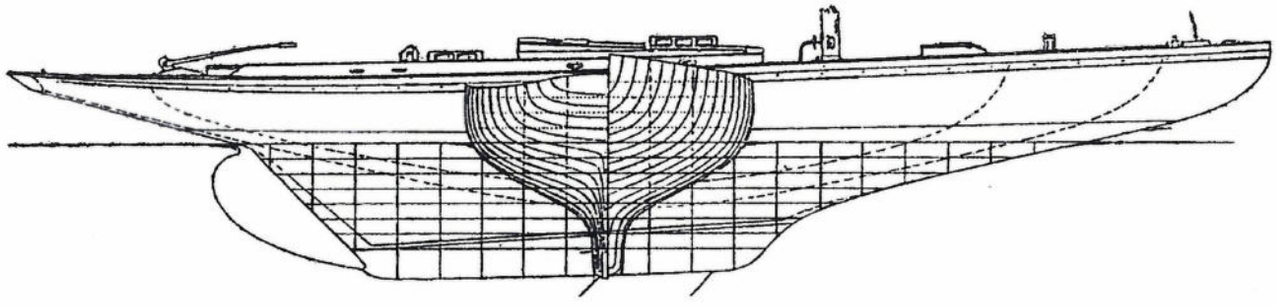
The class had it's beginning on the Clyde thanks to Major Andrew Coats, one of the protagonists of English yachting, who commissioned a new design from his nephew Thomas C. Glen-Coats, the brilliant amateur designer of his yachts who collaborated with Alfred Mylne's office. ***Heatherbell*** was born, the first English Twelve. With her they begin to race on the Clyde against the ex-raters ***Kelpie*** (owned by George Coats), ***Mignon*** e ***Eileen*** (owned by Charles McIver). They were rated as Twelve Metres for the occasion, but the new designs quickly demonstrated their superiority over the old ones, even though they were sailed well. In 1908 they were substituted by the new Twelves: ***Alachie*** is launched for George Coats, while Mouchette slips into the water for Charles McIver. ***Hera*** and ***Nargie*** were also launched in 1908, followed in 1909 by ***Cintra***, ***Cyra*** and ***Javotte***, and ***Ierne*** in 1911. Due to the concentration of interested owners on the Clyde, Twelve activity was limited to northern England at the time.

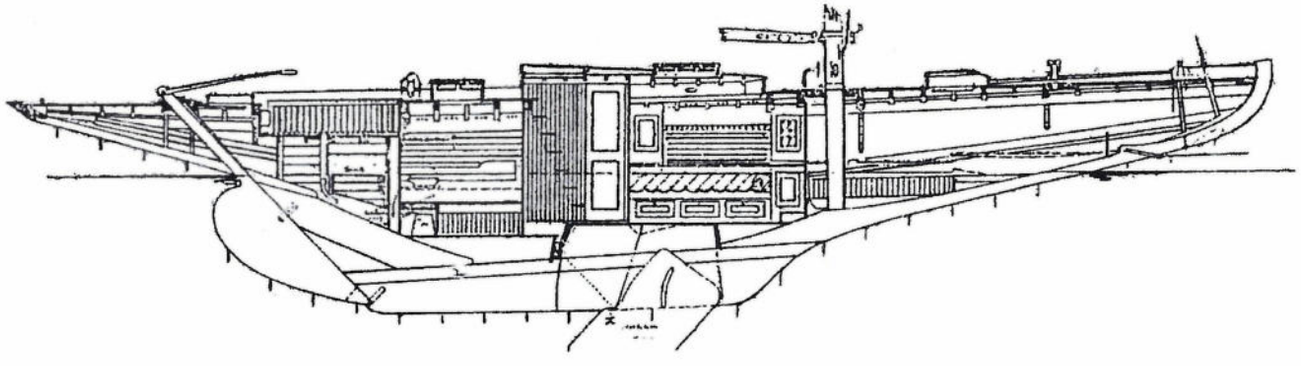
Keeping abreast of the ratings was of prime importance: some 12s returned several times to the yard for the latest changes, some even were modified below the waterline.

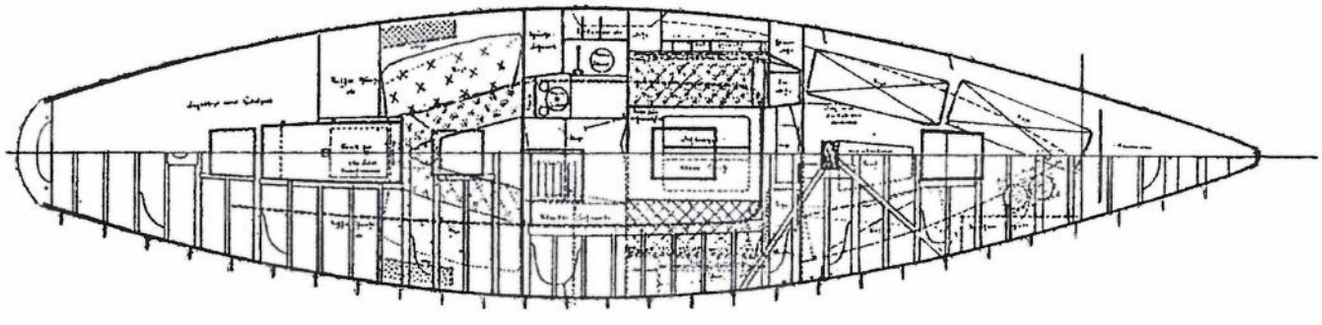
Cintra was considered a light-air Twelve, ***Javotte*** and ***Mouchette*** were at their best in a breeze, while ***Alachie*** and ***Hera*** were good all-around yachts. The best performer was ***Cintra***, the best classified Twelve in 1909, 1910 and 1911: out of about thirty races, ***Cintra*** won a third.

At the time enthusiasm on the Clyde for the Twelves was such that the Scotch were able to host the 12 Metre events for the 1908 Olympics (see pages 60 and 61).









▲ *Davo*, 1907, 12m I.R., Max Oertz

Olympic Games

The Twelve Metres were an Olympic Class in the 1908, 1912, and 1920 Olympic games. There were a series of reasons behind the low numbers of 12s participating, and although the Eight-Metres continued as an Olympic Class until the end of the Second World War, 1920 was the Twelve Metres last Olympic season.

The 1908 Olympics

When it became clear that the only 12 Metre participants would be *Hera* and *Mouchette*, both from the Clyde, it was decided that the Olympics for the 12-Metre International Rule would be held from August 11th until the 13th on the Clyde. In so doing the yachts were able to avoid the lengthy delivery from Scotland to down to Ryde on the Solent, where the other classes were to race.

Initially the English athletes were not very enthused given the low number of participants from other countries, or even from other English clubs, but given the amateur nature of the racing they quickly regained interest. No longer the realm of professionals, owners were helming their yachts with crews of local sailors.

The selections were run between *Heatherbell* (the winner of the 1907 season), *Alachie*, *Nargie*, *Mouchette* and *Hera*. The latter two came out on top in all the classes' racing, *Hera* with ten firsts, *Mouchette* with eight, while *Alachie* and *Heatherbell* respectively won five and two victories apiece.

Hera was designed by Thomas C. Glen Coats and owned by his uncle Andrew Coats, while the Scottish crew included Alfred Mylne. *Mouchette* was designed by Mylne and owned by Charles McIver, with an English crew from Liverpool.

The regatta was organized by the Clyde Corinthian Yacht Club at Dunoon. There were to be three races, run on a 13 mile course, twice around. The ten amateur sailors of each crew were:

Hera: John Buchanan, T.C. Bunten, A.D. Downes, J.H. Downes, David Dunlop, John Mackenzie, Albert Martin, Alfred Mylne, Gerald Tait and T.C. Glen Coates (helmsman); reserves: R.B. Aspin, J.S. Aspin, Gorge Moir and William Poole.

Mouchette: James Baxter, W.P. Davidson, J.A. Gardiner, J.F. Bellico, J.G. Kenion, T.A.R. Littledale, C. M'Leod Roberson, J.F.D. Spence, C.R. McIver and Charles MacIver (helmsman); reserves: J.M. Adam, J.M. James and B. Kenion.

The start of the first race was given at 1130 Tuesday morning, with a fresh Northwesterly breeze.

Both yachts had their topsails up. It was a beautiful, closely fought race. *Mouchette* won the start by about a boat length, earning the windward side of the line. *Hera* closed up the gap, and, after all of thirty tacks, had a lead of about 30 seconds at the first mark off Inverkip. The next leg was to Dunoon, still to windward, and Hera increased her lead to almost two minutes. On the last leg, with a falling breeze, *Mouchette* closed, but at the line *Hera* won by 1'37" on *Mouchette*, who probably had a better crew. *Hera* 3hours, 19 minutes and 41 seconds; *Mouchette* 3 hours, 21 minutes and 21 seconds.

Hera won the second race even more convincingly to bring home the first Olympic title.

and the Twelve Metres

The 1912 Olympics

The 1912 Olympics were held in Norway, and were somewhat more international in aspect, even though only Scandinavian yachts participated: Norway, Sweden and Finland were represented. The races were held at Nynashamn the 20th and 21st of July with 27 yachts, divided into the 6, 8, 10 and 12 Metre Classes. There were three 12s: ***Magda IX*** (Norway), ***Erna Signe*** (Sweden), and ***Heatherbell*** (Finland).

As usual there were to be three regattas, but two days were enough for ***Magda IX*** to win her Olympic title: designed by Johan Anker who was on board as sailing master while ***Magda IX***'s owner, the famous Alfred W.G. Larsen, was at the tiller. In second place Sweden's ***Erna Signe***, owned by Nils Persson, and in third ***Heatherbell***, who's new owner was Ernst Krogius. The results of the two races run did not vary: ***Magda IX*** first, ***Erna Signe*** second, and ***Heatherbell*** third, with ***Magda IX*** winning the first race by seven minutes and the second by sixteen minutes. ***Erna Signe*** and ***Heatherbell*** were closer, with ninety seconds difference for the first race, and fourty-nine the second. The ten amateur sailors of each crew were:

Magda IX: Johan Anker (sailing master), Nils Bertelsen, Eilert Falch-Lund, Halfdan Hansen, Arnfinn Heje, Magnus Konow, Alfred Larsen (owner), Petter Larsen, Christian Staib, Carl Thawlov.

Erna Signe: Per Bergman (helmsman), Dick Bergström, Hugo Claxon, Folke Johnson, Sigurd Kander, Nils Lamby, Erik Lindqvist, Nils Persson (owner), Richard Sälistrom.

Heatherbell: Max Alfthan (helmsman), Erik Hartvall, Jarl Hulldén, Sigurd Juslén, Ernst Krogius (owner), Axel Krogius, Eino Sandelin, Johan Silén.

The 1920 Olympics

These were the last Olympics for the 12 Metre Class, and awarded two gold medals: the first for Twelve Metres built under the First Rule, and the second for the Twelve Metres built according to the new 1919 Second Rule. Only two yachts participated, one per category, and both Norwegian. It's difficult to speak of victory, if not for Johan Anker and his yard who designed and built both ***Atalanta*** and the new ***Heira II***.

Oddly enough, there was little activity on the Solent for the new Class. In 1910 only six yachts came down from the north to race in Channel waters. Camper & Nicholson built only two Twelves (*Rafaga* and *Skum III*), and both were for foreign owners.

Two great architects designed the major part of the new class: the intuitive and creative William Fife III drew the lines of *Alachie*, *Cintra*, *Magnolia*, *Erna Signe*, *Ierne*, *Morna* and *Skeaf VI*; the more mathematically inclined Alfred Mylne drew *Mouchette*, *Nargie*, *Cyra* and *Javotte*.

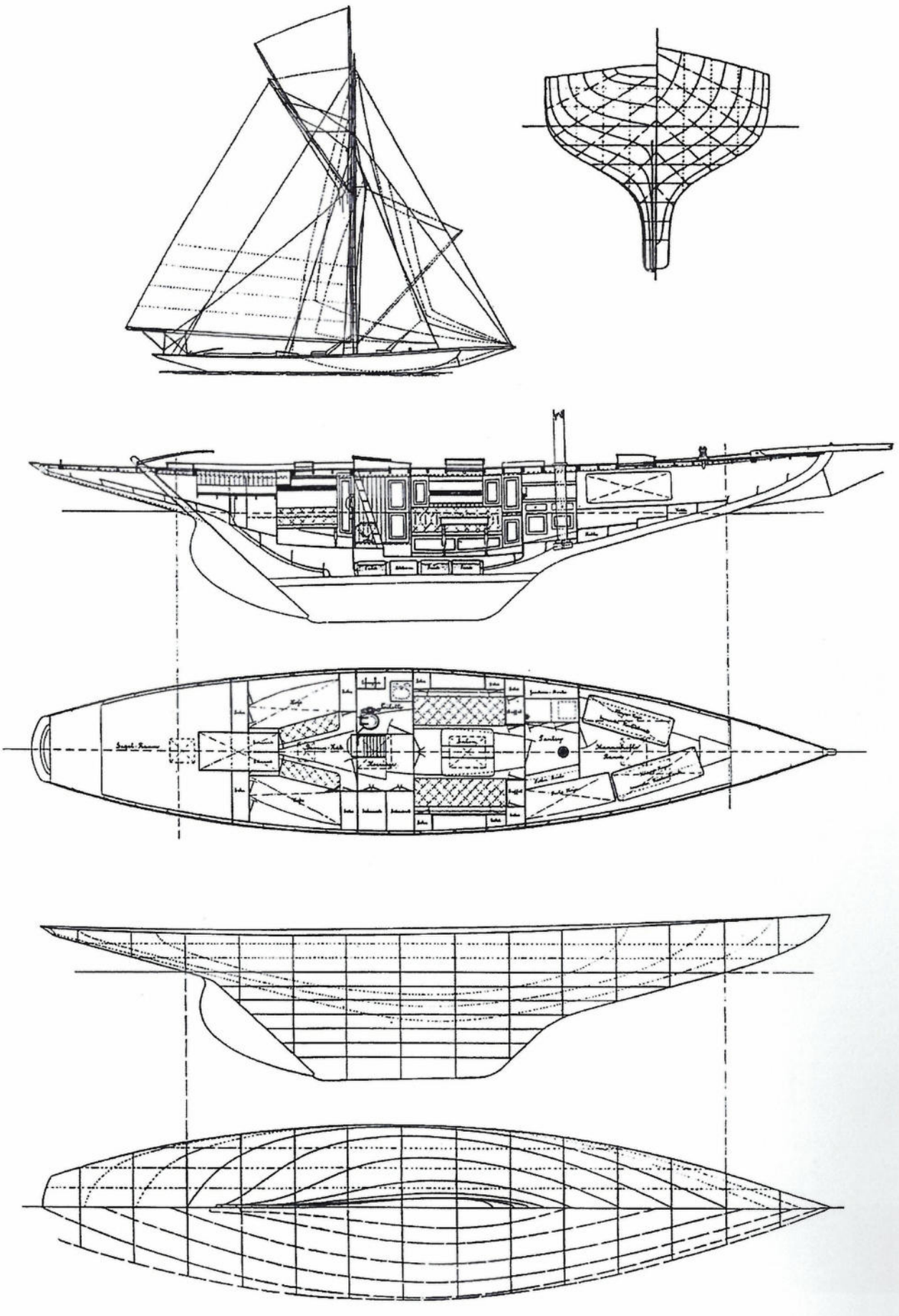
Not less important were Thomas C. Glen-Coates with (*Heatherbell* and *Hera*), Charles Nicholson (*Rafaga* and *Skum III*), A. Richardson (*Varuna*) and G.A. Heal (*Ivanhoe*).

In Norway

The Scandinavian designers weren't to be left behind, with Bergen and the Baltic as the centers of activity for the Twelves. The most successful northern designer was Johan Anker with his yard Anker & Jensen,

An influential participant of the London and Paris conferences, Anker designed his first Twelve, *Brand IV*, in 1909. Ten other Twelves (*Vineta*, *Titania*, *Danseuse*, *Rollo*, *Magda IX*, *Corona*, *Sibyllan*, *Storm*, *Symra*, and *Atalanta*), together with the successive designs under later versions of the Rule and those of the other metre boat classes made Anker the greatest designer ever of metre boats. On the other hand, metrics well performed in the protected Scandinavian waters.

Two other Norwegians contributed five double-ender (spissgatter) designs to the Class: Bjarne Aäs with *Raak* and *Ull II* and Christian Jensen with *Storm*, *Skoiern* and *Lady*.



▲ *Skeaf II*, 1908, 12m I.R.

In Germany

The German Baltic designers were Max Oertz, with three designs to his credit (***Davo II***, ***Davo III*** and ***Heti***); G. Barg with four of the five ***Skeaf***, all built for Henry Horn; and Scharstein with ***Schwanhild***.

Yards and owners

Together with the designers, their yards that built the 12s must not be forgotten: W. Fife & Son, Camper & Nicholson, R. McAllister & Son, A. Robertson, Philip & Son, Summers & Payne, Anker & Jensen, Stockolms Bathygerry (Plym), Act. Ges Neptun, Max Oertz Yachtwerf and Abeking & Rasmussen.

And alongside the designers and builders of the 12s, there were the owners and families who contributed to the history of the Class at the beginning of the century. In England we have the Coates brothers (Andrew with ***Heatherbell*** and ***Cintra***, George with ***Alachie***) and their nephew Thomas Glen Coats and Charles McIver (***Mouchette*** and ***Javotte***). They animated the racing seasons

with ever increasing success until 1912 when their interest shifted over to the larger 15 Metres, and the first signs of impending war further slowed racing activity, which only recovered in the early 1920's.

In Germany the important timber merchant Henry Horn with his ***Skeaf*** animated the Baltic racing season, while in Norway we cannot but mention Alfred W.G. Larsen, victorious in the Olympics with his series of ***Magda***'s, and Thomas Olsen with his series of ***Figaro***'s.

The regattas

These prewar races were important social events, not only among the yachting enthusiasts, and the presence of European royal families kept the season lively and brought in crowds of vacationers at the various venues.

Let us remember the Clyde and in continental Europe at Kiel, Oslo, Le Havre, Copenhagen and

Erna Signe, 1911

Cintra

Cintra is a fine example with which to illustrate the main features of the First International Rule. She was a winner in the Twelve Metre category particularly with light winds, has fine elegant lines and has been restored perfectly. She also illustrates very well the limitations of the First Rule which led to its revision and changes in the Second Rule.

While the Twelve Metre boats constructed according to the Second and Third Rule do not differ greatly from each other, those constructed in accordane with the First Rule are notably different.

The hull: is shorter; usually the overall length is less than nineteen meters; the formula of tonnage penalizes the width and the keel, consequently you have long thin hulls with a limited draft. The topsides are restricted thus the hull sits low in the water and the displacement is less. The hull usually has mahogany planking on oak frames; the stem and sternpost, the keel and the rudder are in oak or teak, and the deck in pine.

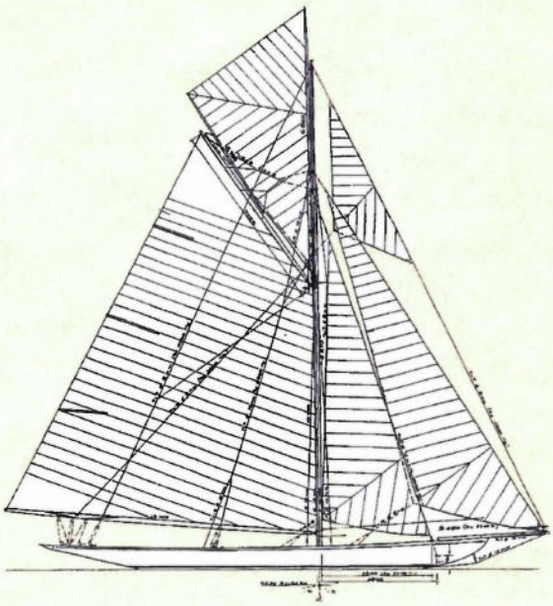
Rigging: it has gaff sails and as the sail area accounts in the formula only for one third, it is of particular importance with a large mainsail of about 120-130 square meters and a topsail of about 30. The boom extends beyond the stern; it is obligatory to have a bowsprit to balance the sail area considering that the mast is positioned well forward. The bow has three smaller sails; the inner and outer jib and a small jib top with a total sail area of 70/80 square meters. The formula closely binds the sail area to the waterline length; the larger the former the shorter the latter. The stays are Atlantic steel.

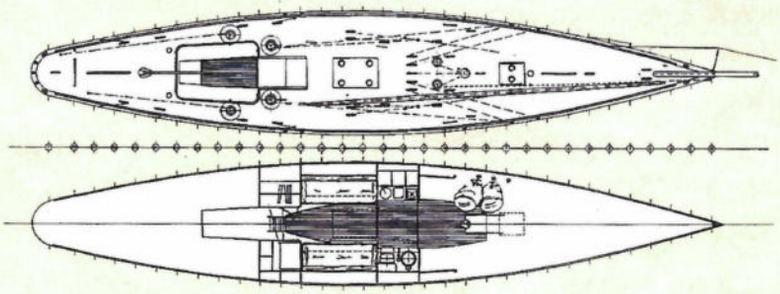
Sails: are cotton.

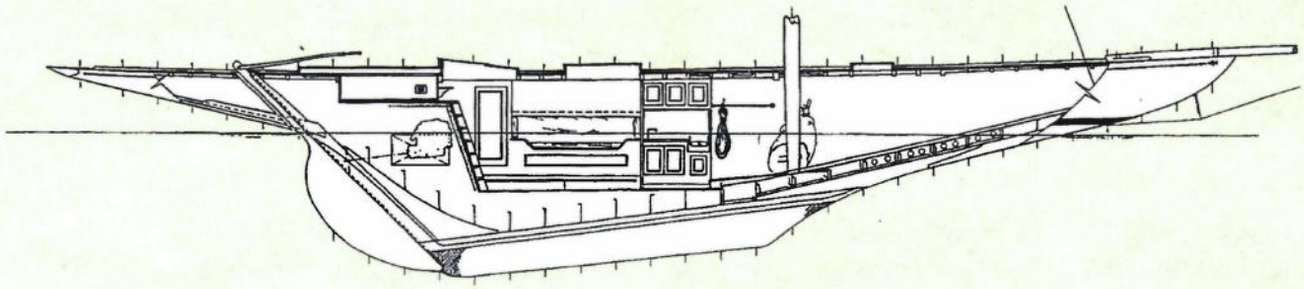
Layout of the deck: there are no winches so all manoeuvres are done by hand or hoists; the sheets are hemp and the halyards are steel with the final part in hemp. There is a tiller.

Interior: there were no precise rules as there would be in the future; the quarters are adequately comfortable with a spacious saloon and two berths in the stern, a heads, a small galley and a large space forward for sail storage.

Designer	*William Fife III*
Builder	*W. Fife & Son*
Owner	*Andrew Coats*
Year of launch	*May 1909*
Length overall	*18.82 m*
Beam	*3.38 m*
Sail area	*217 m²*
Displacement	*18.50 tons*







Amsterdam. The most important was Cowes Week. Emblematic was the "***Europe Week***" of high level international racing which responded to the yachtsman's desire to compete in international high level racing, that at the same time incorporated important social events. Created under the auspices of the IYRU, Europe Week would be hosted each year by a different nation. The first edition was held at Cowes in 1911, followed by Kiel in 1912, Le Havre in 1913 and Oslo in 1914.

They all combined to keep the Twelves at the forefront until 1912, when interest in the 15 Metre Class and the winds of war somewhat limit their activity, which won't fully start again until the early 1920's. The 19 and 15 Metres were the "toys" of a short lived moment, but the great designers innovative experimentation was concentrated on these classes.

This caused a slack period in the Twelves from 1912 until 1922, but didn't prevent an intense 1912 racing season with some 30 starts for ***Cintra***, ***Hera*** and ***Ierne***, including racing in the Baltic where ***Ierne*** met with considerable success against a large fleet of German and Scandinavian Twelve Metres.

Argentina, in addition to its interest in Six and Eight Metres, was also interested in 12s. An important member of the Yacht Club Argentino, Pablo Suarez, commissioned ***Ráfaga*** from Charles E. Nicholson. ***Ráfaga*** was one of two Twelves designed by Nicholson under the first version of the Rule. Soon ***Alachie*** and ***Mouchette*** were also sold to members of the Yacht Club Argentino, respectively Josè Antonio Aguirre and Alfredo de Bary.

The Twelves of the first International Rule

But what was a Twelve built to the first International Rule like? Certainly different from the Linear Raters that came before, and different too from those built after 1920.

A Twelve cost was between one and two thousand pounds. Chris Freer in his remarkable book ***The Twelve Metre Yacht*** noted that ***Nargie*** (Mylne's 1908 Project N°148) cost £1,850, of which £1650 were construction costs and £250 went for the sails. The designer received 15 Guineas.

An early Twelve had a very elegant hull with pronounced, though not excessive, overhangs. Freeboard was higher than on earlier designs, but less important than it would become under later versions of the Rule. Beam and overall length are both less: overall length grew from 18 meters to over 20 under the successive two versions of the revised Rule.

A pre-1920 Rule Twelve was gaff rigged with a mainsail and a main topsail. The fore triangle was divided into three small jibs; total sail area was about 220 m^2 of which 120 m^2 just for the main-

sail All sails were cotton and there were no winches aboard; the foresails were manageable enough without winches, though surely the main required considerable trimming skill with its long boom coming out from the stern.

Shrouds and stays were of Atlantic steel while running rigging was manila or hemp. The mainmast was solid wood while the other yards were hollow to save weight, and a long bowsprit pointed the way.

At the time fixed sail numbers were not yet in use: each class was distinguished by a letter ('**E**' for the Twelve Metres) while the individual numbers were changed from race to race.

A pre-1920 Twelve was built strictly to Lloyd's Scantling Rules. Construction was almost always composite, with one galvanized steel frame to every two wooden frames, though there are cases (usually Scandinavian) where all frames were wooden, with the principal frames in oak. Floors were of galvanized iron, stem and sternposts in oak, elm and teak. Planking below the waterline was usually 38 - 40 mm pitch-pine, above the waterline 30 mm mahogany.

The deck, of 32 mm pine, was beautiful and uncluttered: a cockpit, two hatches and two companionways. Deckhouses did not appear until about 1925; there were no lifelines. A pre-1920 Twelve had a tiller and not a wheel; one can imagine the skill required of a helmsman and the difficulty of controlling a yacht of this size when hit by a puff. Though much lighter than more recent Twelves, they had more inertia when tacking, with a centre of gravity very far forward to compensate for the size of the mainsail; an older Twelve was difficult to subjugate.

Accommodations below decks were comfortable, simple, and elegant at the same time. There was standing room below and the layout was built according to the Rule and included the owner's cabin aft, a head, a large wardroom, a small galley and a roomy forepeak for the sails and the crew. The effect was spacious and elegant (successive versions of the Rule increased below decks structures, making them still more comfortable).

The crew was normally made up of seven or eight, including the owner, skipper and sailors; the latter being paid either by the season or by the race. Often they were local fishermen who had found a new job for the summer. The owner was often capable enough to conduct his yacht while racing.

Tuning was difficult and required special attention, "*nihil innovetur*" to recent efforts.

We know that ***Hera*** was issued three separate rating certificates in two months, with subtle dif-

ferences in sail area. Shortly after her launch ***Mouchette***, back in the yard, was given a new keel, a lighter mast and new mainsail. Technological innovation was evident: ***Alachie*** was the first Twelve to run her sheets to the cockpit. This kept the crew from moving around on deck and thus lowered her center of gravity.

A First Rule Twelve was absolutely beautiful under sail, especially if designed by a great designer like Fife. Towering canvas, the hull throws itself through the waves and the long boom follows the boat's movements skimming the waves!

Not all Twelves were born to race. While designed according to the Rule, some have hull shapes and rigs completely different from pure racing designs and show how the International Rule can be used for fast cruisers too. We have ***Varuna***'s (ex-***White Heather***) original drawings, and according to her period owners she was drawn as a half size copy of ***Britannia***: a large deckhouse and a spacious deck, a pureblooded cruiser!

Other variations were the Scandinavian designs with canoe sterns (***double-enders*** or ***spissgatter***). ***Raak*** and ***Ull II*** are sister-ships designed by Aäs. ***Le*** (today ***Lady***), ***Skoiern*** and ***Storm*** were drawn by Jensen; though many measurements were different from the period norm, all were rated and given the class's letter '**E**'.

Fourty-one First Rule Twelves were built, and after one hundred years more have survived than would have seemed possible:

They are still in existence, in excellent sailing conditions:

- ***Cintra***: in perfect condition after a complete refit; up to a few years ago, she was the only Twelve to have kept her gaff rig; lying in Italy;
- ***Danseuse III***: lying in Norway;
- ***Désirée*** (ex-***Sybillan***): transformed into a cruiser, bermudan ketch rigged, lying in Italy;
- ***Erna Signe***: accurately restored in 2000, lying in Norway;
- ***Heti***: restored, still gaff rigged, lying in Germany;
- ***Magnolia***: her refit was completed in 2000; Bermuda rigged; lying in Norway;
- ***Varuna*** (ex-***White Heather***): refit completed in 2002, kept her gaff rig, lying in Italy.

Of the five spissgatter, ***Lady*** (ex ***Le***), ***Raak*** and ***Storm*** are lying in Norway, while ***Skoiern***, in good condition, is in France.


E3 12
E3 13

The following still exist, but are needing a complete refit:

- *Corona*: in very poor condition, lying in Italy;
- *Skaef VI* (today *Mariline*): soon to begin refit, lying in Portugal;
- *Vineta*: (ex-*Figaro*): abandoned, lying in France;

Complete details will be found in the appendix, but let us remember here that the Twelves built to the First Rule were 42 in all: 36 racers, five Spissgatter and one replica.

Danseuse, 1911

Listed by designer, we have:

J. Anker	11	**M. Oertz**	3
W. Fife III	7	**C.E. Nicholson**	2
G. Barg	4	**B. Aäs**	2
T.G. Glen Coats	3	**G. Duperron**	1
C. Jensen	3	**G.A. Heal**	1
A. Mylne	3	**A. Richardson**	1
A. Mylne (replica)	1		


12
G 4
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12
KIC

the Second and Third Internatuional Rule

The first criticisms

The hard work accomplished by several international conferences over the last few years, along with by successful racing seasons and numerous orders for both small and large yachts, confirm that a valid measurement rule had finally been found.

Between 1907 and 1914, thirty-eight Twelve-Metres were built for enthusiastic owners, and England had issued all of 83 rating certificates by the beginning of the century. However, by 1909, critical considerations began to appear and new ideas developed which were to revolutionize the shape of things to come in yachting.

One point regarded the smaller boats; although the International Rule included a 5 Metre class, this was the least popular and was diffused only in Germany. As a consequence each country developed national rules for smaller boats, especially in France and Scandinavia, which extended their influence into the Mediterranean and the Swiss lakes, while the English 18- Footer class was adopted in all of Europe.

Another criticism was directed towards the Scantling Rules, considered too strict for small craft, and responsible for an unreasonable increase in both cost and weight for boats destined to race in sheltered waters. Linton Hope, among others, urged successfully for a revision of the rules for classes smaller than the Eight Metres.

Sail Area

On the other hand, the fact that the formula gave little weight to sail area had led to an increasing number of sails and sail area, this while new studies and experiments regarding sails were going on and the concept of "***aspect ratio***" developed. Supported by aerodynamic research yachtsmen on both sides of the ocean began to realize that a tall, narrow sail plan was more efficient than those then current. In 1907 Nathaniel Herreshoff first observed the increase in power given by a taller sail plan. However, the effort to extend sails upward brought with it ever larger topsails with increasingly heavier topmasts and gaffs that were extremely hard to handle, especially when going to windward.

◀ *Sphinx*, 1939, *Nyala*, 1939 and *Trivia*, 1937

In 1919 Herreshoff had begun to experiment with the Bermuda rig and confirmed its efficiency compared to the gaff rig. A good example of this is the Herreshoff "S" Class designed by N.G. Herreshoff in 1919 and built by Herreshoff Manufacturing Company until 1942.

Charles Nicholson and the Istria

In Europe Charles Nicholson attacked the problem with an innovative design of 1911, the 15 Metre ***Istria***. It was the first yacht to use a one-piece mast with a topsail set on the mast - ***a jib-headed, yardless jackyard topsail*** - which was attached to the mast by means of a track and slides, used here for the first time. To keep the tall mast straight, Nicholson had developed such a web of stays and shrouds that it looked like a radio antenna, and so became known as a 'Marconi' rig.

Today we use the terms 'Marconi' or 'Bermudan' rig interchangeably, but strictly speaking they are not the same thing. The Marconi rig had a one-piece mast, but set both mainsail and topsail; and it was not until the Twenties that this arrangement was replaced by the one-piece Bermudan mainsail. In the Twenties, Nicholson still insisted that the proper term for the mainsail was "***jib-headed mainsail***" and for the topsail "***jib-headed jackyard topsail***" but the distinction was lost with the passage of time and nowadays we use the terms '***Marconi mainsail***' and '***Bermudan mainsail***' interchangeably.

We can think of ***Istria*** as a turning point for the International Rule. Nicholson put into her design all the innovations consented by lacunas in the Formula, not only in the rig but also the hull and equipment. While once more there was a risk of turning class development into a race for ever more expensive novelties, with older boats made obsolete by newer designs and, consequently, a rapid obsolescence of the Rule.

In 1913 the owners of large yachts began to turn away from the 15 and 19 Metre Classes, and favoring the revival of handicap racing. In 1914 the Great War put a stop to racing in England.

Scandinavia, John Anker, and the "S" Rule

Scandinavia remained neutral during the Great War, and there the building and racing of sailboats continued. But the time was ripe for a revision of the International Rating Rule, which in any case expired in 1917.

Consequently a meeting was convened in February, 1916 to discuss new proposals. The principal speakers were again Benzon and Anker; the latter, basing his proposal on his experiences with different rules then extant, made a long speech which began with a proposal to change the Rule. He


12
US 5

Veronica K 10

Veronica was one of the key yachts in the history of the Twelve Metre class under the Second Rule, having battled against *Flica* for supremacy in the rating in the English regattas in 1932 and 1933.

This is also why there was interest in converting the racing yacht to a cruising yacht. The work was carried out by Mylne, her original designer, demonstrating the yacht flexibility. The owner of *Veronica* was Sir William Burton, President of the YRA and other English yachting institutions and also the owner of several Twelve Metre boats. As well as Veronica, he also owned *Noresca*, *Iyruna*, *Marina* and *Jenetta*.

The hull: is in wood with mahogany planking on oak frames with each third rib in steell (composite construction). The building techniques of the hull are no different from those used previously. However, the waterline is radically different, the overall length is more than that permitted by the First Rule and there would be no change with the subsequent rules, remaining between, according to different designs, twenty and twenty three meters; the modifications introduced with the formula of tonnage meant wider hull with deeper draft. Compared to a Twelve Metre boat of the Third Rule the waterlines are fuller and the wetted surface is greater and the bow and stern are streamlined.

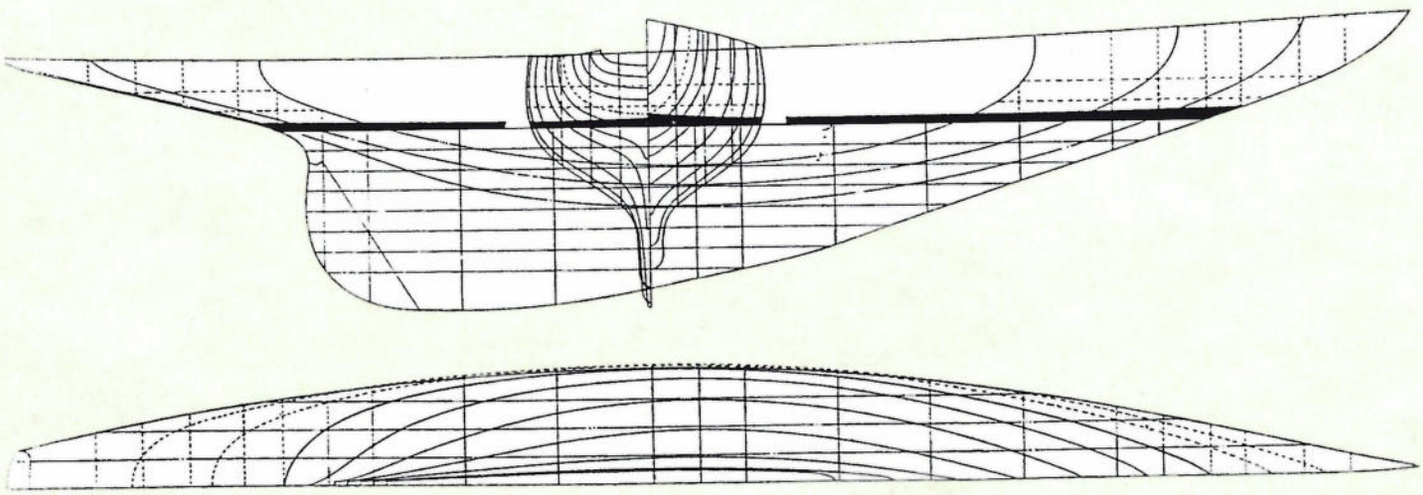
Rigging: she is Bermudan rigged with a sail area of about 180 square meters; the first experiments with the shape and material of the stays had begun; the mast was not hollowed, at least as far up as the jib halyard.

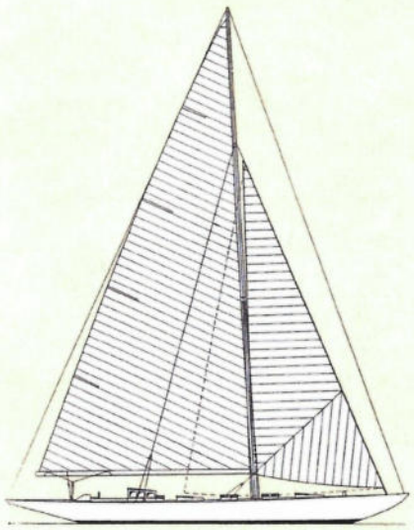
Sails: are in cotton for regattas and linen for transfers, In the first years twin foresails were used but by the end of the 1920s it was more common to use a genoa. On the sails are the new sailing numbers.

Layout of the deck: there is still a tiller and in 1925 the first halyard and sheet winches appear.

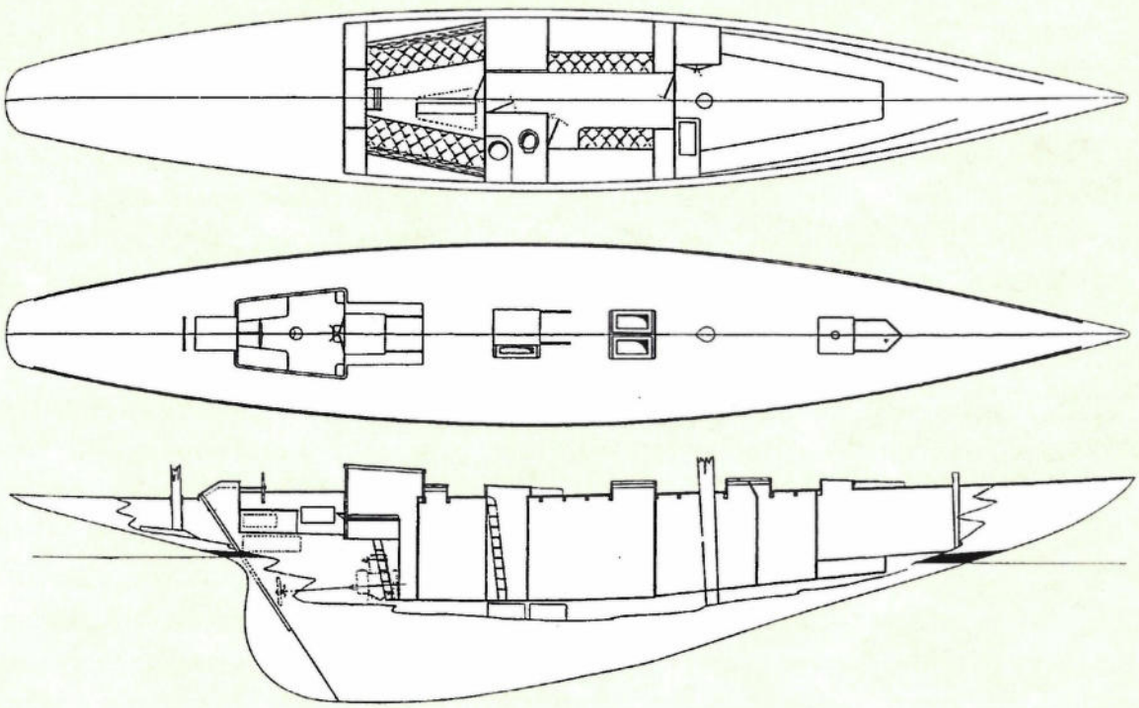
The interior: is defined in a very precise manner by the Rule which states the dimensions allowed precisely. The quarters are reasonably comfortable with a large saloon, a main cabin in the stern, a heads, a galley and a large space forward for sail storage.

Alterations: on the orders of her new owner, Robert Dunlop, the designer Mylne supervised the project which transformed the yacht in a cruiser. The mast was shortened by about 3.60 m and the main boom by about 2.20 m. It is rigged as a Bermudan yawl. The interior was completely refurbished and fitted with every comfort. An engine was also installed.



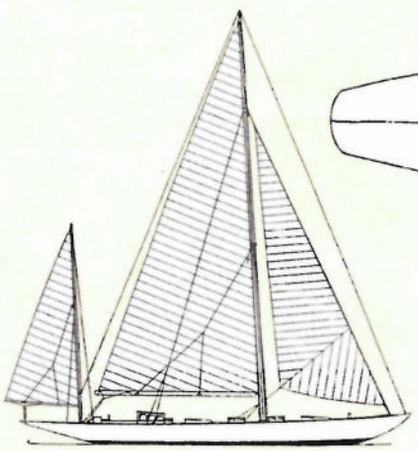


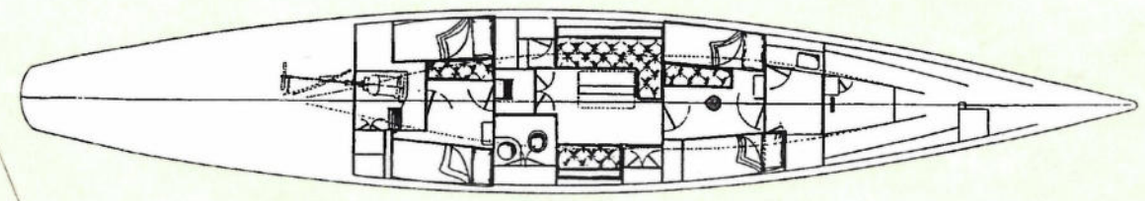
Designer	*Alfred Mylne & Co.*
Builder	*Bute Slip Dock Ltd*
Owner	*Sir William Burton*
Year of launch	*May 1931*
Length overall	*21.16 m*
Waterline length	*13.41 m*
Beam	*3.50 m*
Sail area (12 Metre)	*170 m^2*
Sail area (auxiliary yawl)	*141 m^2*
Displacement	*25.50 tons*



Version: 12m - Bermudan sloop

Version: auxiliary Bermudan yawl





then made a rapid comparison of the Universal Rule, the Swedish Rule and the Norwegian Rule for square meters. I quote: "*The International Rule is, I think, the one which best answers the purpose. In spite of its errors, it has in the large classes provided us with boats which have ample space below deck, and which are excellent boats at sea, and this is not my experience only. But the rule is incomplete. It could be improved. We must have the sail area diminished and the beam increased; but I think it would be an error to discard all the experience we have had with this rule in order to experiment with something which has not been tried.Finally, I come to what owners demand of a rule of measurement. It does not suffice for a rule to provide good boats. It must give owners the greatest possible facility for competition. It can never be sufficient for our men to be the best in Stromstad, Grenata or Flekkefjord: we must have higher aspirations. Only in this way shall we be able to induce our youth to devote themselves to sailing. The advantage of the International Rule lies only in the fact that it is international. In all countries it has afforded owners the same problems to solve. Competition has been as keen as possible, and our own racing owners have thereby become experienced sailors to an extent never reached before. My wishes fore the new rule I can summarize in the following words: let it not demand less of our skill and foresight than the old one. The road to the promotion of yacht racing leads through difficult problems and keen competition.* (Yachting Monthly, April 1916, page 377)

This and other conferences led to the development of the 'S Formula', valid in Scandinavia. Its success was limited and only a few yachts were built to this rule (***Santa*** (later ***Thea***), ***Tatjana*** (later ***Noreen***) and ***Heira II*** which were subsequently rated as 12 Metres), but the S Rule already contained those elements which figured in the revision of the International Rule.

The London Conference and the Second International Rule

The need then was for a renewal of the Rule which would meet the following criticisms:

- excessive and poorly shaped overhangs;
- overly light displacement;
- excessive sail area;
- tendency toward unstable shallow draft and round barrel-shaped sections in hull shape.

In October 1919 delegates from Argentina, Belgium, the Netherlands, Denmark, France, Norway, Great Britain, Spain, Sweden and Switzerland met in London to revive the IYRU (Italy joined them in February, 1920), and approved the new rule known as the ***Second International Rating Rule***.

The New Rule

The principal innovations were as follows:

- the rule was to be in force for six years beginning January 1, 1920;
- the new formula was:

$$Rating = \frac{L + {}^1\!/_4\, G + 2d + \sqrt{S} - F}{2{,}5}$$

where:

- rating is expressed in linear units (feet or meters)
- **L** = length
- **G** = chain
- **d** = difference between girth and chain
- **S** = the square root of sail area
- **F** = freeboard

Limitations and important clarifications, sometimes specific to single classes, are expressed in the articles of the Rule:

- in calculating sail area the fore triangle is considered at 85% of its measured value;
- the maximum height of the sail plan above the waterline may not exceed twice waterline length;
- hollow masts are not permitted except above the hounds.

The recognized classes are now limited to the following lengths and crew:

Metric Class	in feet	Max. number of racing crew
> 20m	> 65,60"	no limit
20m	65,60"	14
17m	55,76"	10
14m	45,92"	5
12m	39,37"	4
10m	32,80"	3
8m	26,24"	2
6m	19,68"	2

there is no limit to unpaid persons aboard.

The Second International Rating Rule, like the First, contains indications for the measurers, references to the scantling rules (which were to be revised in 1921), and racing rules. There is also a section regarding handicaps when racing between different classes.

Conclusions

Without going into detail (which the reader can find in the Rule itself) there are some important points to be made regarding the innovations in the formula.

The 15 and 19 Metre Classes, important in the First Rule both for the designers and for the great racing seasons past, disappear. The most important class became the 23 Metre, which produced some of the most beautiful boats in the history of yachting. The 9, 7, and 5 Metre Classes also disappeared; the last of these produced a long search for a replacement which ended in the 1950's with the creation of the 5.5 -Metre Class.

The basic formula was that of the First Rule, with some important changes. The dominant element of the formula is the relation between rated length and sail area, while beam was no longer considered (but reappeared as Minimum Beam) and the importance of the chain measurement was reduced (**G** and **d**). With the elimination of the beam measurement (**B**) it was the intention of the Rule to favor wider boats by eliminating the rating benefit of narrow hulls.

The coefficient of 2.5 was calculated to bring the new ratings value near to that of the preceding formula and thus permit earlier boats to remain competitive.

Numerous specific limits, which were intended to discourage the search for 'blind spots' in the rules and exaggerated designs conceived to exploit such 'blind spots', were also included.

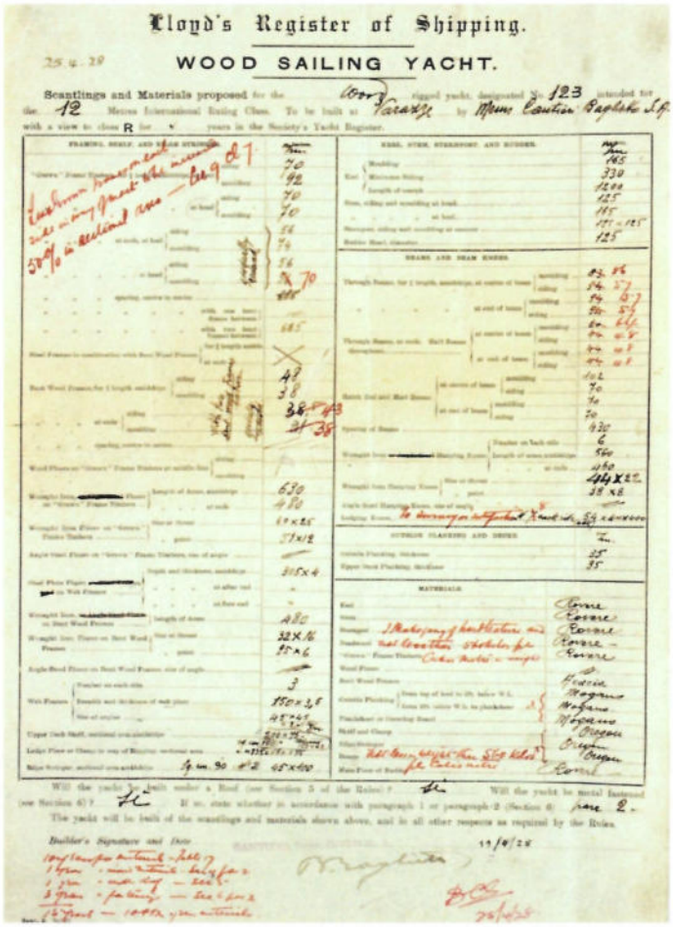
▲ *Emilia*, 1930

Sail Numbers

The Rule was drawn up in a meeting of the IYRU in February 1920, and concluded with the adoption of a new system for sail numbers.

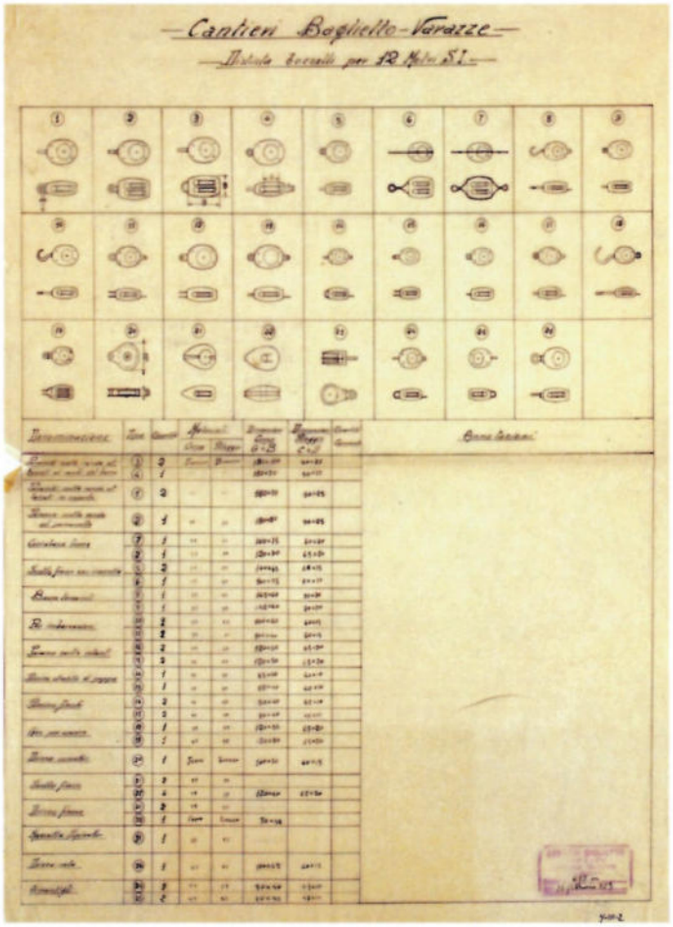
Initially sail numbers were assigned at the complete discretion of an event's organizers, while after 1910 classes were identified by the following letters: '**A**' for the largest yachts, '**B**' for the 23 Metre, '**C**' for the 19 Metre, '**D**' for the 15 Metre, '**E**' for the 12 Metre, '**H**' for the 8 Metre, and so on down the line.

Yet the letters were followed by numbers that were still randomly assigned from race to race.

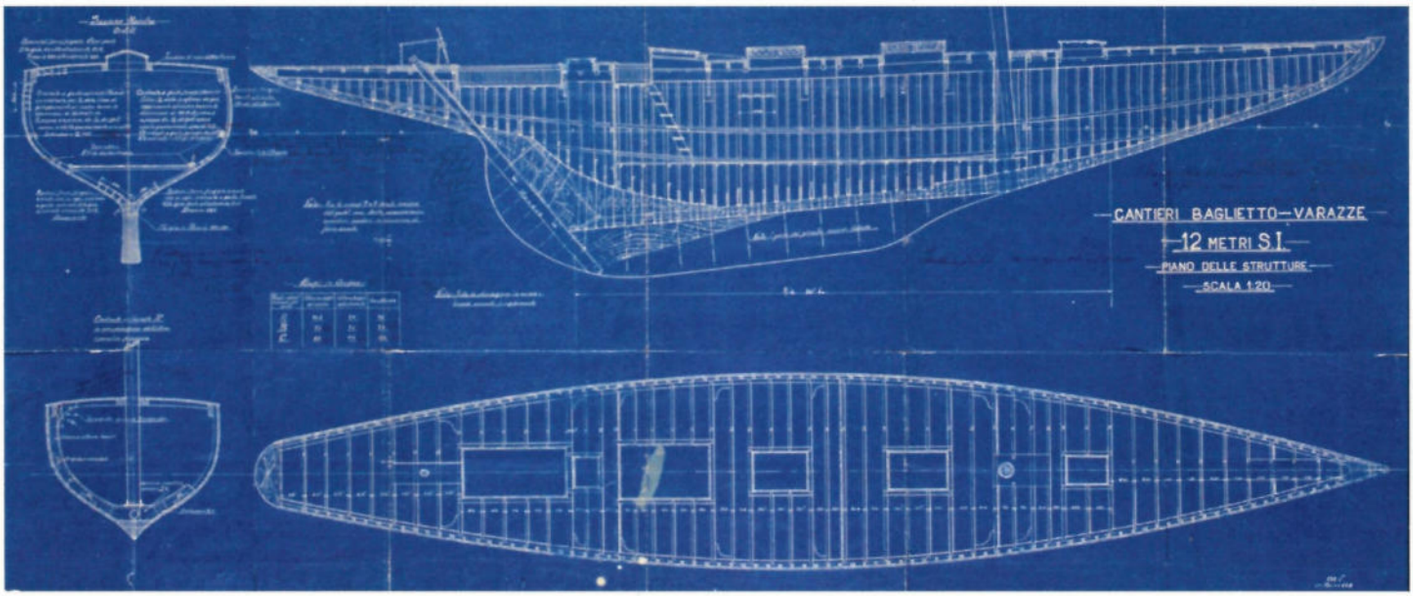


Lloyd's Register of Shipping.

WOOD SAILING YACHT.



Cantieri Baglietto-Varazze



La Spina, 1929, Rating certificate and Cantieri Baglietto original plans

Now with the new rule, each class was identified by the number of the class over the letters identifying the nationality of the boat, followed by a progressive identification number.

England however continued to reuse any numbers no longer in use, so it is not uncommon that a single number was found on several different Twelve Metres.

The Success of the Second Rule

Thanks to the experience acquired during the twelve years of the First Rule, the Second Rule was a success and the formula, slightly modified in 1933, remains valid today. It made the 1920's a reference point in the history of yacht racing. The large boats once again had the well-proportioned elegance of ***Britannia*** and some of the most famous yachts in history were built and launched in this period.

The sail area was well balanced and in proportion to the hulls and their required driving force.

Zinita 1927 ▲ ▶ *Lady Edith*, 1925


3

New research and experimentation with the ideas which were already in discussion before the war led to the construction of Bermuda rigged yachts, with **Nyria** (Charles E. Nicholson) the first example among the large boats.
It was an exciting time for the smaller classes as well; architects and builders had a chance to compare their innovations at the Olympic Games, the ***Coupe de France*** and ***Coppa Italia***, race weeks at Kiel (***Kiel Woche***) and Le Havre, and at the ***Scandinavian Gold Cup***.

The United States, the NAYRU and the IYRU

There were new developments across the Atlantic as well. In 1925 a group of associations and yacht clubs created the North American Yacht Racing Union - NAYRU - and adopted a single rule for American yacht racing. In 1944 the New York Yacht Club and the Eastern Yacht Club, the only two important clubs which had declined to join in 1925, vote to join the NAYRU which thus became the legitimate representative of American yachting.

The birth of the NAYRU was promoted by a group of important American naval architects: Starling Burgess, Clinton Crane and Frank Paine. They favored the introduction of the International Rating Rule which the Herreshoffs had bitterly opposed.

Informal contacts began across the Atlantic. Some American owners had been present unofficially at IYRU meetings, and from 1925 on their presence was a constant.

In 1920 a group of 6 Metre owners began discussions to organize races on both sides of the Atlantic. The result was the ***British American Cup*** and by the mid-Twenties they were racing one another at the ***One Ton Cup***, ***Seawanhaka Gold Cup***, ***Scandinavian Gold Cup***, and at the ***Olympic Games***. In February 1927 the first official joint meeting of the IYRU and the NAYRU was held at the Royal Thames Yacht Club. The IYRU agreed to modify the Rating Rule, including some elements of the Universal Rule: hollow masts, maximum mast height, maximum freeboard, and, as a concession to the Scandinavians, some internal changes which increased living accommodations, including the addition of a small deckhouse.

In 1930, during the America's Cup, Brooke Heckstall-Smith reached an agreement with the New York Yacht Club to adopt the Universal Rating system, leaving in force the International Rating Rule for the Twelves and the smaller classes.

Large yachts would be divided in three classes marked '**J**' for those having a rating of 76 feet, '**K**' for those rated 65 feet and '**L**' for those rated 56 feet. The '**M**' class was not included in the agreement. The smaller classes were comprised of the 12 Metre, 8 Metre and 6 Metre.

The interest of the Americans was confirmed, having commissioned Abeking & Rasmussen to build thirteen 10 Metres, followed by eleven 8 Metres and six 12 Metres, all designed by Starling Burgess.

The Third International Rule

The meeting of the IYRU in 1933 approved the Third International Rule whose formula remained essentially unchanged from the Second, excepting the elimination of the chain measurement.

The Rule went into force October 1, 1933 with a validity of six years up to 31st December 1939, while the preceding Rule might be applied until December 31, 1936.

The new formula was as follows:

$$Rating = \frac{L + 2d + \sqrt{S} - F}{2.37}$$

- rating is expressed in linear units (meters or feet)
- **L** = length
- **d** = the difference between chain and girth
- **S** = the square root of sail area
- **F** = freeboard

The various articles were substantially unchanged but there was a precise ruling regarding masts and their dimensions; the larger classes no longer appear, and the new International classes are **14**, **12**, **10**, **8**, and **6** Metre.

Since then, excluding changes limited to individual class, both the Formula and the Rule have survived essentially unchanged.

In 1956 the Measurement Rule for the 12 Metre has aknowledged the America's Cup Deed of Gift, and it has since been subject to further amendments (see pages 227-240).

The 2001 International 12-Metre Class Rule

After the end of the America's Cup for the 12 Metre class, and considering the continued interest in the Class, the International Twelve Metre Association (ITMA) undertook an ample revision of the Rule. The "International 12 Metre Class Rule 2001" came into effect in January 2001, and with successive modifications the latest version is dated July 2nd, 2008.

International Rule Formulas

First Rule from January 1st, 1908, to December 31st, 1917:

$$Rating = \frac{L + B + {}^{1}/_{2}\,G + 3\,d + {}^{1}/_{3}\,\sqrt{S} - F}{2}$$

Second Rule from January 1st, 1920, to December 31st, 1936:

$$Rating = \frac{L + {}^{1}/_{4}\,G + 2d + \sqrt{S} - F}{2{,}5}$$

Third Rule from October 1st, 1933, to December 31st, 1939:

$$Rating = \frac{L + 2d + \sqrt{S} - F}{2.37}$$

Flica II, 1939


FLICA II

Second and Third International Rule Twelve Metres (1920-1939)

The adoption of Second International Rating Rule there began one of the most interesting periods in the history of the 12m. It was a moment of great creative fervor, of important technical innovations, of abundant commissions for boatyards and designers with numerous races and social occasions. This was true for all the metric classes, but the 12m became the most important; the attention of the sailing world was focused on them and on the large yachts: 23 Metre, J Class and the other "Big Boats".

It is evident that in the succeeding period in which the Twelve Metres became the chosen boats for the America's Cup races that the greatest efforts in design, construction, and generally of technical development, together with abundant financial resources, were concentrated on the class. It is equally true that the post World War II Twelve Metres were out-and-out racing machines, built for a single race, highly specialized and used in a very different way than comparable boats of the 1920's and 1930's.

The characteristics

Let us first describe the characteristics of a Twelve according to the Second and Third Rule; as we have seen the two formulas are similar, while the innovations with regard to the First Rule are substantial.

In essence, the formula is based on two fundamental factors and two corrective factors:

- speed, which is expressed by length at waterline (even though with a conventional measurement of it);
- power, the driving force necessary to produce speed which is given by sail area;
- the '**d**' of chain and freeboard have much less importance in the formula, their presence being principally to limit variations in design;
- thus, the sum of the length and the square root of sail area, combined with two other factors of less importance divided by a constant, must equal 12.

Without going into detail, let us describe the principal rules as they developed in the two last versions of the Rule and in the various technical considerations of the IYRU.

We can divide them between hull and rig.

◀ *Sphinx*, 1939

The Hull

Comparing the Second Rule to the Third, an innovation with respect to the first Rule establishes that hull length is measured 18 cm above the waterline; the '**L**' of the formula is the sum of '**L**' and the total of the various chains and the freeboard, measured at its extremes. Compared to the preceding version, this definition of '**L**' results in a hull which is longer overall with well proportioned overhangs and sections at the bow and stern, as excessively short overhangs are penalized.

Anita, 1938

Evaine, 1936

Wings, 1937


SK12K15

Sections overly full result in a penalty reducing the length at the waterline and consequently lower boat speed.

In conclusion, again comparing the Second Rule to the Third, a Twelve is longer, with long but not excessive overhangs, and beamier, with fuller sections.

Other restrictions to the designer's freedom come from the indications contained in those articles of the Rule whose infraction brings heavy penalties:

- keel depth may not exceed a determined value (approx. 2,75m with a tolerance of only a few centimeters):
- freeboard is deductible to a maximum value proportional to the rating;
- beam may not be less than 3.6m (this restriction was approved by the Permanent Committee in its meeting at London the 26th of November, 1936, and confirmed by the International Conference in September, 1937);

Gleam, 1937

- displacement may not be less than a value strictly proportional to the waterline length (LWL). For example, a LWL of 13.72m corresponds to a minimum displacement of 25 tons, while the minimum displacement becomes 26.25 tons when the LWL is increased to 14.17m. This limitation does not allow too light hulls;
- the penalties related to the differences in the chain discourage hulls with skimming dish or wineglass shape;
- accommodation must follow the requirements of the Scantling Rules both in layout and equipment. From the spartan interiors dictated by the First Rule, the Third Rule prescribed comfortable interiors permitting an agreeable life aboard.

Rig and Sail Area

Here the two rules (Second and Third) are quite different, the Third being much more restrictive and detailed. The total sail area is given by the sum of the mainsail area plus 85% of the fore triangle; the fact that they are expressed as square roots limits the variability of the rating in function of changes in the sail area.

The sail plan may not exceed a given height (the criteria vary from one rule to another); the fore triangle must be less than 3/4 of said height; for spinnakers and balloon jibs the maximum measurements of '**I**' and '**J**' are prescribed.

Mainsail battens may not be more than six in number, and their length may not exceed a value proportional to the rating.

Masts may be in wood or metal and must correspond to certain measurements which relate to their diameter, weight (minimum 453.3 kg) and the position of the mast's center of gravity. While in the Second Rule masts must be solid at least as far as the hounds, the Third Rule, at the request of Johan Anker, permits hollow masts from 300 mm above the deck, but with a minimum thickness of 25 mm.

From these calculations the characteristics of a 12 Metre at the end of the 1930's are derived after the International Conference of 1937 introduced the final changes of the Third Rule:

- length overall approximately 21m
- waterline length from 13.70m to 14.20m
- beam approximately 3.60m
- draft approximately 2.75m
- displacement approximately 25 - 27 ton

- sail area approximately 170 - 190 m^2
- mast height above deck approximately 25m
- below decks: minimum height 1.70m, an ample owners cabin with two berths, a large saloon with at least one other berth and a table of at least 0.45 m^2, a toilet compartment with a head, washbasin and running water, a galley with a cooker (alcohol or kerosene) sufficient for at least six persons, three crew berths, hanging lockers of at least 0.2 m^3, other lockers and storage space for at least 0.5 m^3, a water tank of at least 115 liters capacity.

The resulting Twelve is quite different from its predecessors built according to the First Rule, particularly because of the consequences brought about by the Bermuda rig and its progressive development as naval architects became familiar with its characteristics. Its increased power and greater efficiency to windward made possible greater speeds and consequently a greater waterline length. The lowered center of gravity, and consequently a different hull balance, imply greater weight in the keel, more than twice that of the first Twelve Metre boats. This affects the hull structure which must be more rigid and at the same time as light as possible. Lighter woods are used, while in the United States at the end of the 1930's double-planked construction is used, giving lighter and stronger hulls.

Let us keep in mind that these were boats used also for long cruises and thus built to criteria very different from modern Twelve Metres which are pure racers.

The greater forces developed by a more modern rig dictated the eventual replacement of the tiller with wheel steering; in 1939 only ***Westra*** still had a tiller.

Changes of equal importance took place in the sails and rigging.

It became apparent that a larger foresail was more efficient than a number of small jibs; after trials in the 1926 in Italy at the Genoa races, the "genoa" jib became popular, requiring the shortening of the spreaders to permit

Inga, 1938

the genoa to overlap the mainsail. The sails were cotton, at least for racing; on deliveries between races linen sails were still used, being cheaper and less delicate. In racing sails the search was for tightly woven and more resistant cotton canvas. Sir Richard Fairey tested his sails for ***Flica*** using Fairey Aviation's wind tunnel. But the real revolution in sailmaking began with the first races of the America's Cup and the introduction of synthetic materials (see Chapter 6).

Increased rig efficiency also caused the end of sheet tackle, and the use of winches began about 1925 and soon became widespread; ***Vim*** was the first Twelve to mount coffee-grinders.

The increased hull length dictated the end of the bowsprit and required stronger rigging overall. Aerodynamic principles are applied to the design of sails with implications for the form and construction of masts; for shrouds galvanized steel cable was produced which had twice the breaking strength of past shrouds, and mast design was reconsidered in the light of ever greater loads. The first rod rigging appears as well as the first halyards in steel cable. Shapes are tested in wind tunnels at Gottingen and at the NACA, influenced by the research done for J Class boats which

Northern Light, 1938

competed for the Americas Cup, and by the fact that the two principal airplane manufacturers in England, C.R. Fairey and T.O.M. Sopwith, owned 12s and made their labs available for research.

The mast remained a weak spot in spite of the development of new construction techniques. The limits dictated by the Rule regarding weight, dimensions and sections were insufficient for the increased loads they had to support and dismasting were the order of the day.

Yet two rigs were fundamental to the new developments: Mylne's rig for ***Marina*** and Stephens' for ***Vim***. The first had a height above deck greater than the norm (25.3 m as opposed to the usual 25 m), and Mylne used three sets of spreaders to give stability and a sufficient angle to the shrouds. Further, the mast was the first to use a diamond spreader, which stiffened the upper part of the mast, permitting the elimination of the mast head stay fitting and consequently a better set of the genoa and greater ease in handling the spinnaker.

The rig of ***Vim*** was considered revolutionary, not so much for the numerous little improvements

Seven Seas of Porto, 1935

as for the construction material: aluminum. A mast with this material, given equal weight was more rigid and stronger. But what a difference! If the cost of a wooden mast had increased over the years to £200 or £300 for the most sophisticated masts, the cost of ***Vim***'s mast was £1500.

Costs

How much did a Twelve cost? Freer's book gives the cost of ***Marina***, Alfred Mylne's 1935 design N° 368. The yacht sold for £4,850, total cost to build £3,573, of which £1,800 for labor, £441 for wood, £951 other materials and £380 for sails. The gross margin thus was £1,500, £1,000 expenses and £500 profit. That this was the going price is confirmed by the price of ***Iyruna*** which a few years earlier cost its owner £4,800.

In any case, these figures are far removed from the cost of a J Class yacht which in 1932 cost about £25,000 for construction and £5,000 annual maintenance, including £1,000 to update equipment.

Crew expenses were not insignificant, even if most of the crew members were hired only for the season: from mid-June until the beginning of September. There is record of a meeting of owners of racing and cruising yachts in which the question of salaries for skippers and crew members was discussed and a reduction of 10% voted, which meant that a sailor would earn two pounds and fourteen shillings per week. The hope was that this would lead to increased hiring following an increase in construction commissions to the yards.

Second and Third Rule Twelve Metres

The twenty years from 1912 until 1940 were the moment of glory for the class: nearly seventy Twelves were built. There is no doubt that many factors contributed to this success: the favorable economic situation (notwithstanding the crash of 1929); the important races which brought people together for socializing and parties, thus increasing people's desire to participate, the ever increasing cost of the big yachts and their resulting crisis.

If these are factors which also contributed to the success of the Twelves, the principal cause is to be found in a sensible, logically evolved rating rule. Yachts built at the beginning of the period would remain competitive despite the launch of new and innovative designs.

On the other hand, thanks to the innovations introduced in 1927, the Twelve was considered a reasonably priced yacht, comfortable for the owner who wanted to race or cruise, to live aboard, and sufficiently strong and seaworthy to permit navigation in the Channel, the North Sea and the Baltic.

▼ *Gleam*, 1937


GLEAM
NEWPORT

In contemporary documents we find testimony supporting this view.

At Cowes Week in 1934 there was great expectation because the 12s of the Second Rule (***Flica***, ***Iyruna***, ***Veronica***, ***Zelita*** and ***Zoraida***) were to race for the first time against boats built to the Third Rule (***Miquette*** and ***Westra***). The differences were slight, with ***Flica***'s rating (launched in 1929) of 39.35 according to the Second Rule, and 39.45 to the Third Rule. Yachting World wrote: "The figures surely prove that a yachtsman building a boat to the new rule may build her like either of the two new boats, ***Miquette*** or ***Westra***, or like ***Flica***. He may in fact take his choice. The eminent designers themselves will doubtless assume "the new boats are better", the public, however, will be inclined to declare in favor of the boat which comes in first the greatest number of times in the course of the season, and particularly perhaps during Cowes Week." The Cowes races were won in turn by ***Westra*** and ***Veronica*** but the season acclaimed ***Westra*** as the winner, closely followed by ***Flica***, ***Miquette*** and ***Veronica***.

The previous year the racing was so close and exciting at the beginning of the season that Yachting World dedicated its lead article to the Twelve Metre season (Y.W., 9 June, 1933): "Surely no class of yachts has ever enjoyed finer sport than that which we have seen amongst the 12 metres since the beginning of the season. It has been of the highest possible order. Each boat in the class has had her chance, and most of them have taken it. The boats that have been regular starters at Burnham, Lowestoft, Harwich and Southend were built over a period of four years, the oldest of them being ***Iyruna***, which was launched in 1927. ... The present International Rule is largely responsible for this splendid sport, and although some may grumble at it, there is no a shadow of doubt in the minds of clear thinking sportsmen that it is the best measurement rule ever made. In these days it is imperative that we should have a rule that has no loopholes through which some cunning designer can escape. No yachtsman can afford to build to a rule that may prove useless, no matter how speedy a boat that rule might produce. The survival of yachting, despite the depression, can be accounted for solely by the soundness of the International Rule. This rule is due for revision in the not-to-distant future, and it is to be hoped that only the very slightest changes will be made, for it has served us faithfully and well through the most difficult period in the history of yacht racing."

Finally, we must include the declaration of Uffa Fox: "This is the largest class to the International Yacht Racing Union rule, and there is no doubt the speed, sea-worthiness and cabin accommodation of the 12 Metre racers makes them very dear to the seaman's heart. In 1928, when we sailed the 14-footer across Channel to Havre for the regatta there, we came upon the ***Vanity*** anchored inside the breakwater, ready for the morrows race, and filtering up through the cabin skylight came the sweet strains of music from a violin, for her owner, Johnny Payne, was below whiling away an hour with his fiddle.

That picture of comfort and contentment always rises before my eyes as I think of the 12 Metres, and with it another picture, that of the 12 Metre ***Clymene*** converted to a yawl beating the ocean racers, in their own hard weather and under their own racing rules. The photograph of ***Clymene*** taken that day by Beken gives a good idea of a 12 Metre in action and illustrates the speed and seaworthiness of the class. It must be remembered that in the race that day the finest ocean racers, ***Dorade*** and ***Mistress of America***, and ***Neptune*** and ***Lexia*** of this country, were ranged against the ***Clymene***, and yet she beat them under their own rule and weather conditions. The picture of her flying along in that race is the finest argument I know for the 12 Metre Class, especially when beside it rises the picture of restful content ***Vanity*** made in Havre, with her owner living aboard and enjoying the life."

Designers and Yards of the Second and Third Rule

The Twelves built to the Second and Third Rule were sixty-six in number, to which we can add three designs never built, and a fourth by Johan Anker which will soon be built for the first time.

Among the designers, the scene in Europe was dominated by:

Charles E. Nicholson	17	
William Fife	12	
Johan Anker	9	(one presently building)
Alfred Mylne	4	
Henry Rasmussen	3	

One design apiece for Baglietto, Burell, Costaguta, Eslander, Giles, Glen Coats, Gruber, Scharstein, and we must add three designs never built by Boyd, Morgan Giles e Uffa Fox.

In America we have:

W. Starling Burgess	6
Olin J. Stephens	3
Clinton Crane	2
Francis Herreshoff	1

The yards involved were:

Camper & Nicholson	17
W. Fife & Son	13
Anker & Jensen	9
Abeking & Rasmussen	9
Henry B. Nevins	6
Bute Slip Dock	5

with one build each: Aresa, Baglietto, Burmester, Costaguta, Herreshoff, Skalurens Skibsbygg and Stockolms Batbyggeri (Plym).

These two lists include the best of European and American boat design and construction at the time. Clearly the 12s were not easy to design or to build if the list includes only seventeen architects and only eleven shipyards, all large ones. Were there problems of organization in realizing efficiently such demanding construction? Or knowledge of the clients who could afford such costly projects? Or production capacity? Or capable workmen? Probably these are all involved in the answers to our question.

For the other, smaller metric classes there were many architects and many boatyards who tried their hands; for the Twelve Metres (as for the 15 Metre, 19 Metre and 23 Metre) only three designers, with their yards, dominated the scene: William Fife III, Johan Anker and Charles E. Nicholson; to these names we can add Alfred Mylne, whose designs were characterized by an elegant line and whose every design was a leader in its period.

The designers of the three Rules

The Twelves designed to the first three Rules totaled 115: Johan Anker drew twenty one, William Fife III and Charles Nicholson nineteen each, and Alfred Mylne nine.

At the end of the 1930's the Twelve Metres ended their first long season, and World War II ended 12 Metre yacht racing for nearly twenty years. With only one exception the principal figures of this first period died during this period: Anker in 1940, Fife in 1944, Mylne in 1951 and Nicholson in 1954. With their passing their yards close, or at any rate, cease the construction of Twelve Metres. The single exception is Olin Stephens who made his debut in the 1930's and continued to play an important role through the 1980's. But that is recent history.


12
US15

CHAPTER 5

Second and Third International Rule Twelve Metres (1920-1939)

For a list of the 12s built, we refer the reader to the second volume of this book, and continue with discussion and comments on the most important designs. These must be considered together with the men, designers and owners, who were the principal actors of those two amazing decades.

The onset of World War I brought an end to yacht racing in Europe except in Scandinavia which, being neutral, could continue to design and build. We have already mentioned the activities of Anker and Benzon, the "S" Formula, and the Norwegian victories in the third and last Olympics with the Twelve Metres ***Atalanta*** and ***Heira II***.

Two interesting designs came from Anker's drawing board, both initially conceived according to the "S" Formula: ***Tatjana*** (later ***Noreen***) and ***Santa*** (later ***Thea***). ***Tatjana***, built for a Danish owner, had a long and successful career due to her conception as pure racer which paid off both in the class races and in the many handicap races in England in which she participated. ***Santa*** (later ***Thea***), although less successful in the past, has survived in good condition and is an active participant in today's 12 Metre season in the Baltic.

Anker also drew up the plans of ***Vema III***, another Twelve which dominated racing in the 1930's and influenced successive designs. She had a long career in England and Norway and continues to race; after a recent restoration she too is ready for the racing season for Twelves in the Baltic Sea.

The first English design to the new rule appeared in 1923: ***Vanity***, plans by William Fife III, owner John Payne. She had many successes during her career, which ended when she sank in the Caribbean in 1992. From the beginning of the century, Payne was a respected skipper, especially of 12 and 15 Metre boats. An accomplished sailor and violinist, he lived aboard ***Vanity*** and sailed her to all the races, winning frequently. Especially in the beginning of her career she was often designated the scratch boat. Her career continued in 1958 when she was restored by her new owner, Captain Boyle, and served as a trial horse for ***Sceptre*** during the America's Cup challenge of 1958.

◀ *Trivia*, 1937

▲ *Vema III*, 1939


Tomahawk
Y.C.I.

One of the designs that influenced development in the Twelve class is surely ***Flica***. Charles E. Nicholson drew her lines in 1929 for her owner, Sir Richard C. Fairey, of aeronautical industry fame. Designed to win, ***Flica*** was one of the first designs to utilize aeronautical research laboratories and studies of sail aerodynamics. In light wind ***Flica*** is considered to be clearly faster than the other 12s. Her performance was also due to the ability of her owner-helmsman, who in 1933, three years after her launch, was still considered "... ***Flica***, owned by Mr. C.R. Fairey, as the best of the Twelves. No yacht could have been better handled; her owner is part of the leading group of our best helmsman." ***Flica*** will be the benchmark Twelve for many years to come, even with her new owner, Hugh Goodson. Presently ***Flica*** is in need of a complete restoration.

Sir Richard Fairey should also be remembered for another design dear to him: ***Evaine***. Extremely elegant, designed by Charles Nicholson, ***Evaine*** dominated the last regattas of the 1930's, with ***Trivia***, owned by V.W. McAndrew, as her indomitable adversary. They raced and raced during the 1937 and 1938 championships, with ***Trivia*** winning by ever so slight a margin. Much doted on by her owner, ***Trivia*** changed hands only after his passing away, and had another moment of glory as the trail horse for ***Sceptre***'s America's Cup challenge, the first English challenge after the war. The training races were essential for tuning the challenger, which just managed to prevail in the last races. We must not forget an analogous situation in the American defender trails when ***Columbia*** managed to win the trails after a very tense match against ***Vim***. It was evident that, on both sides of the Atlantic, design development had arrived at it's peak and only new materials would change the situation.

Sir William P. Burton was both one of the principle owners in the Twelve Metre Class and an important protagonist of English yachting. A well known businessman, Burton was one of the founders of the International Rule. He was an English delegate at the 1906 London Conference and later president of the YRA for many years. Passionate and competent, he is remembered as the only amateur who could sail like a professional. His first Twelve was ***Noresca*** (1924), followed by ***Iyruna*** (1927), ***Veronica*** (1931), ***Marina*** (1935) and ***Jenetta*** (1939), all of the latter designed by Mylne. Each of his yachts had something innovative in her, especially in the rig (just think of ***Marina***). And it was with the same ***Marina*** that, after two years of coming in second to ***Iyruna***, he dominates the results in the 1935 and 1936 seasons. ***Veronica*** is also worth mentioning, as she classified second for the 1932 and 1933 seasons, and because she underwent an interesting transformation by Mylne into a cruising yawl, and is often quoted as how a Twelve is easily converted to a splendid, comfortable vessel for cruising. Burton launched ***Jenetta*** in 1939; she did not manage in that difficult year to live up to what her design had promised at the beginning of the season: a powerful yacht, the fastest and best design ever drawn by Mylne.

◀ *Tomahawk*, 1939

Another notable owner is Arthur C. Connell. He came from a family known in English yachting, having campaigned famous yachts at the turn of the century. Excellent helmsman, he sometimes compromised results through his extroverted character. Connell owned five twelves: ***Zinita***, ***Zoraida***, ***Zelita***, ***Westra*** and ***Ornsay***. The first three were drawn by Fife, according to family tradition. Success came however with a design by Charles Nicholson, ***Westra***, which classified first the year of her launch, 1934, and second for the next two seasons. Connell then opted for a new yacht, ***Ornsay***, sister ship to ***Tomahawk***, but family health problems allowed for little sailing with her. Unfortunately both ***Westra*** and ***Ornsay*** were destroyed in a bombardment that damaged the Camper and Nicholson yard where they were kept at the time.

Tom Sopwith, protagonist after Lipton's exit in the last English challenges for the America's Cup, was also a Twelve Metre owner. His Twelves were all designed by Nicholson and gave meager results while owned by Sopwith, while they were brilliant performers under their successive owners. This happened both to ***Mouette***, with a brilliant career in the United States, and ***Blue Marlin***. Owned by Sopwith for only one year, with no results, the next year with her new owner W.R. West-

head, ***Blue Marlin*** finished the season with a third overall and sported the only victory of an English Twelve over ***Vim***, even if for only thirteen seconds! Again, it will be ***Vim***, owned by his friend Vanderbilt, to give Sopwith greatest displeasure, by not giving any chance to his brand new ***Tomahawk***, commissioned expressly to beat the great American helmsman in English waters. In any case, the best English Twelve of the season was ***Tomahawk***, winning most of the rest of the season's races once ***Vim*** returned to America. ***Tomahawk*** was the last Twelve designed by Nicholson: very elegant, she expresses power: she still sails splendidly, a very valid witness to the genius of her designer.

Two other Twelves are protagonists, for one reason or another, in the closing years of the 1930's: ***Trivia*** and ***Flica II***. The former is one of Charles Nicholson's best designs. Built for V.W. McAndrew, ***Trivia*** dominated the 1937 and 1938 seasons, in continuous competition with ***Evaine***, who she beat by a thin margin. The appearance in 1939 of ***Vim*** and ***Tomahawk*** put her slightly in the shadows but, in any case, ***Trivia*** is still considered the most competitive Twelve after ***Tomahawk***. ***Trivia*** had a long life after the war as ***Norsaga***, winning several regattas in northern Europe and America and as trail horse to ***Sovereign*** for the new English America's Cup challenge in 1964. Splendidly restored, she still sails in the Baltic following the new summer of the Twelves in the Mediterranean.

Flica II is notable not so much for her results on the race course (her 1939 season was quite deluding) but for her design and construction. Hugh Goodson, the young and enthusiastic owner of ***Flica***, when he realizes that his glorious hull is no longer competitive, decides to ask Laurent Giles for a new Twelve. Giles builds five models, all tank tested at the Stevens Institute. The best hull was given to Fife's yard to build. Construction contains several innovations for the period: interiors in plywood with a balsa core, deck fittings in aluminum alloy, stainless-steel rod rigging with a lenticular section. Tuning is difficult and although ***Flica II*** is carefully prepared, her successes are not enough to compensate her owner's efforts. Her post-war career was more fortunate, where she was also chosen as a trail horse for ***Sceptre*** for the 1958 America's Cup challenge. At the end of the 1980's ***Flica II*** was completely restored by Camper & Nicholson and returned to the splendor of her original lines, but without saving much of her original construction. She returned to winning in the new summer of the Twelves in the Mediterranean.

The history of English Twelves would not be complete without mention of ***Foxhound***, ***Bloodhound***, and ***Stiarna***. They are similar designs in which Charles E. Nicholson demonstrated the adaptability of a Twelve to the requirements of ocean racing. These boats are considered 12s, but are less extreme than the last boats built to the Rule, with shorter overhangs, displacement is greater and the sail plan smaller. With these modifications they are more comfortable in a seaway and still able to win races, as did ***Bloodhound*** in the 1939 Fastnet and other important regattas as well

◀ *Vanity V*, 1936

as ***Foxhound***. Of the three designs, only ***Bloodhound*** and ***Foxhound*** have survived to the present day.

In addition to the activity of the class in England and Norway, we ought to look at what was happening in other countries between the wars.

Class activity in the Mediterranean was practically nil except for one boat in Spain (***Yatset***, 1933), and two in Italy (***La Spina*** in 1929 and ***Emilia*** in 1930). The first Italian project came about because Marquis Spinola hoped to establish a class of Twelves in Italy. She was followed by ***Emilia***, but for personal reasons: the owner converted her to a Bermuda schooner before launch. The following year Marquis Spinola, seeing that no one had followed his lead, had ***La Spina*** converted to a yawl.

Surprisingly in Sweden there was only one yacht constructed during this period, ***Princess Svanevit***, which survives today in England as ***Barranquilla***.

Germany, which started by building eight 12s to the First Rule and continued with six 12s built by Abeking & Rasmussen for American owners, in the period between the wars built only four Twelves for German owners. Three were drawn by Henry Rasmussen and all are still afloat: ***Anita*** (1938), ***Inga*** (1938) and ***Sphinx*** (1939,). ***Aschanti III***, designed by H. Gruber and built by Burmester in 1939, burned after a brilliant career as a racer.

In the period under consideration the activity of Twelves in Europe was limited to the Baltic, especially to Kiel Week.

In the Twenties interest in the International Rule revived in the United States and the creation of the NAYRU allowed an agreement to be reached with the IYRU for the rationalization of the different formulas used on the two continents.

The first American designer to design to the Metric rule was Starling Burgess, who made an agreement with Henry Rasmussen to build fourteen 10 Metre yachts.

As a result, a group of owners came to Burgess, Riggs & Morgan to commission a Twelve Metre design to race on Long Island Sound, and to Abeking & Rasmussen for the construction of the six nearly identical boats. Built to the Twelve Metre Rule, they were twenty-one meters long, hulls elegant yet powerful, a large deck with few obstacles and comfortable cabin arrangements. Their names are ***Anitra***, ***Iris***, ***Isolde***, ***Onawa***, ***Tycoon*** and ***Waiandance***.

They arrived as deck cargo in Halifax (for tax reasons), where they were delivered to their owners, launched and rigged. After which they sailed to Long Island Sound on their own bottoms. Of

the six, only two are still afloat: ***Anitra*** and ***Onawa***.

The American fleet was enlarged with two European Twelves: ***Cantitoe*** (ex ***Magda XI***) designed by J. Anker, and ***Mouette***, a Charles Nicholson project. In this period the English boats were clearly superior and the English press wrote: "...in this Class we lead ... But Americans have not been in the first flight. I am told that the English 12 Metre ***Mouette***, Nicholson best boat racing in America, has given the yankees such a hiding that they never had since old James Coats sent over the Watson 10-tonner ***Madge*** from the Clyde, or Fifes 20-tonner ***Clara*** went there. ***Mouette*** has proved the high standard of our designs."

Mouette was built for T.O.M. Sopwith, Vanderbilt's rival in the America's Cup races; Sopwith was also the owner of ***Tomahawk*** which was beaten in English waters by ***Vim***, owned and skippered by Vanderbilt during his successful season of 1939.

Probably because of the English superiority, repeated American proposals for an International 12 Metre Cup to be raced in American waters were never accepted, just as the Cup offered by Fairey, owner of ***Flica***, was not taken up by the Americans as they would have had to race in English waters.

However the American response in 12 Metre design soon arrived: the Third Rule developed by the IYRU and the NAYRU stimulated the interest of American yacht designers, and in 1935 the first Twelve Metres entirely designed and built in the United States were launched: ***Seven Seas*** and ***Mitena***. The latter was a L. Francis Herreshoff design, with an elegant canoe stern, but not very fast. In fact, she never won a race and it is hard to tell if this was due to her idiosyncratic lines, to her length overall of nearly 22 meters (well out of line with other 12s), or to the sail area of only 165 m^2. Clinton Crane's ***Seven Seas*** was more successful, and in the races on Long Island Sound in 1936 and 1937 was fast enough to beat ***Mouette***.

Meanwhile, Professor Kenneth S. M. Davidson of the Stevens Institute of Technology, inspired by the English use of wind tunnels in sail development, was attempting similar experiments in hull design, testing models in tanks. The first results were very promising, and were used by Clinton Crane and Olin Stephens.

In 1937 Crane launched his second design, ***Gleam***. Built for his own use, he made use of the testing tank data and produced a hull which was faster than ***Seven Seas***, but did not equal her results on the course. He made his data available to the Class and, while Herreshoff ignored them, Olin Stephens used the data in designing ***Northern Light*** and ***Nyala***. ***Northern Light*** was fast and very successful during her first season; ***Nyala*** won the American championship in 1939.

Vim - US 15

She is one of Olin Stephens masterpieces. In 1939, *Vim* dominated the regattas in which she participated in England, and until 1970 she continued to be a referente point for the America's Cup Twelve Metres, her lines inspiring *Columbia*, *Constellation*, *Weatherly*, *Gretel* and *Gretel II*.

The hull: the result of a long series of tank tests, *Vim* is a "great" 12 Metre as the last built in England: *Trivia*, *Evaine* and *Tomahawk*; she is 21.18 m in length with the waterline length being 13.71. The bottom of the boat follows traditional lines but with details showing refinements with particular attention being given to the front section which is full and joined to the keel, and the stern section which is designed in such a way as to minimize drag. The hull has double planking: the mahogany planks are crossed with the inner hull, in cedar. The frame is in oak and the deck is in pine. This building technique is lighter but above all makes the hull stronger. For the first time, there is a small trim tab in the outer part of the rudder (after the first tests, it will be removed).

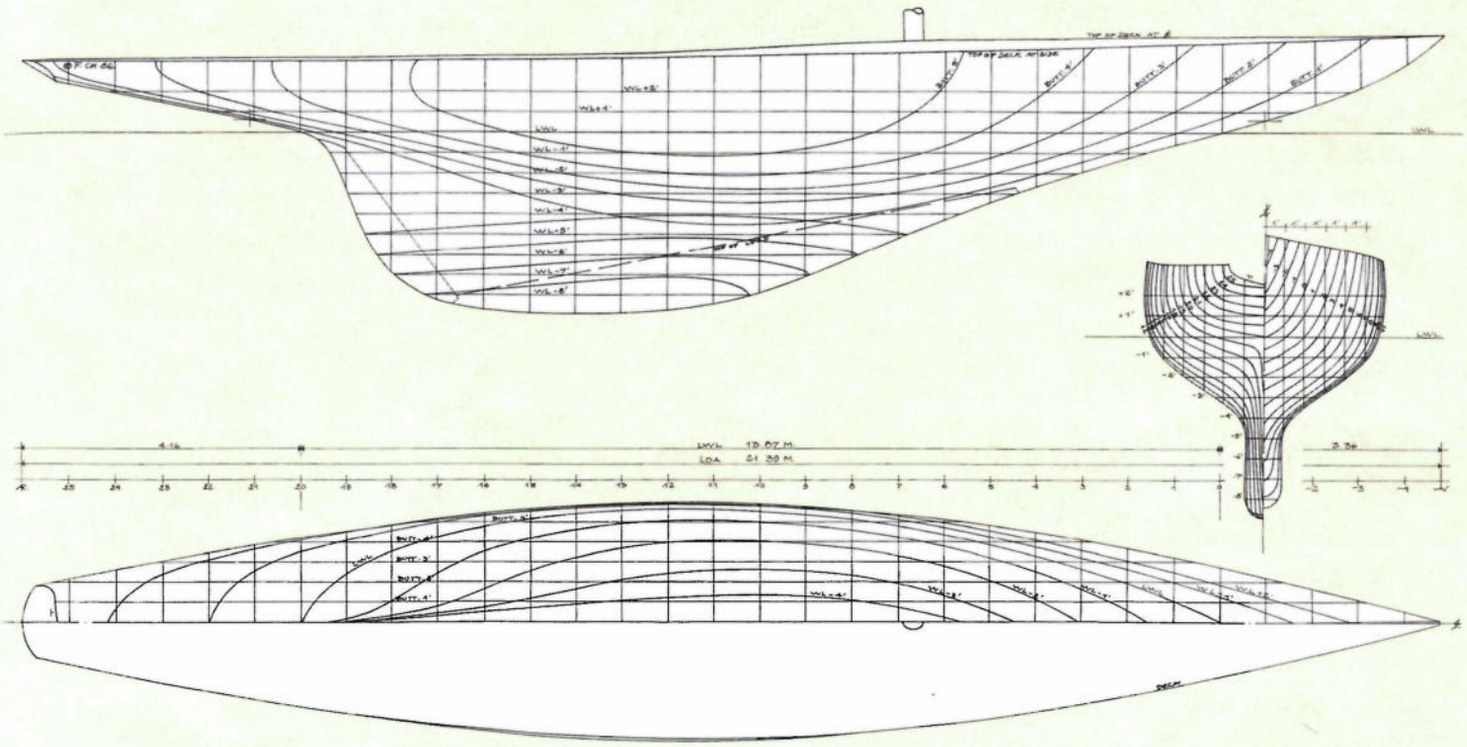
Rigging: an aluminium mast was used, which for the same weight allowed by the rules, was stronger and more rigid, allowing better close-hauled sailing. For the first time in such a big boat, the halyard of the main sail and the jib run on the inside of the mast. The shrouds are conventional but double: a shrout at the top of the mast and another on the highest crosstree.

Sails: these are maid of ordinary cotton but are cut in such a way as to take into account the improved angle when sailing close-hauled which the new mast allowed.

Layout of the deck: two coffee-grinders were mounted; the cockpit is dry and very spacious compared with English standards. The wheel and the binnacle form one single but efficient unit; particularly care has been taken to simplify all manoeuvres.

Interior: the interior is the minimum necessary to provide for the comfort of the owner and guests. In the stern is a cabin with two banks with another two berths immediately adjacent to them; the toilet and galley are in the bow area while the space in the centre of the boat is reserved for the sails and for the rigging so as to maintain the weight at the centre and also give the crew ample space to move around. The interior remains very comfortable and luxurious.

Designer	*Olin J Stephens*	Length overall	*21.18 m*
Builder	*Henry B. Nevins, Inc.*	Waterline length	*13.71 m*
Owner	*Harold S. Vanderbilt*	Beam	*3.66 m*
Year of launch	*May 1939*	Sail area	*179 m²*
		Displacement	*28.44 tons*



Two important facts create interest in the class. In 1937 ***Gleam*** won the Astor Cup, beating the J Class over a short course. In 1938 Harold Vanderbilt raced on ***Seven Seas*** and was so enthusiastic that he decided to order a new Twelve from Olin Stephens, whose talent he had learned to appreciate during the design of the J Class ***Ranger***.

The result was ***Vim***, a milestone in the history of the class. She was a development of ***Nyala***, while the design owed much to the 6 Metre ***Goose***, also designed by Stephens, and utilized the results of tank testing. Like the recent English designs ***Trivia***, ***Evaine***, ***Flica II***, ***Jenetta***, ***Ornsay*** and ***Tomahawk*** (the last four also launched in 1939), ***Vim*** is slightly longer than preceding Twelves, but with a very different shape.

The tank tests led to an aggressive hull design, optimized to cut through the water with a minimum of resistance, particularly going upwind; the hull is fuller especially where the stem meets the keel, the overhangs are shorter, and the maximum beam slightly greater. Perhaps ***Vim*** was less elegant than ***Tomahawk***, but surely more powerful and aggressive. There were many innovative details: she was the first Twelve to have a (very small) trim tab incorporated in the rudder. Its influence was slight, and in any case ***Vim*** turned out to be a well-balanced boat. She mounted two coffee-grinders, had the first aluminum mast which, for equal weight, is much more rigid and stronger than wood; the deck plan and the rigging are rational and simple, making maneuvers more efficient (this was the contribution of Rod Stephens, whose principal role was to help his brother fine-tune their designs at Sparkman & Stephens). The sails were carefully studied both as to cut and cloth, especially the jibs and spinnakers; the interior conforms to the Rule but is very simple and designed for efficiency: at the stern, the owner's cabin; in the fore peak, galley and heads; and amidships, space for storing and handling sails. The result concentrates weights in the center of the hull, with an efficient layout. The hull is double-planked to make it both lighter and stiffer.

After her launch, ***Vim*** was shipped to England, where her arrival was eagerly awaited. Served by a first-class crew (Harold and Gertrude Vanderbilt, the Stephens brothers, and Briggs Cunningham), ***Vim*** lost the first race due to a navigational error, but won the next two "leaving her rivals practically dead in the water", and so on for the rest of the season, which ended with 19 victories in 28 races. English superiority in the Twelve Metres was over.

Vim returned to the United States. and continued to race in 1940 against ***Nyala*** and ***Northern Light*** with alternate results; in the end, the championship was won by ***Nyala***. ***Vim***'s career was long and successful; in 1958 during the America's Cup defender selection trials she fought to the bitter end and was narrowly defeated by ***Columbia*** after five closely fought races head to head.

Vim's victories ended the long season of the Twelve Metres between the wars; once again a world war approached and the season of great successes ended.

These twenty years of intense activity and development began with the dominance of Norwegian and English owners and architects, followed by the emergence of the Americans as leaders; the war brought down the curtain on a particularly vivacious scene, and nearly twenty more years would go by before the Twelves entered a third period of development. By then nearly everything had changed: owners, designers, boatyards, and a new racing context: the America's Cup.

How many of the original 62 Twelve Metres of the Second and Third Rule (racing) of the International Rule have survived to the present day?

In recent years we have witnessed a continuous search for 12s to restore. At the present time, many have been destroyed by sinking, by being abandoned or by various other causes, but many have been restored (almost all impeccably so).

They are:

Destroyed or disappeared
built according to the Second Rule (n. 24)

- *Cerigo*, *Doris*, *Figaro III*, *Figaro IV*, *Heira*, *Iris* (Glean Coates), *Iris* (Burgess), *Isolde*, *Iyruna*, *Lucilla*, *Magda XI*, *Modesty*, *Mouette*, *Moyana*, *Moyana*, *Moyana II*, *Noresca*, *Rhona*, *Tatjana*, *Tycoon*, *Vanity*, *Veronica*, *Waiandance* and *Zoraida*.

built according to the Third Rule (n. 8)

- *Aschanti III*, *Figaro VI*, *Little Astra*, *Marina*, *Ornsay*, *Westra*, *Yatset* and *Zelita*.

In need of a complete refit (n. 3)

- *Flica*, *Jenetta*, *Miquette*.

In restoration (n. 4)

- *Barranquilla*, *Blue Marlin*, *Clymene*, *Mitena*.

Seaworthy and sailing
built according to the Second Rule (n.7)

- *Anitra*, *Emilia*, *La Spina*, *Lady Edith*, *Onawa*, *Thea*, *Zinita*

built according to the Third Rule (n. 16)

- *Anita*, *Evaine*, *Flica II*, *Fraternitas*, *Gleam*, *Inga*, *Northern Light*, *Nyala*, *Seven Seas of Porto*, *Sphinx*, *Tomahawk*, *Trivia*, *Vanity V*, *Vema III*, *Vim* and *Wings*.

▼ *Sphinx*, 1939


G 4


12
KZ-5
12
KZ-7
NEW ZEALAND
KZ 7

Twelves Metres and the America's Cup (1958-1987)

The late 1930's were a splendid moment for the Twelve Metres with important races in almost all European countries, and the construction and early races of the first American Twelves. Continual technological innovation brought ever increasing performance and the Twelves were confirmed as the most important metric class, surpassing even the J Class, whose cost was considered excessive.

However for the second time, the drama of a world war once again interrupted sailboat racing (and many other things). Perhaps it was less exciting than the outbreak of the first World War when the declaration of war came just before Cowes Week and obliged the Kaisers yacht, ***Meteor V***, to run for home while Krupp's ***Germania*** was interned for the duration. Nonetheless, the prewar tensions were felt, and the press ended their articles with no predictions of when the racers would next meet.

This was a long period of inactivity for the 12s; twenty years would go by before another Twelve would be built, and Twelve metre racing, with some few, local exceptions was in hibernation. Enthusiasts preferred to dedicate their energies and funds to the construction of the smaller Metric classes (5.5 and 6 Metres). These classes had an active racing season and were also Olympic Classes. Offshore racing and cruising brought RORC class yacht construction to flourish, to the detriment of the large and expensive metric classes destined strictly for inshore racing.

The architects and builders followed the same path; new rules and new materials stimulated designers and new long distance races coupled with the old classics (Fastnet, Bermuda Race) assumed increasing importance in line with the regattas which during the Thirties were the highlights of the summer seasons in Great Britain, France, Belgium, the Netherlands, Danemark and Germany.

Only a few Twelve Metres were kept in racing trim; most were stored ashore or converted to cruisers. This transformation was favored by the length of the boats (approximately 20 meters), a beam of almost four meters, and 1.80m of standing headroom below decks. Coupled with ample uncluttered deck space and a rig which could easily be converted to a yawl or ketch with, if desired, a reduction in sail area, made it easier to handle the converted cruisers with a small crew.

◀ *Hissar* (KZ 5), 1986, *Kiwi Magic* (KZ 7), 1986

CHAPTER 6

Twelves Metres and the America's Cup (1958-1987)

In 1956 a new season was assured for the Twelves when the Class was chosen for the 1958 America's Cup races.

Many books have been published on the topic of the America's Cup from 1958 to 1987; let us mention in passing the publications of John Illingworth, Chris Freer, Carleton Mitchell, Bob Bavier, Ted Jones and Jacques Tagland with François Chevalier.

The intent of this book, however, is to discuss the Twelve's history and evolution. Consequently the following pages do not pretend to be exhaustive, but rather to give a rapid sketch of those thirty years in the light of the general history of the class.

Twelve Metres were the protagonists of ten America's Cup challenges from 1958 to 1987. Seventy seven new hulls were designed, and the years as a Cup class wrote an interesting chapter of their history.

The "New" Twelve Metres

Except for the post war Cup's first two editions, the 12s that raced for the America's Cup had little in common with their predecessors except the rating formula, which remained unchanged for the whole period, while the Rule was changed in some details upon consent between the competitors. In the preceding two decades the boats were fast and maneuverable, but also comfortable enough, with accommodations that permitted owners and their guests to live aboard for the entire racing season. They sailed hundreds of miles under their own power on deliveries from one race to another, without motoring or tows, safe for off-shore crossings. And the testimonies: the praise inherent in the words of the president of the Royal Yacht Squadron for the winner of the 1911 edition of Cowes Week, Johan Anker, when the Scandinavian designer arrived in the Solent under sail from distant Norway; ***Tatjana*** once flew her spinnaker for three days and two nights of continuous navigation; ***Marina*** sailed through a terrible storm while going from the Clyde to the Solent; Twelve Metres converted to yawls or ketches beat ocean racers, including ***Dorade***. Uffa Fox muses on the sense of tranquillity that ***Vanity*** gave him while anchored inside the Le Havre breakwater listening to the superlative violin played by her owner; and Beken's famous image of ***Clymene*** at full speed crossing the finish line beating aggressive American ocean racers. Power, elegance and tranquillity; here are the three words that define prewar Twelve Metres.

The Cup 12s are a different breed: derived from seagoing thoroughbreds, but destined for round the buoys racing, on courses which are always the same and defined by the Deed of Gift (which requires "mutual consent" or the consent of the New York State Supreme Court if it will be modified). They are designed to perform best in the sea conditions where they will race: Newport for

the first challenges, and Perth for the last 12 Metre challenge in 1987. The intensity of competition led to yachts which were competitive only in those local conditions and nowhere else. If the matches maintained an appearance of accommodations, such appurtenances were soon eliminated. The boats, pure racers, were nonetheless rich in innovations and technical solutions which were soon applied to ordinary yachts. The Twelve Metres continued to attract the greatest architects of the century.

1946 - The First Contacts

The war had also caused a long interruption in Cup racing and its renewal felt the weight of the vastly higher expenses involved in the construction of new J Class yachts, and the wartime destruction of the "J's" built in the United States.

Beginning in 1946, expressing England's interest in renewing the Cup, John Illingworth contacted DeCoursey Fales, Commodore of the New York Yacht Club, to discuss the possibility of new challenges with new rules for the Cup. Henry Sears, Commodore of the New York Yacht Club and Sir Ralph Gore, President of the Royal Yacht Squadron represented the two parties, both agreeing on the desirability of utilizing yachts smaller and less costly than the J class. As for the type of boat to adopt, the discussion was between ocean racers and the Olympic classes. It soon became clear that the Americans favored a specialized design, extreme yet elegant, whose use would, in effect, be confined to the Cup races. Both Twelve Metres and Class M's were originally considered, but the decision pended for the former, given the more ample design and construction experience common to many European countries, with the success of Olin Stephens' **Vim** surely comforting the American's in their decision to favor 12 Metres.

December 17th, 1956 - The New "Deed of Gift"

Agreement was reached finally in 1956 between Sears and Gore; this modified the original Deed of Gift of the Cup and had to be ratified on December 17, 1956 by the Supreme Court of the State of New York, as none of the original signatories of the Deed were still alive. The new Deed of Gift provided that the waterline length for single masted vessels be reduced from 65' to 44' and thus permitted the International Twelve Metre Class to be chosen for the Cup races.

The clause that the challenger had to arrive on her own bottom, thus having to cross the Atlantic, was repealed.

Note that this rule had contributed to keep the English J Class alive until recent times, as they were of much stronger construction than the American yachts, which were intended to last only

for the time of a Challenge.

The rule that boats participating in a challenge had to be built in the country whose flag they flew was confirmed.

Both Northern and Southern hemispheres were considered, and each hemisphere's winter was ruled out as a valid period to challenge in.

The agreed upon changes also foresee that long as both parties are in agreement, Challenger and Defender may create specific amendments for the match, the ***Conditions Governing a Match (Notice of Race)***.

These conditions specify the dates, number of races, race course, along with starts, signals, movements, maximum time, ties, accidents, disqualifications, and the decisions of the Race Committee.

Of special importance are Articles 10 to 14 which establish the rating rules, the obligation to race in real time, and that the rating may not exceed Twelve Metres, as well as selection of the Challenger and the Defender. Article 10 confirms the International Rule of 1939 as modified in 1950, including "Instructions to Measurers n°. 21". Interior arrangements, equipment and dimensions of anchors, chains and standing rigging must be those of the International Rule of the Twelve Metre Class. Highly specialized Twelves are permitted, but the hulls must be of wood; metal masts are permitted and structural elements not prescribed by the rules may be in any material. The Certificate of Construction to be followed was that of Lloyd's Register as revised in 1949; said revisions will not be applied to yachts already certified.

The Third International Rule was applied to all Cup Challenges until 1987 and is still in force; the formula has not changed, though it's application is occasionally modified.

The Royal Yacht Squadron Challenge

In June 1957 the Royal Yacht Squadron, after considerable discussion, issued a challenge in the name of a syndicate of members headed by Hugh Goodson, a distinguished young owner and helmsman of ***Flica*** and ***Flica II*** before the war.

The Board of Trustees of the New York Yacht Club accepted the challenge: a race between two Twelves was set for September 1958 at Newport, Rhode Island.

The English Challenge Prepares

The two contenders set about preparations in very different ways.

The Royal Yacht Squadron proceeded to invite four of the best English designers, David Boyd, James McGruer, Charles Nicholson Jr. and Arthur Robb, to present two models each: one of a conventional Twelve Metre and the other of an innovative Twelve. The eight models were tested in the Saunders-Rowe tank at East Cowes against a model of ***Flica II***, considered the fastest pre-war English Twelve and which had been tested at the Steven's Institute in Hoboken. The analysis gave very similar results for all the models; the Boyd model was chosen because it appeared slightly faster than the others. The yacht was named ***Sceptre*** and the Alexander Robertson and Son Boatyard at Sandbank, where Boyd was director, was commissioned to build her.

Boyd had been trained by Fife and had worked in Fife's yard where he acquired a feeling for elegant lines; he was a good designer of smaller metric classes and one of his designs, ***Circe***, won the Seawanhaka Gold Cup in 1938 and 1939, beating Olin Stephens' ***Goose***. However Boyd's experience with larger boats was limited to the design of the Twelve Metre ***Caledonia*** in 1939, a project which was never built.

The English project and its realization was criticized from the start and ***Sceptre***'s defeat confirmed the criticism. The design was chosen with no outside technical consultation which would have provided another point of view and perhaps a more intense search for new solutions. The testing tank was used more to choose between the models than to try new ideas; the nine models were tested in 48 hours, while the Steven's Institute considered that time sufficient to test only two. Even the last hulls produced before the war had had the benefits of tank testing, and it was known that ***Vim*** was the fruit of exhaustive tests. ***Sceptre***'s design was built just as Boyd had drawn it and as it had been approved at the selection; the fine tuning which a tank permits and which is so necessary for the development and perfection of a design was simply not done. After the races it became known that the testing of the three defenders had lasted almost a year for each. If the idea of selecting a design was a good one, the syndicate ought to have gone further to realize a winning boat and should have considered that ***Flica II***, although fast, had been beaten in 1939 by both ***Evaine*** and ***Tomahawk***, both of which were badly beaten by ***Vim***.

Sceptre's construction took place in secret, only those involved in the work and the Syndicate were entitled to enter the shed where construction was underway. Thus it was not until her launch in April 1958 that ***Sceptre*** revealed her secrets. Which in the end did not amount to much: there was nothing very innovative about the hull, which was wood on steel frames; her lines were traditional, quite full forward and narrower towards the stern; displacement was over thirty tons,

Sceptre, 1958

three more than the defender. ***Sceptre*** was designed for light breezes and calm seas, which are not always what one can expect at Newport in September.

However, compared to the pre-war Twelves, the design contained many innovations which show careful study of the new Cup Rules and the changes in the International Rule. ***Sceptre***, like all the other Twelve Metres that followed her, was designed exclusively to compete in the waters off Newport in certain conditions of wind and sea. She was not intended for navigation, but only for match racing. Thus Boyd could apply his experience designing Six Metres and came up with a series of brilliant solutions, enlarging and lowering the cockpit while extending it forward, almost to the base of the mast. The advantages are as follows:

- the weight advantage of a smaller deck permits more weight in the keel which in turn increases stability and power;
- the crew is more efficient and safer in the cockpit, while lowering the centre of gravity even more;
- while the winch drums are on deck, the mechanical parts are under the deck giving greater access and again a lower centre of gravity;
- the crew is not obliged to work on deck which causes changes in the balance of the boat and furthermore exposes the crew to the risk of slipping on a tilted deck, wet with spray, and falling overboard
- the helmsman and navigator have an almost unobstructed view of the other boat and the course because the deck is free of crew.

Another adaptation to match racing is reduction of accommodation to the minimum required by the Rule: berths are small and flimsy while the head is located in the center of the hull under the cockpit. Lightweight materials (aluminum, balsa) are used wherever possible, and every gram saved goes into the keel.

And although the English sails were much inferior to the American's, Herbulot was able to make huge and innovative spinnakers, as the Rule gives no limit to spinnaker foot length.

Sceptre's problems were not due to lack of financial means on the part of the Syndicate, or to the suppliers who did everything possible to help. The English made mistakes in the selection and training of the crew, and in the preparation of the boat.

While ***Sceptre*** was under construction, the Syndicate sought a boat to use as a trial horse and a training boat for the crew. ***Evaine*** was chosen and refitted by her owner Owen Aisher with a new aluminum mast. ***Evaine*** in her day was a good Twelve and performed well, but decidedly less well

than the 12s launched in 1939 (*Flica II* and *Tomahawk*), and was much inferior to *Vim*. The explanation of their choice was that *Flica II* was difficult to sail and tune, while *Tomahawk* had been sold to Italy and the original drawings lost. The choice of *Evaine* was an important factor in the English defeat, as the challenger had no real chance to prepare against a yacht comparable to the defender.

To have a choice of crew members, nearly seventy persons trained on *Evaine* and here also mistakes were made. Hugh Goodson, who had years of experience owning and racing Twelve Metres, refused to be skipper and left the place to Graham Mann, Bronze Medalist at the 1956 Olympic Games in Melbourne, but without experience aboard 12s. For the most part crew members were chosen among those who had experience in the smaller metric classes, with entirely different behavior in racing conditions than the Twelve Metres. It is true that *Sceptre* won during the first races against *Evaine*, but by close margins, and not always. As the months passed *Sceptre* slowly improved, and after 43 days of trials *Sceptre* was beating *Evaine* regularly by a margin of thirty-three seconds per mile. The sails made by Herbulot were tested and studied; a gigantic spinnaker was chosen: red, white and blue, with a foot longer than the boat. They practiced starts as well, with the aid of a third Twelve, *Kaylena* (ex *Moyana*).

After arriving in Newport, training races for the British also continued. *Gleam* was chosen as a trial horse, but as *Gleam* had been converted for cruising with an engine and propeller, *Sceptre* raced with lines and objects trailing astern to reduce her speed.

In the final analysis, we can only say that *Sceptre*'s testing was a bit sloppy.

Selection in the United States

For the Americans, the climate was quite different and the methods of preparation as well. The Americans fear the English challenge and mount a very serious defense of the Cup; the choice of defender was among several boats designed by different architects and made only after long and strenuous selection races. In other words, the opposite of the English procedure.

Three syndicates were formed to build three new Twelve Metres, and to these *Vim* was added, restored to racing condition by her owner John Matthews. Olin Stephens collaborated with the refit, concentrated mostly on her rig and deck hardware. *Vim*'s second youth was also extended to her crew, which will have an important role in future developments. Emil "Bus" Mosbacher Jr. was given command: Ted Hood, Dick Bertram, Bradley P. Noyes and Matthews' two sons, Don and Dick, all took part. Hood took advantage of the occasion to experiment with sails made of Dacron, at that time a novelty.

Mosbacher was the mastermind behind ***Vim***'s success in the trails, where she missed being selected by the narrowest of margins. Sailing since childhood, Mosbacher won eight consecutive International Class championships and has earned a place among the Cup's great skippers. With ***Vim*** he created a new tuning system for the headsails and new starting tactics. On these merits he was then chosen as skipper of ***Weatherly***, victorious over ***Gretel*** (whom everyone agreed the faster of the two) in the 1962 America's Cup. Responsible for the 1967 ***Intrepid*** campaign, this time he won not only through raw ability, but with the faster yacht. Off the water, his abilities reward him with other positions: State Department chief of protocol in the Nixon administration, three time chairman of Operation Sail, including the spectacular first edition filling New York's waters with tall ships, and Commodore of the NYYC. He is a member of the America's Cup Hall of Fame.

The high costs of mounting a defense created problems for Henry Sears, who was forming a syndicate of the New York Yacht Club to build ***Columbia*** for the defense. Just to give an idea, ***Columbia*** and ***Weatherly*** ended up costing about $300,000 each, roughly the cost of ***Ranger*** in 1937. Olin Stephens was commissioned to draw the plans. As the designer of the best 12s before the war, it was assumed that a new Twelve ought to be a development of ***Vim***, whose plans and test tank results were on file at Sparkman & Stephens. Stephens had also collaborated with Starling Burgess in designing ***Ranger***, the last J Class to defend the cup.

Stephens considered the expected sea and wind conditions at Newport in late September and tested six variants of ***Vim***'s original design at Hoboken. To arrive at a final design, these models were compared with one another and with the data accumulated in ***Vim***'s racing results. The result was to be an all-round design, adapted to the weather conditions expected at Newport in early September. ***Columbia*** was slightly longer than ***Vim*** and therefore, to stay in the formula, had a slightly reduced sail that was however compensated by the increased efficiency of the new sail cut and, later, by the Dacron sails that Hood supplied after the defense selection was made. ***Columbia***'s greater length brought increased displacement and wetted surface, thus greater resistance in light airs, but also greater power with fresh breezes and rough seas.

Despite a change of ownership suffered by her yard, ***Columbia*** was built by Nevins and launched on June 3rd, 1958. As usual Rod Stephens was responsible for the running rigging and equipment, and, as usual, acquitted himself well finding solutions which speeded up the handling of the sails. Unlike ***Sceptre***, ***Columbia*** had a traditional cockpit and the crew worked on deck; the two coffee grinders were placed close together making it possible to pass the genoa sheet over both winch drums and speed up the trimming. The sails were by Ratsey and Lapthorn and contributed greatly to the performance of ***Columbia***. If Ted Hood had the best Dacron available, Colin Ratsey used Terylene; contributing greatly to ***Columbia***'s performance, the selection races also contributed to

a better understanding of the use of these new synthetic fibers in sailcloth. The new fibers resulted in lighter and more rigid sails, lowering the centre of gravity, and at the same time giving a more efficient and smoother airfoil. Today we have a vast amount of data regarding synthetic materials (which have completely supplanted the cotton and linen of earlier days), but at the time of the the 1958 races, everything in this field was new and untested. In any case, except for the giant spinnakers of the English, the American's had the better sails. ***Columbia*** usually carried one main, seven jibs and ten spinnakers.

As with the formation of the Columbia Syndicate, Sears tried to form a winning crew for ***Columbia*** which at times included himself, Rod and Olin Stephens, the sailmaker Colin Ratsey. The skipper was Briggs Cunningham, who had great experience on Twelve Metres.

Henry D. Mercer with Cornelius S. Walsh and Arnold D. Frese formed the Weatherly Syndicate, and hired Philip L. Rhodes to design the boat and manage the entire defense effort. Although he had no experience of metric yachts, Rhodes had an open approach. The boat was built by Luders and

Weatherly, 1958 ◀ ▶ *Columbia*, 1958

12
USA
16

Easterner, 1958 and *Northern Light*, 1938

launched in June 1958. Solidly built, with extensive use of laminated mahogany in the keel, the stem and rudder post, the result was a very pretty boat, on the heavy side, and consequently at her best in light airs. The skipper was Arthur Knapp Jr. ***Weatherly***'s best moments came in the second series of the 1958 trial races, which she won, but above all came in 1962, when she won the right to defend.

The most beautiful Twelve is considered to be ***Easterner***, launched late June 1958. Her topsides were varnished and the deck light green; she belonged to the dean of American yachting, Chandler Hovey, who, at the age of 78 built a new boat to add to the J class yachts ***Yankee***, ***Wetamoe*** and ***Rainbow*** which he has owned previously. Designed by Raymond Hunt and built by Graves Yacht Yard, her chances were compromised by the fact that the crew was chosen mainly from the owner's family. The result was that ***Easterner***, although well designed and built, never won a race.

The Selections

The defender's selection trials comprised three series of races. The first series was at the beginning of July; ***Nereus*** (ex-***Northern Light***) took part; ***Vim*** won five out of seven races, thanks largely to her crew. The second series was held in the latter part of August; two races daily for eight days. ***Weatherly*** came out on top with six victories in eight races, ***Vim*** and ***Columbia*** were tied for second with five wins apiece.

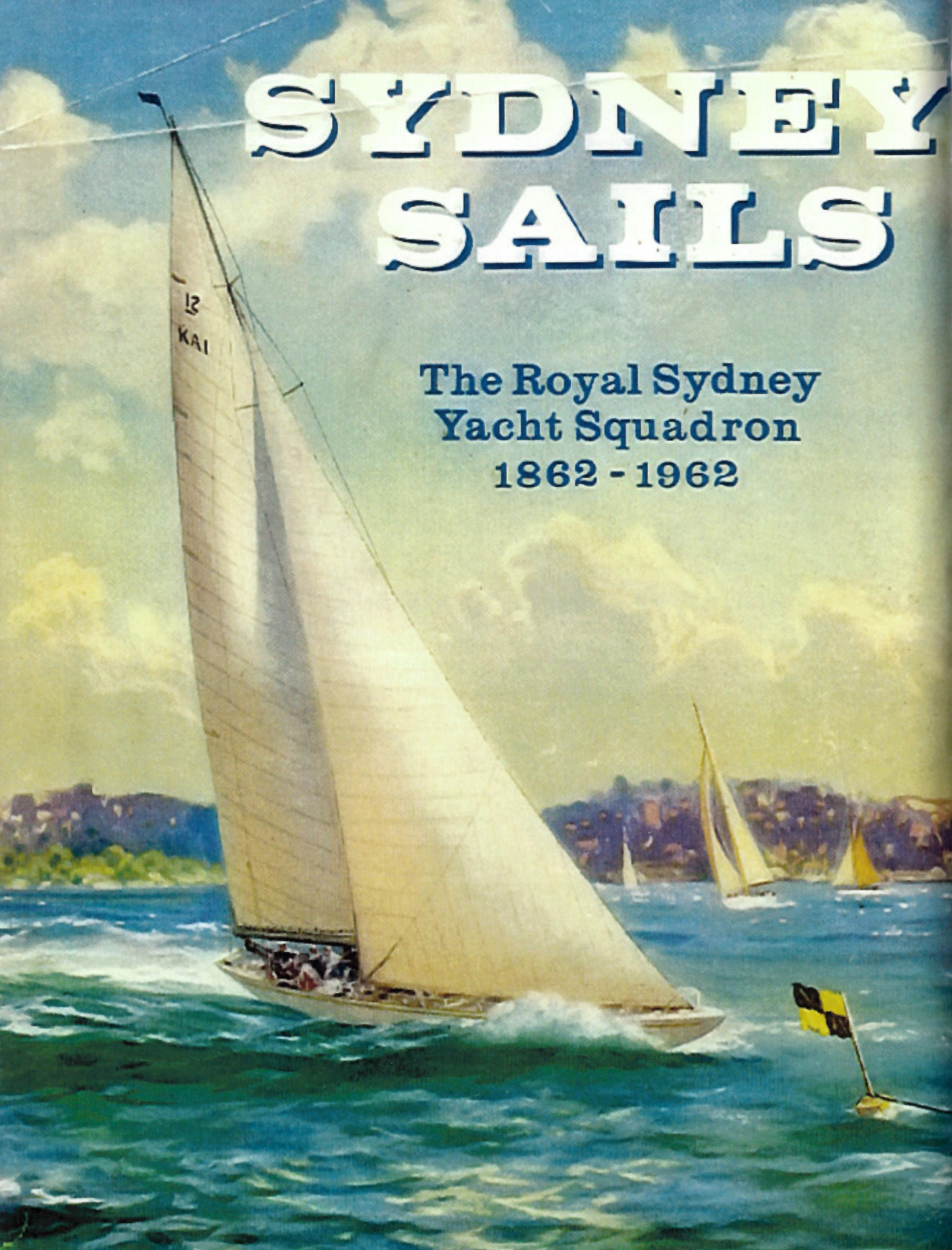
The final series of races began September 1st, with two races daily for three days, but on September 3rd it was decided to run one last race between ***Vim*** and ***Columbia***. These races were very closely fought and the results see-sawed until the end, which came when ***Columbia*** beat ***Vim*** by thirteen seconds and was named Defender of the America's Cup for the first defense in Twelve Metre boats. ***Columbia***'s edge was particularly evident in upwind legs with a fresh breeze.

September 1958 - Columbia beats Sceptre 4 to 0 in the XVIIth America's Cup

The selection races gave the world a chance to observe American superiority in Twelve Metres; confirmation came when ***Columbia*** defeated ***Sceptre*** in four straight races.

During the victory celebrations Briggs Cunningham told of Olin Stephens when he went to see ***Sceptre*** unloading at her arrival in the USA. While standing under the hull, examining the lines, Stephens murmured "One of us got it wrong." It wasn't Olin.

Perhaps it is unfair to give all the blame to the architect; later ***Sceptre***, with better equipment and


SYDNEY
SAILS
The Royal Sydney
Yacht Squadron
1862 - 1962

a better crew, was trial horse for ***American Eagle*** and showed a good turn of speed.

The first Cup Challenge raced in Twelve Metres introduced many new elements and gave a new direction to the evolution of the class. This requires discussion here but will not slow our narration.

The defeat of 1958, although followed by much discussion and criticism, did not discourage the English from presenting new challenges. Four syndicates were formed and ***Sceptre*** was purchased by a group of seven individuals. They intended to use her as a point of departure for a new challenger. In "The Red Duster Syndicate", another challenge was formed under the aegis of the Royal Thames Yacht Club; they purchased ***Trivia***, renamed ***Norsaga***.

◀ *Gretel*, 1962

▲ *Nefertiti*, 1966

April 1960 - Australia and the XVIIIth Challenge

The surprise of the moment were the Australians, who presented their challenge before the English. In April 1960 the New York Yacht Club announced that it had accepted a challenge presented by the Royal Sydney Yacht Squadron in the name of the Sir Frank Packer Syndicate. Sir Frank Packer was an oil and press baron who never won the Cup, but his efforts stimulated Australian interest which will culminate in the historic Australian victory of 1983.

As a start, Packer chartered ***Vim*** for four years and commissioned Alan Payne, a young Australian architect whose career was on the rise, to design a new Twelve. ***Gretel***, named after Packer's late wife, was to be built by Lars Halvorsen & Sons. Payne got permission from the New York Yacht Club to test over thirty models at the Stevens Institute, which also had the tank data for ***Vim***. Payne could also observe the action of the boat itself, as his Syndicate was training their crew on ***Vim***.

The defenders also authorized the use of some non-Australian components: Barient winches and Hood sail cloths.

Gretel was launched in February 1962, and at one began trials against ***Vim***. The Australians were enthusiastic and optimistic as ***Gretel*** was faster than ***Vim***. Her design is elegant and powerful, with full sections adapted to fresh breezes and moderate seas; the bow is narrow while the stern is wide and flat so as to lengthen the waterline when heeled. The deck, free from obstacles, was in fiberglass covered with teak. DeHavilland made the three-part mast with elliptical sections. The coffee grinders were placed on deck as the Class Rule had been changed to eliminate large cockpits such as the one on ***Sceptre*** and could be linked together. The sails were cut and sewn in Australia of American Dacron whose use had been authorized by the Defender.

The defender selection trials for the New York Yacht Club were between four yachts, only one of which was new, ***Nefertiti***, while modifications were made to the other three. ***Columbia*** had a new owner and some changes were made to her keel; yet her weakness was in her crew, and she was

▲ *Constellation*, 1964

soon eliminated along with ***Easterner***, again sailed by her owner's family.

Weatherly, purchased by Henry Mercer's syndicate, was much improved by her designer, Philip Rhodes, and the Luders yard: the stern was cut back, weight reduced aloft, and wetted surface reduced by remodeling the hull. Although faster, the decisive element was surely her new skipper, Bus Mosbacher.

Nefertiti was built for the syndicate headed by Ross Anderson, Commodore of the Boston Yacht Club, who felt that the U.S. ought to have a newly built Cup defender. Ted Hood drew her lines, aided by Britton Chance, Jr. who led tank testing. ***Nefertiti*** was built by James E. Graves and was an important development in Twelve Metre design: she was the first Twelve to have rudder with a wide base, she was also the beamiest Twelve yet built and had a light displacement (almost a ton lighter than ***Columbia***); she had a high wetted surface and a large keel which made her fast in fresh breezes, but less so with light airs and calm seas, despite the large fore triangle.

Nefertiti started out well in the trial races to choose the defender, winning ten of twelve races, but due to light airs lost the final two, and ***Weatherly*** was chosen to represent the New York Yacht Club.

September 1962 - Weatherly beats Gretel 4 to 1 in the XVIIIth America's Cup

The Cup races of 1962 are remembered as among the most exciting to date. The final result of four to one did not give an accurate picture of ***Gretel***'s capabilities; she was competitive both in design and in tactics, and ***Weatherly*** was frequently in difficulty. Probably ***Gretel*** suffered from the dictatorial character of Sir Frank Packer and the fact that he wanted to make all the decisions. ***Weatherly***'s success was due in large part to Mosbacher's ability and personality.

American Eagle, 1964

1964 - A New English Challenge

Four new Twelves were built for the 1964 Cup: ***Sovereign***, ***Kurrewa V***, ***American Eagle*** and ***Constellation***.

The Americans were impressed by ***Gretel***'s results and convinced that only Mosbacher's experience had saved the Cup. Therefore they changed important points in the Rules: not only the contenders hull but all other materials used must be produced entirely in the country which they represent, particularly sails and sailcloth; the course would be of the Olympic type, with more legs on the wind and more turns around the buoys than formerly, consequently more difficulty for crews and designers.

The 1964 Challenge was presented by the Royal Thames Yacht Club, and in June 1963 the new challenger ***Sovereign*** was already training on the Clyde.

The owner was Anthony J. "Tony" Boyden, who once again chose David Boyd and Alexander Robertson & Sons to design and build the boat. His choice was criticized, but Boyd was the only designer in England with experience of modern Cup boats and he demonstrated his capabilities in a project completely different compared to ***Sceptre***: ***Sovereign***.

Boyd could test models at the Stevens Institute which the Americans had not yet put off-limits, and he produced a hull with nice, classic lines: a sharp bow and a narrow stern. The first tests took place on the Clyde against a renovated and faster ***Sceptre***; as the tests continued, the new boat established her superiority over ***Sceptre***. However there were contrary indications at Cowes Week, where ***Sovereign*** was regularly beaten by ***Norsaga*** which together with ***Flica II*** helped tune the challenger.

Kurrewa V was commissioned by the Australian Frank and John Livingstone, to have another modern Twelve with which to make comparisons and help choose the English challenger. To save time and money, they asked Boyd and the Robertson yard to design and build the new boat, utilizing the molds from the construction of ***Sovereign***. Therefore, ***Kurrewa V*** was a twin to Sovereign, with a slightly modified keel and a stiffer mast.

The two Twelves are very much alike and in the selection races the results alternate. After nineteen races in English waters against ***Norsaga***, ***Flica II***, ***Sceptre*** and ***Kurrewa V***, and seven more against ***Kurrewa V*** in the waters off Newport, ***Sovereign*** was selected for the challenge. Her skipper was Peter Scott.

The New York Yacht Club chose the defender from the following: ***Nefertiti***, whose keel and underbody had been modified, skippered by Ted Hood; ***Easterner***, with the Hovey family aboard as usual, and ***Columbia*** with another new owner.

In addition, the Aurora Syndicate headed by Pierre S. "Pete" Du Pont ordered a new boat named ***American Eagle***, designed by Bill Luders Jr. and built by his yard, Luders Marine Construction. The hull was innovative and the mast heightened by a deck elevation known as 'Mount Luders'.

The other new boat was the Olin Stephens designed ***Constellation***, which was built by the Minneford Yacht Yard for the Gubelmann syndicate. She was a further development of ***Vim*** and ***Columbia*** with numerous innovations. The bottom was beautiful and made for speed, with a deep scimitar shaped rudder; the mast and boom were flexible; the coffee grinders are coupled. Stays and shrouds were made from structural steel rods, and the attentive search to save weight led to interior bulkheads made of aeronautical aluminum honeycomb panels.

Olin Stephens considers ***Constellation*** one of his best designs, and looking at the plans one can only agree. Twenty-five years had passed since ***Vim*** and a comparison of the two boats makes evident the fruits of study and experience. The wetted surface has been reduced without any loss of power or speed, the scimitar rudder was the forerunner of new developments. The direction that Twelve Metre design evolution had taken was evident; the logical development of ***Constellation*** could be nothing else but ***Intrepid***.

The races to select a defender were dominated by ***Constellation*** and ***American Eagle*** and the final selection was between these two. At first ***American Eagle*** dominated, but halfway through the selection, Bob Bavier was appointed skipper of ***Constellation*** and Rod Stephens joined her crew; the result was that ***Constellation*** won the remaining races and the nomination as defender.

September 1964 - Constellation beats Sovereign 4 to 0 in the XIXth America's Cup

Once again the English took a beating: four to zero, with large victory margins for the Americans. Without doubt the English had improved, but the Americans even more, and the English had not learned enough from past experiences. Once again they had built a boat suited to the sheltered waters of the Solent and not to the open ocean swells off Newport.

1967 - The Second Australian Challenge

The second Australian challenge arrived in 1967 from a syndicate of fifteen Melbourne businesses, headed by Emil Christiansen. They engaged Warwick Hood, a student of Alan Payne's, to design ***Dame Pattie***, which was then built by W.H. Barnett. The design took into account the experience acquired by the ***Gretel*** effort, and what they had been able to observe of ***Constellation***, but the project for ***Dame Pattie*** differed in interesting ways from preceding 12s: waterline length was 14m30, almost thirty centimeters more than the boats built for the preceding challenge and consequently

Dame Pattie, 1967

Intrepid - US 22

Intrepid marks a turning point in the design of the Twelve Metre boat. She was the first to detach the rudder from the keel. However, this was not the only reason she was a revolutionary design.

The hull: the rudder being separated from the keel meant that the keel could be reduced and made more efficient than previous designs with a smaller wetted surface area. Seven models were made and tank tests led to an ever greater reduction in the length of the keel which ended in a trim tab while the rudder was placed nearly at the end of the waterline at a distance of nearly three meters from the keel, thus increasing the efficiency. The trim tab can be connected to the main rudder to increase the efficiency or can be locked in the desired position so as it function as a flap.

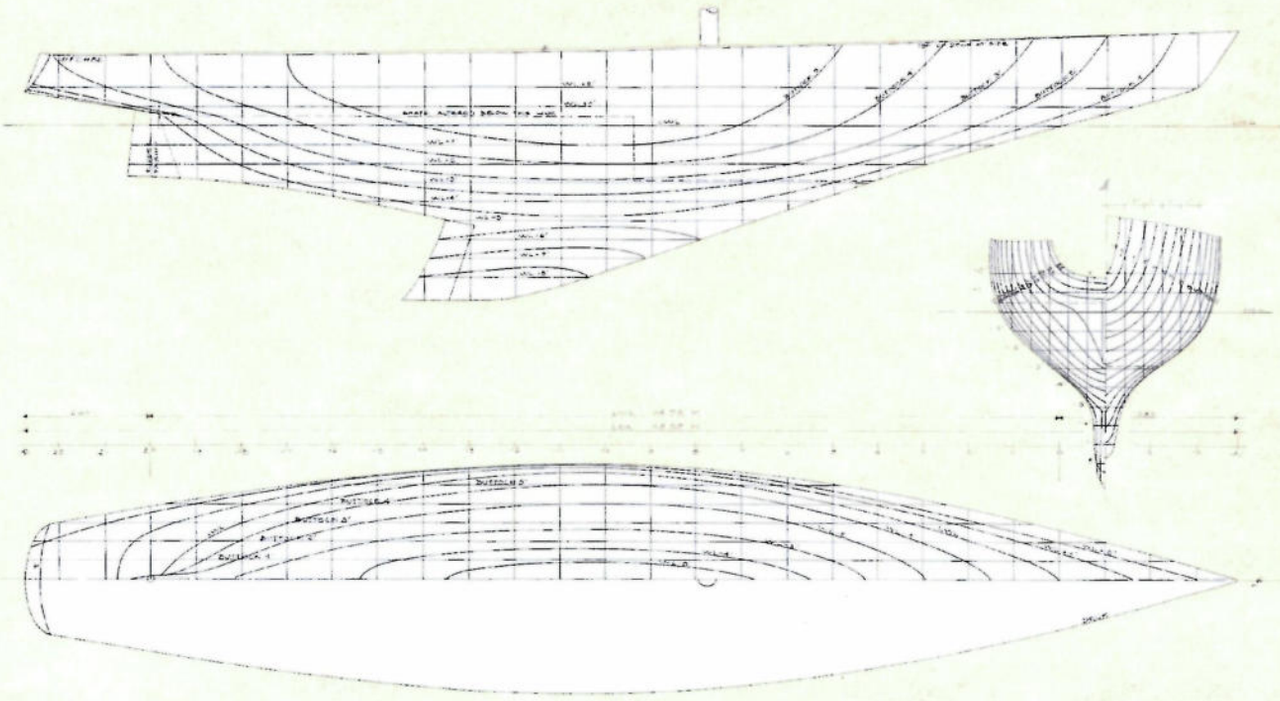
Layout of the deck: this was completely revolutionized. The large cockpit design pioneered by *Sceptre* was subsequently prohibited and a return to conventional designs was made. Copying from Sceptre, but keeping to the regulations of the Cup, the deck was positioned over the space reserved for the crew. The entire crew except for the helmsman, the tactician and the two responsible for trimming the sheets of the jib and spinnaker, is placed under the deck in the central part of the hull. Here, as well as the rigging, are all the mechanism for the winches and capstan winches. Four handles can be linked on a single winch allowing four men to sheet in the genoa when sailing close-hauled. This design also allows the centre of gravity to be lowered because it reduces to a minimum the internal space permitted by the regulations. The berths are of balsa wood and are designed in such a way as not to take up any room needed for manoeuvres. The boat is lined with terylene material instead of wooden bulkheads. The cockpit is on two levels: the higher one is for the helmsman and the tactician, while those responsible for the sheets are in the front part and have only their head and shoulders above deck.

Rigging: this is very innovative. The boom and the upper half of the mast is in titanium. The boom is flexible and placed very low on the deck so as to improve the performance of the mainsail especially when sailing close-hauled. The rigging is steel rods and elliptical in form.

Sails: Ted Hood responsible for the sails introduced innovations in their cut, material and warp. To better understand the technical evolution of the new materials it is enough to remember the work done on *Columbia* to reduce the weight on the top of the mast. They had to take into account a mainsail made of material weighing fourteen ounces while the mainsail of *Intrepid* used new materials weighing nine and a half ounces.

Designer	*Olin J Stephens*
Builder	*Minneford Yacht Yard, Inc.*
Owner	*Intrepid Syndicate*
Year of launch	*may 1967*

Length overall	*19.66 m*
Waterline length	*14.27 m*
Beam	*3.68 m*
Sail area	*164 m^2*
Displacement	*27.91 tons*



the boat had a smaller sail area; to reduce wetted surface and chain girth, the bow sections were U-shaped, the main section was reduced as was keel length (perhaps a little too much so as after the first tests the keel was lengthened again by adding a heel piece). The rudder had a new shape compared to earlier boats and was wider in the upper part than in the lower, the overhangs were shorter, and the sails were made in Australia of a specially produced cloth called Kadron; rod rigging was used.

Initially there were two challengers: Sir Frank Packer presented a challenge and engaged Alan Payne to modify, and later re-modify, ***Gretel***. Payne improved her performance greatly, but not enough to beat ***Dame Pattie***.

The real innovations came from the United States, and once again, from Olin Stephens. With ***Intrepid***, one of his best-known designs, he contradicted those who thought that the Twelve Metres had reached their limit of development and that interest for the America's Cup would decline as no further progress could be made.

The Intrepid Syndicate, directed by Bill Strawbridge and headed by J. Burr Bartram, was given the opportunity to defend in the name of the New York Yacht Club. Among the syndicate members was Harold Vanderbilt. ***Intrepid*** was launched in May, 1967 by the Minneford Yacht Yard; Bus Mosbacher was appointed skipper.

Stephens had said that the new boat would be original, and he was right. In his autobiography, "All This and Sailing Too", he wrote: "In the Twelve Metre Class she marked a departure in design resulting from the separation of the rudder from the keel. This made possible a shorter and more efficient keel; it also reduced the wetted area of the hull. This arrangement was not new, ... American and British yachts had been successful with it at the turn of the century. More recently it had been current in New Zealand and had been used by the American designers Bill

Gretel II, 1970

Lapworth and Dick Carter in highly successful boats ... Applied to a Twelve, control of the wetted surface made it possible to expect the more powerful hull to be adequately driven with less sail than had been used before."

Intrepid was one of those few projects that made yachting history and, more particularly, the history of the Twelve Metre Class. We include a detailed description in the Appendix.

As for the races, there is little to tell. ***Intrepid*** beat them all. She beat ***Constellation*** which had been chartered and partially remodeled by Baron Bich. She beat ***Columbia*** which had been made competitive by an extensive remodeling of the hull, and had shown herself to be second only to Intrepid during the defender selection trials. She beat ***American Eagle***, ***Weatherly***, and ***Sceptre***. ***Intrepid*** beat them all, losing only two races; once because of a tactical error and once because she dismasted.

▲ *Valiant*, 1970

September 1967 - Intrepid beats Dame Pattie 4 to 0 in the XXth America's Cup

As for the Cup races, the story was the same: ***Intrepid*** defeated ***Dame Pattie***, four to zero.

Interest in the America's Cup was growing despite the increasing cost of mounting a challenge. Australia's attempts had attracted attention in other countries: the Cup was no longer a challenge limited to the United States and England and other challenges were forthcoming. Though still a two boat race, the process of selecting a challenger became more interesting as the number of contenders increased. Baron Bich never got to race in a final, but his efforts were certainly rewarded with enormous commercial success, which was perhaps worth all the effort.

◀ *Heritage*, 1970

▲ *Courageous*, 1974

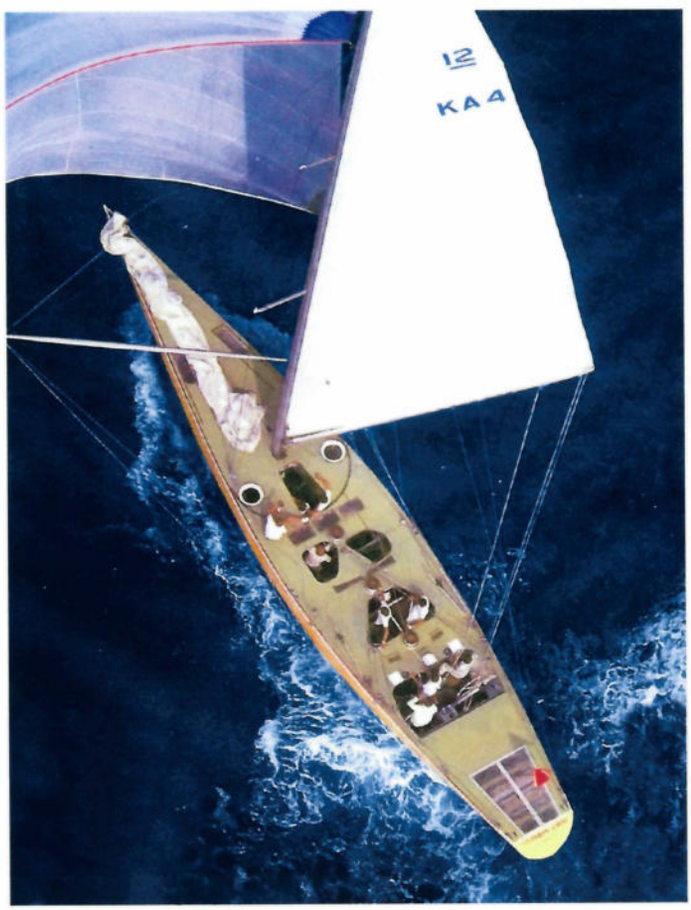
1970 - Australia and France

The races of 1967 were just over and already new challenges arrived at the NYYC from Australia, France, Great Britain and Greece. The latter two nations withdrew their challenges and France and Australia, by agreement with the NYYC as Trustee of the Deed of the Gift, prepared to race in a challenger selection series in the waters off Newport to determine who would be the final challenger.

Meanwhile five new Twelves were built by Defender and Challengers: ***Valiant***, ***Heritage***, ***Gretel II***, ***France*** and ***Chancegger***.

As usual Sir Frank Packer reserved himself a place on stage ordering a new Twelve from Alan Payne.

Gretel II was built by William Barnett and launched in February, 1970, James Hardy was appointed skipper. There were many innovations in ***Gretel II***: twin steering wheels (which later became the norm), folding spreaders (so that the lee spreaders would not interfere with genoa trim when close-hauled), and a profiled mast stepped farther aft to increase the fore triangle. She was the best design of this edition of the Cup, and only crew problems kept her from a clamorous win.



In France, Baron Bich brought all his economic force to play and, having created the "***Association Française pour la Coupe de l'America***" (AFCA), had proceeded to purchase ***Kurrewa V***, ***Sovereign*** and ***Constellation***. He then ordered a boat designed by the American Britton Chance and built by Hermann Egger (named ***Chancegger***, a combination of the two names), whose role was to act as his trial horse for the challenger ***France***, designed by André Mauric. Bich established two training camps (at Hyères and La Trinité-sur-Mer) and organized races between three helmsmen and three crews in order to choose the best.

Between ***France*** and ***Chancegger***, the latter is the more interesting, although destined never to compete for the Cup due to the Deed of the Gift which requires that the challenger be entirely a product of the challenging nation. However it was a laboratory of new ideas, of which Mauric made only partial use in designing ***France***.

To satisfy the Deed, ***France*** was built in a yard created for the purpose by Egger on French territory. The overall length of the challenger was reduced to little more than the waterline length, made as long as possible; maximum beam was brought aft to augment the laminar flow, while the fore sections are full and flattened to increase speed while off the wind.

In the USA two new boats were built to compete with ***Intrepid*** for the role of defender. Neither ***Valiant***, the new Sparkman & Stephens design, nor ***Heritage***, designed and built by Charles E. Morgan, were successes. ***Valiant*** was slow and hard to steer with a turbulent wake, ***Heritage*** was very pretty but her results were not. Consequently tank testing methods of the period were brought into question. Both boats had undergone extensive testing as small models yet the full scale results were disappointing: perhaps it was necessary to radically change the system of testing and analysis of the results.

Intrepid was present for the same owners, but significant changes had been made both to hull and rigging by Britton Chance, though it was not clear that the boat's performance was improved. Mosbacher was unable to participate and Bill Ficker was named skipper, which turned out to be an excellent choice.

Selection races were held as in the past, and ***Intrepid*** was chosen as defender over ***Weatherly***.

On the challenger's side, ***Gretel II*** easily beat ***France***.

▲ *France II* 1977

September 1970 - Intrepid beats Gretel II 4 to 3 in the XXIst America's Cup

The 1970 America's Cup races were hard fought, and after four races each boat had won twice, with winning margins counted in seconds. The two boats were technically very similar, considering hulls, sails and crew.

Intrepid won the last race by a narrow margin, and the Cup remained in America thanks to the skill of ***Intrepid***'s skipper and a controversial decision by the Race Committee. The Australians went home with the conviction that the Americans could be beaten, and that they had all the cards to do it.

Sverige, 1977

1974 - Australia and France Again

1974 saw the first aluminum hulls, and the birth of ***Courageous***. The war in the Middle East and the resulting oil crisis, as well as the development of scantling rules for aluminum 12 Metre construction caused a year's postponement of the Cup Match from 1973 to 1974, but when it took place, it was a rerun of the previous edition: the French competed with ***France*** against the Australians' new boat ***Southern Cross***, with a predictable French defeat, and in the final Match ***Courageous*** beat ***Southern Cross*** four to zero.

More important than the racing however was innovation in construction materials, which brought about significant changes in Twelve Metre design. For the first time Lloyd's Register allowed aluminum hulls, and ***Courageous***, ***Mariner*** and ***Southern Cross*** were all built of this new (for 12 Metre yachting) material.

Designers could now build hulls that were stiffer and thus better able to withstand the stresses imposed by modern sails and rigs; at the same time the hulls became lighter, allowing more weight in the keel. Olin Stephens calculated that the difference was slightly less than four tons. Another important advantage of aluminum construction was the ease with which modifications could be made as compared to wood.

Courageous was ordered from Sparkman & Stephens by a NYYC syndicate, now headed by Bob McCullough after Strawbridge's resignation. Olin Stephens, aided by David Pedrick, conducted tests with one-third size models: they had a waterline length of 4.5 meters, a displacement nearly one ton, and were clearly much more expensive.

Courageous was built at the Minneford Yacht Yard and Ted Hood was ultimately chosen as skipper, but with Dennis Conner at the wheel for starts after the elimination of ***Mariner*** freed him for the task. ***Courageous*** was not as novel as ***Valiant*** and ***Intrepid*** had been but had very elegant lines, with the return of long overhangs and a relatively a short keel.

Mariner had been designed by Britton Chance after tank tests and computer-aided modeling had resulted in a revolutionary underbody. She was characterized by a cropped hull aft, which did not become progressively narrower towards the stern as was usual. The theory was fascinating but the in practice the boat was a disappointment. ***Mariner*** was rapidly eliminated despite the skill of her two helmsmen, Dennis Conner and Ted Turner, both getting their first taste of America's Cup racing.

Two newcomers to the Australian team will be active in future Cup racing: Alan Bond, head of the Southern Cross Syndicate, and designer Bob Miller (who later changed his name to Ben Lexcen).

The most exciting moments of the 1974 Challenge were the finals of the NYYC selection trials with ***Courageous*** opposed against ***Intrepid***. ***Intrepid*** had been rebuilt by Driscoll Boats of San Diego to a design by Stephens similar to her original lines. ***Courageous*** won the last races by a score of three races to two. As in the past, the great designs (***Vim***, for example) dominate racing and inspire new projects.

September 1974 - Courageous beats Southern Cross 4 to 0 in the XXIInd America's Cup

The Cup itself was unremarkable: ***Courageous*** beat ***Southern Cross*** four to zero.

Enterprise, 1977


Enterprise

France III, 1979

1977 - *Australia, France and Sweden*

At the Cup races of 1977 five new boats were present: ***Enterprise***, ***Independence***, ***Australia***, ***Sverige*** and ***France II***, as well as ***Courageous***, ***Gretel II*** and ***France I***.

The Swedes presented their first challenge, while the English withdrew. The Australians presented two challenges from two different clubs.

Only ***France II*** was of wood (molded); all the others were of metal, and all complied with the new Cup rules published by the NYYC requiring self-draining cockpits of specified dimensions.

Australia, 1977

France II's design was born old; the boat was so slow that she was replaced during the challenger selection trials by *France I*, who was defeated by ***Australia***, 4-0.

The Swedish syndicate, comprising forty industrialists and the King of Sweden, presented a novel design by Pelle Petterson, fruit of concerted efforts by the syndicate. First they bought ***Columbia***, both as trial horse for training and to compare the results of extensive tank testing on the part of Petterson and his staff. The result, ***Sverige***, had low wetted surface and an original stern section. At the centre of the yacht she had double wheels which controlled both rudder and trim tab, winches were cross-linked and driven by bicycle pedals (leg power replacing arm power). ***Sverige*** was very fast tacking, and defeated ***Gretel II*** after

▲ *Clipper*, 1980

▲ *Freedom*, 1979

seven exciting races, only to be eliminated in the challenger selection finals by ***Australia***.

Australia was an evolution of ***Southern Cross***; the design was by Ben Lexcen and young Johan Valentijn. Compared to her predecessor, ***Australia*** was about three tons lighter, faster when tacking, and spread more canvas. She did very well in the selection trials, and won all her races.

The defenders had two new 12s which were designed in a very different fashion. ***Independence*** was designed practically by trial and error; Ted Hood developed his ideas as construction advanced, changing keels and rudders until he was satisfied with the result. Sea tests were made using ***Courageous*** as trial horse, which Hood had modified and made much faster.

Defender, 1982

Liberty, 1983

Enterprise was born on the drawing board and in the test tank: conceived as a development of ***Courageous***, Stephens hoped to improve on his earlier boat and did extensive testing with one-third size models as before. ***Enterprise*** was a beautiful boat, with clean lines. Although she never won an important race, she was around for a long time and served as a point of reference for many 12s in following years. She tuned up racing against ***Intrepid***, which, although not updated for lack of money, was still hard to beat in strong winds and heavy seas.

At the beginning of the defender's selection trials, Ted Turner was asked to take the helm of ***Courageous***, although she had been assigned the role of trial horse for ***Independence***. His skill was confirmed when ***Courageous*** won the defender selection.

September 1977 - Courageous beats Australia 4 to 0 in the XXIIIrd America's Cup

The finals see ***Courageous*** dominating ***Australia*** with a shutout - four to zero.

▲ *Challenge 12*, 1982

▲ *Advance*, 1983

▲ *Victory '82*, 1982

▲ *Magic*, 1987

The first International Twelve Metre World Championship

The lacking in previous America's Cup challenges of the competitive environment suggested the British to organize the first World Championship for the Twelve Metres in Brighton in 1979.

Other championships have been organized in occasion of the following America's Cup challenges or even after the challenges as return matches of the previous selections. With the conclusion of the presence of the Twelves in the America's Cup, the World Class Championships have been organized as a true moment of periodical confrontation between the Twelve Metres.

The Champion title is awarded only to the yachts part of the "Grand Prix" category while the others are classified according

▲ *Canada I*, 1982

▲ *Challege 12*, 1982

to the divisions expected by the International Twelve Metre Class Rule. That is:

- Grand Prix Division
- Modern Division
- Traditional Division
- Vintage Division

The up to now Worlds organized are the following:

1st	1979	Brighton (Great Britain)	winner: ***Lionheart*** - K 18
2nd	1982	Newport (U.S.A.)	winner: ***Victory*** - K 21
3rd	1984	Porto Cervo (Italy)	winner: ***Victory '83*** - K 22
4th	1986	Fremantle (Australia)	winner: ***Australia III*** - KA 9
5th	1987	Porto Cervo (Italy)	winner: ***Kiwi Magic*** - KZ 7
6th	1988	Lulea (Sweden)	winner: ***Kookaburra III*** - KA 15
7th	1999	Saint Tropez (France)	winner: ***Kiwi Magic*** - KZ 7
8th	2001	Cowes (G.B.)-America's Cup Jubilee	winner: ***South Australia*** - KA 8
9th	2005	Newport (U.S.A.)	winner: ***Hissar*** - KZ 5
10th	2007	Cannes (France)	not awarded
11th	2009	Newport (U.S.A.)	winner: ***Kiwi Magic*** - KZ 7
	2008	Flensburg (Germany) Classic 12 Metre World Championship	winner: ***Nyala*** - US 12

1980 - *Australia, France, England and Sweden*

In 1980 the new boats were ***France III***, ***Lionheart***, ***Clipper*** and ***Freedom***; from past years came ***Australia***, ***Sverige*** and ***Courageous***. Four nations were challenging: Australia, Sweden, France and Great Britain.

The English syndicate, headed by Tony Boyden, hired the young architect Ian Howlett to design the classic lined, heavy displacement ***Lionheart***. In 1979 Boyden won the Twelve Metre World Championship at Brighton with her, but the limited numbers of competitors gave no good idea of what ***Lionheart*** was capable of. The boat went into the Twelve Metre history book because her designer discovered and used a loophole in the Class Rule, which permitted the upper part of the mast to be flexible and thus setting a larger mainsail (roughly 20m^2). This made ***Lionheart*** hard to

beat in light airs. However, she was defeated by ***France III***, giving Baron Bich, after all his effort, the pleasure of a victory in Cup racing. In any case, this newly discovered loophole was exploited by the Australians in the final races.

France III was a new design by Johan Valentijn for Baron Bich. Similar to ***Australia***, at first she had two trim tabs, but the excessive complexity caused the idea to be shelved. ***France III*** got as far as the finals where she was eliminated by ***Australia***, at which point Baron Bich announced his retirement from further Cup Racing.

In the USA a syndicate headed by Huey Long, owner of ***Ondine***, hired David Pedrick to prepare a defender to be called ***Clipper***, using equipment from ***Independence***. The skipper was Russell Long, Huey's son. In light airs ***Clipper*** was faster than ***Freedom*** but her crew did not have the experience to compete at this level.

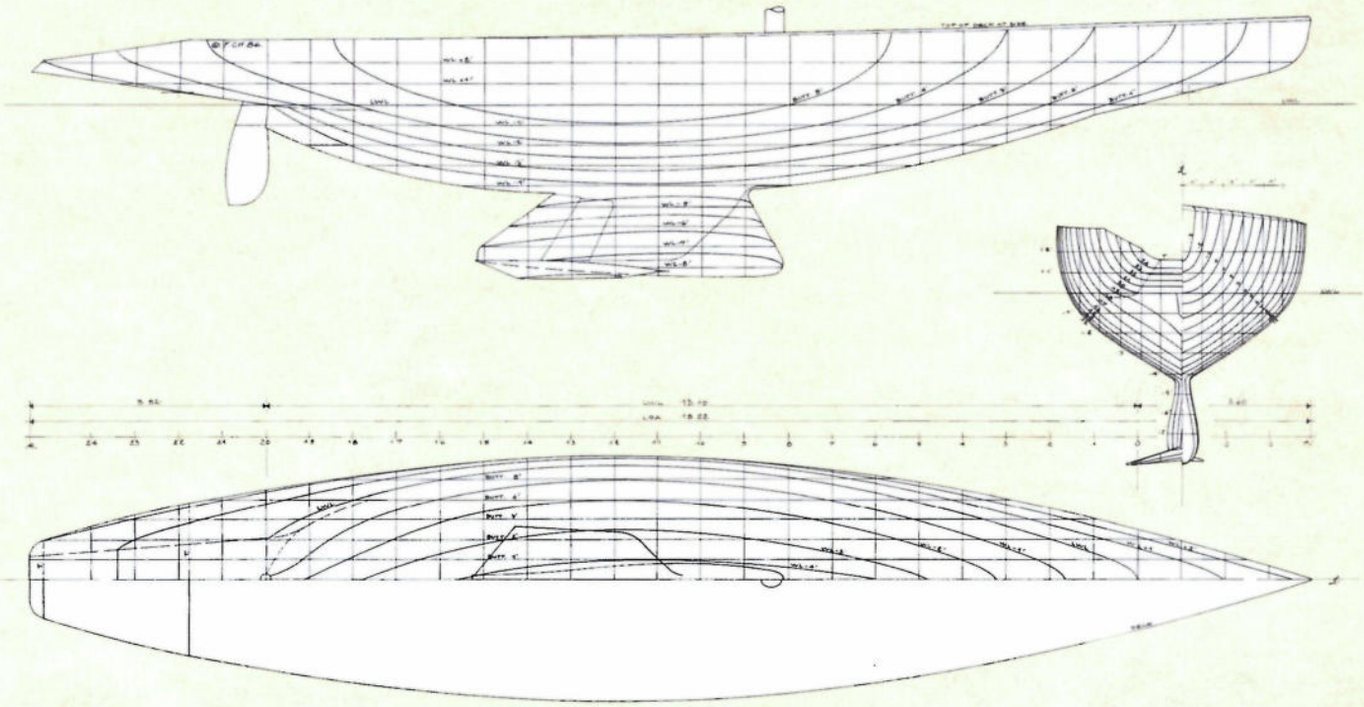
Victory '83, 1983

Australia II - KA 6

Australia II and Ben Lexcen are two names which go into the pages of yachting history after one hundred and thirty two years of undisputed American supremacy. *Australia II* should not only be remembered for this sensational event but also because, like other projects which added to the development of the 12 Metre boat, such as *Vim* and *Intrepid*, all the Twelve Metre boats designed in later years refer back to the ideas and experience of the Lexcen design. This is true not only for the designs of Twelve Metre boats: *Australia II* had, and still has, an impact on the designs all of fast sailing boats. Victory in the America's Cup was thanks as always to a number of contributing factors. In this case it was the good team work of the crew, an experienced skipper, John Bertrand, and well cut sails. However, undoubtedly a determining factor was "the wing keel". Lexcen aimed to build a hull which displaced as little as possible and had the shortest possible waterline. Taking into account these two factors called for a more linear design with little volume below the waterline, while the shortest waterline length allowed the same sail area to be maintained. Furthermore, a wide stern low in the water would have penalized the rating but would have allowed for an increased waterline length when sailing close-hauled. The problem was to resolve all these points while at the same time maintaining sufficient stability, For the first trials the lead was taken out and hung under the keel like a bulb. This created excessive vortices but tank tests allowed the problem to be resolved by adopting a solution normally used in the aeronautics: the well known Withcomb wing. The subsequent trials were successful and also showed improved performance when the boat was heeled over. It also reduced the problem of a larger area of hull in the water in light winds due to the reduction of the keel and all the weight of the lead being concentrated at the lowest point. In conclusion it was a revolutionary hull as can be seen comparing the data with *Liberty* which can be considered an average example in the Twelve Metre class. *Australia II* has about the same overall length and sail area but her waterline is about 51 cm shorter; it is 25 cm wider, its draft is 10 cm less and it has 6 ton reduction in displacement.

Designer	*Ben Lexcen*
Builder	*Steve E. Ward & C.*
Owner	*America's Cup Challenge 1983*
Year of launch	*June 1982*

Length overall	*19.22 m*
Waterline length	*13.10 m*
Beam	*3.65 m*
Sail area	*171 m^2*
Displacement	*21.80 tons*



Freedom, Olin Stephens' last Cup boat, was built for another NYYC Syndicate and skippered by Dennis Conner. Funds were short, and tank testing very limited. The hull resembled ***Enterprise***, but had the lowest freeboard of any Twelve, which in theory increased stability and lowered air resistance. After trials of both boats, Conner chose ***Freedom*** for the defender eliminations against ***Courageous***, again skippered by Ted Turner, and ***Clipper***. With her excellent crew work ***Freedom*** handily won the selection trials and then the Cup, beating a revamped ***Australia*** four victories to one.

September 1980 - Freedom beats Australia 4 to 1 in the XXIVth America's Cup

Freedom takes the Cup beating ***Australia*** four to one.

1983 - *Australia, Canada, France, England and Italy*

On September 26th, 1983, after 132 years, American dominance in Cup racing came to an end. After an unheard of seventh race, the Royal Perth Yacht Club of Australia became the custodian of the America's Cup. With numerous participants, new hulls and technical innovations, this edition is of special interest.

A fleet of Twelves came to challenge in Newport: three boats competed in the selection trials for the defender - ***Liberty***, ***Defender*** and ***Courageous***; seven for the challenger trials: ***Australia II***, ***Challenge 12***, ***Advance***, ***Victory '83***, ***Azzurra***, ***Canada*** and ***France III***. Additionally, yachts built for testing purposes included ***Spirit of America***, ***Magic*** and ***Victory '82***.

For the first time in the 12 Metre era, Canada issued a challenge and arrived with a boat designed by Bruce Kirby, designer of the Laser dinghy. ***Canada*** was a traditional Twelve with a well trained crew (the Canadian syndicate had bought ***Clipper*** to use as a trial horse in training and tuning).

▲ *Kookaburra III*, 1986

▲ *Italia I*, 1985

▲ *USA*, 1985

▲ *Lionheart*, 1979

◀ America's Cup Jubelee 2001

▲ *Hissar*, 1986

They placed fourth in the challenger selection trials.

Italy also challenged for the first time, having previously sent out feelers in 1962 regarding an Italian challenge, though at the time the answer was that Italy did not have sufficient credentials as a yachting nation. **Azzurra** was financed by "Consorzio Sfida Italiana America's Cup" and flew the pennant of the Yacht Club Costa Smeralda; among the sponsors were Gianni Agnelli and the Aga Khan. The Italian Twelve was a descendant of ***Enterprise***, which had been purchased by the Consorzio and studied by the Vallicelli Design Office in the Italian Navy's test tanks. Surprisingly, **Azzurra** did well, because of the qualities of both the design and the crew, and ended third among the challengers. This result excited Italy, and led to the future successes of ***Il Moro di Venezia*** and ***Luna Rossa***.

Great Britain's syndicate, headed by Peter de Savary, presented two Twelves: **Victory '82** and **Victory '83**. **Victory '82** was designed by Ed Dubois, but did not satisfy de Savary, who ordered **Victory '83** from Ian Howlett. **Victory '83** was considered the fastest Twelve of its generation, prior to the

French Kiss, 1985

adoption of keels with lateral fins, and contested the selection as the final challenger against *Australia II*.

The Australians brought three different challengers to the selection races. With ten years experience with Cup challenges, Alan Bond's Syndicate had extensive knowledge to pass on to the designer, Ben Lexcen, as well as an excellent crew and an experienced team. As a result, ***Australia II*** was one of those boats which marked a new era in the history of yachting. ***Challenge 12*** was a Twelve built for Alan Bond but replaced by ***Australia II*** and sold to another syndicate. ***Challenge 12*** was very similar to ***Australia II***, differing in the keel design, a longer overhang at the stern and a longer waterline; her performance was also similar. ***Advance*** was a design by Alan Payne for a syndicate formed by Syd Fisher and Sir William Pettingall. The intent was to realize a fast hull for light airs and the sea conditions off Newport. No tank tests were made, but Payne built six sailing models (one of ***Freedom*** and five from his own ideas), all five meters long and radio controlled. The result, ***Advance***, was extreme and ugly and gave poor results.

Kookaburra II, 1985

With such a wealth of challengers, the Americans organized their defense with two syndicates. The first was called the Freedom Campaign and was headed by Ed du Moulin with Dennis Conner as helmsman. They commissioned a new boat from Johan Valentijn and asked for a radical design. The outcome was ***Magic***, a short Twelve with very light displacement: she was judged a failure. At the same time Bill Langan at Sparkman & Stephens created ***Spirit of America*** for the same syndicate. She was just the opposite of ***Magic***: heavy, hard to steer, with a full underbody and a small keel. Three versions were built, but with limited success.

At this point du Moulin and Conner decided it was better to avoid extreme solutions and ordered a third project from Valentijn to be called ***Liberty***. She utilized Valentijn's experience with ***Australia*** and ***France III***, and was furnished with controversial multiple rating certificates, which corresponded to the various keels and rudders which could be changed according to the anticipated conditions of wind and sea.

Chuck Kirsch headed another syndicate which set the new boat ***Defender*** to race against a mod-

ified ***Courageous***, before choosing between them. ***Courageous*** was remodeled in accordance with the new ideas of Bill Langan, who in the meantime had abandoned Dennis Conner's project. The rudder was enlarged, the bottom of the keel flattened and the point at which it met the hull was rounded off. Weight was reduced and new sails made.

Defender was designed by David Pedrick as a development of ***Clipper***, which in turn had been inspired by ***Courageous*** and ***Enterprise***. The result was modified after subsequent tests on the water.

September 1983 - Australia II beats Liberty 4 to 3 in the XXVth America's Cup

The selection of the challenger took place after three Round Robins and a total of 54 races. The defender's selection was hard fought as well. The Cup Match was a cliffhanger. ***Australia II*** and ***Liberty*** fought it out, and the result revitalized the America's Cup. The names of Alan Bond, Ben Lexcen and John Bertrand remain engraved for ever in the history of the America's Cup.

South Australia, 1985


KA 15
ASS
224

Australia's victory (or America's defeat) revived interest in the Cup and, notwithstanding the rising costs, the years between 1984 and 1987 saw the formation of several new challenge syndicates. Architects preparing new projects had to consider the changes due to the change of venue. Choppy seas and strong steady breezes prevalent at Freemantle replaced the light winds and ocean swells prevalent at Newport, and new designs had to be made accordingly.

The 1984 and 1986 World Championships

In the meantime, two Twelve Metre World Championships were held.

In the Fall of 1984 *Azzurra*, *Canada*, *Challenge 12*, *Enterprise*, *France III*, *Freedom*, *Gretel II* and *Victory '83* met at Porto Cervo in Sardinia to dispute the Third Championship: *Victory '83*, then owned by an Italian challenge and racing with the Yacht Club Italiano pennant, won the title.

The fourth edition of the Championship was held at Perth in February, 1986, and was closely

◀ *Stars & Stripes '87*, 1986 e *Kookaburra III*, 1986 ▲ *Fiddler*, 1986

watched for indications regarding the upcoming Cup races. *America II*, *Australia II*, *Australia III*, *Azzurra*, *Challenge 12*, *Courageous*, *French Kiss*, *Gretel II*, *Italia*, *New Zealand I*, *New Zealand II*, *South Australia*, *True North* and *Victory '83* were all present.

Of particular interest were the two New Zealand boats, built in fiberglass and a brilliant performer, and *French Kiss*, imaginative, but not very reliable. The championship was won by *Australia III*.

1987 - *Canada, France, England, Italy, New Zealand and the United States*

In 1986 the 26th Edition of the America's Cup, and the tenth and last raced in Twelve Metre Class was held. It was also the first to be held outside the US and began with the selection of the challenger. Incredible amounts of money were involved; the practice of building more than one boat per syndicate had become widespread, and so the contestants could choose from four *Stars & Stripes*, three *Kookaburra*, three *Australia*, three *New Zealand* and so on.

White Crusader, 1985

Six are the Australian boats arrived for the defense: ***Kookaburra II***, ***Kookaburra III***, ***Australia III***, ***Australia IV***, ***Steak 'n Kidney*** and ***South Australia***.

The challengers are:

- six American syndicates with: ***Stars & Stripes '87***, ***USA***, ***Eagle***, ***America II***, ***Heart of America*** and ***Courageous***. They brought along ten other Twelves for training and comparisons;
- New Zealand brought ***New Zealand*** (***Kiwi Magic***) and two other Twelves. As we mentioned earlier, the three New Zealand boats were the first built in fiberglass and their entry was declared eligible to race only after considerable discussion;
- France had ***French Kiss*** and ***Challenge France*** and two other Twelves;
- Italy brought ***Italia I*** and ***Azzurra III*** and four other Twelves;
- England had ***White Crusader*** and another Twelve for training;
- Canada had ***Canada II*** as well as an other boat for tuning and training.

Total: forty-one Twelves for the Freemantle selection races which lasted three months.

January - February 1987 - Stars & Stripes '87 beats Kookaburra III 4 to 0 in the XXVIth America's Cup

The eventual challenger was ***Stars & Stripes***, the defender ***Kookaburra III***. ***Stars & Stripes*** beat the Australian defender four to nothing and brought the Cup back to the United States for the next match to be held in San Diego, California.

What has become of the Cup Twelves?

How many of the original seventy three Third Rule - AC Twelve Metres are still sailing? Almost all are in excellent condition and scattered all over the world. A sizable part are in Newport doing mostly charter work. A group is in the French Mediterranean waters. Unlike the classes which followed the Twelves in Cup racing, there has been a brilliant reconversion.

Which Twelves weren't lucky? As follows:

- in museums: ***Australia II***, ***Azzurra***, ***Defender***
- no news: ***Italia II***, ***Liberty***
- awaiting restoration: ***Australia***, ***Azzurra IV***
- sunk or otherwise lost: ***Advance***, ***Constellation***, ***Canada I*** (rebuilt as ***Canada II***), ***Crusader II***, ***Eagle***, ***Independence*** (rebuilt as ***Clipper***), ***Mariner***, ***Spirit of America*** (redesigned and rebuilt as ***Stars & Stripes '83***), ***True North II***, ***USA*** (E 1).

▼ ***South Australia***, 1985 (KA 8), ***Kiwi Magic***, 1986 (KZ 7), ***Hissar***, 1986 (KZ 5), ***Wright on White***, 1985 (KZ 3)


12
KA 8
12
7


12
KZ-5
12
KZ-3

12 Metre Influence on the Evolution of Yachting

The 1987 America's Cup was a turning point for the Class: concluding the presence of the Twelves as Cup protagonists, it was also the end of the Class's dominance in the sailing technology.

With one hundred years of history, and thirty as protagonists of yachting's principle event, what we have already read will allow us to make some interesting considerations.

The long pause imposed by the Second World War created a hiatus, and we are now able to distinguish two distinct periods in Class history: before and after the Second World War.

The Racing

The period before World War II was characterized by passionate racing and championships, with dozens of races run in fashionable venues. At the same time these 12s confirmed their seaworthiness with cruises and deliveries, not necessarily under ideal conditions.

There were yachts that were only raced in the shadow of their mother ship, while others were refined and comfortable with owners living aboard. At the same time they all showed themselves on the race course, occasionally even winning.

The Twelve sailing activity was concentrated:

- in Great Britain between June and August in and near the Clyde until the First World War, later in Southern England. Annual results included the events at Harwich, Southbend, Lymington, Bournemouth, Ryde, Southsea, Cowes, Weymouth, Babbacombe, Brixham, Torbay, Dartmouth, and Plymouth.
- in France in occasion of the Le Havre regattas
- in the Baltic at Kiel and Flensburg in Germany, along with the Norwegian races.

In the United States the Twelve Metres began to take part in the traditional New York Yacht Club events. Prizes were awarded in cash, and in the 1930's, a win was awarded with £20, a nice amount at the time.

Racing was also a fashionable occasion, and in England the high point of the season was Cowes

◀ *Erna Signe*, 1911, refit

Week. Here the Royal Family spent it's summer holidays, and the Solent filled with the aristocracy and upper classes.

After the Second World War, this all disappeared and was substituted with trials for Challenger and Defender selection and the final Cup Match. These were usually held in specific localities, with a public limited to enthusiasts, but with a significant media presence.

Designers and Yards

Most Twelve Metres were drawn by just a few men: Anker, Fife, Mylne, Nicholson and Stephens. With the exception of the latter, they had all passed away by the early 1950's.

With them the figure of the "personal designer". He was the designer the owner would turn to to design "his" yacht, with whom he discussed deck hardware and layout, below decks and finishing, he who put his soul and part of the owner's into the project.

Blue Marlin, 1937, refit

These names were also synonymous with the building quality of their respective yards, their own construction techniques, their manner of innovation when dealing with technologically advanced solutions.

Only Olin Stephens would carry on this great tradition. And though he did not have his own yard, he dominated by marrying his lucid intellect and his fertile creativity with tank testing, by integrating data from successive design versions, and by computer data. He participated in eight of the ten Cup challenges run in Twelve Metres, and won seven of them. The United States lost when he retired and was no longer the heart of Sparkman & Stephens.

After World War II, many new names came to the forefront: some as successors to these great designers, but primarily they were specialized technicians within a specific design sector. Rather than individual names, design studios became the norm. A design was no longer the result of a pencil, wooden model and individual genius, but of a working group with a new dominant protagonist: the computer.

▲ *Blue Marlin*, 1937, refit

There were also great changes in construction. Before 1939, Twelves were built of wood and their construction was limited to a few yards known for their productive capacity and the quality of their work, with elegant and perfectly rendered interiors.

With the exceptions of Abeking & Rasmussen and Luders, they have all disappeared. Once the new construction techniques in aluminum had been fully developed (*Gretel II* was built in wood in 1970), post war construction was taken over by specialized yards, yards created just for that yacht, or in subcontracting, with the yacht assembled elsewhere.

We also find that interiors have disappeared. Carrying only the necessary gear for racing, the hulls are empty. Everything is subservient to a single end: a better chance of victory.

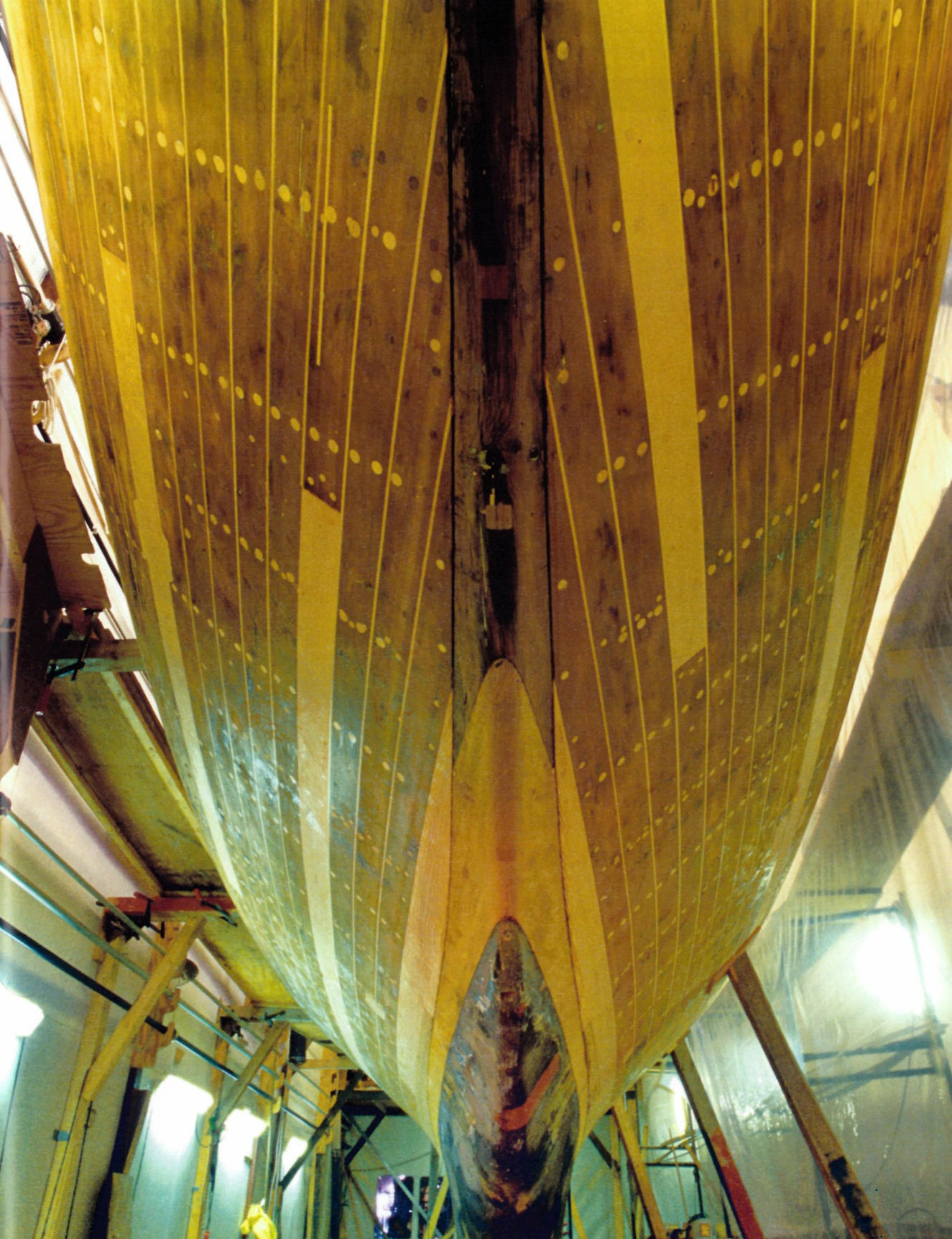
The Technological Leap

Again we must underline that, for the first time in history, an International Rule was neither contested, nor subject to cheating, nor abandoned in favor of another rule or one-designs.

The first thirty-five years of 12-Metre Class history (1907 - 1940) witnessed continual and gradual evolution in:

- **Formulas**: the difference between the First Rule's formula and the formulas for the Second and Third rule were notable and brought about a definite improvement in Twelve design and performance;
- **Design**: a Twelve's performance is tightly linked to the quality of the design and her designer's capabilities;
- **Hull Construction**: hulls built in the United States use double planking, giving greater stiffness for less weight;
- **Spars and Rig**: the revolution from gaff to the more efficient Bermudan rigs in turn influenced the evolution of mast construction according to the Rule. First hollow wooden masts with their lighter weight and increased rigidity, while towards the end of the 1930's the first aluminum masts appear (*Vim* and *Nyala*). Standing rigging also evolves with new technology, foil profiled rigging appearing at the end of decade;
- **Sails**: continuous improvement in cut and weave quality were found in the cotton used, but it is the factor that was least subject to radical innovation;
- **Belowdecks**: after the innovations of the Second Rule, nothing changed for many years: interior layout was not seen as something that would enhance performance, until the use of plywood in *Flica II*.

Vema III, 1933, refit



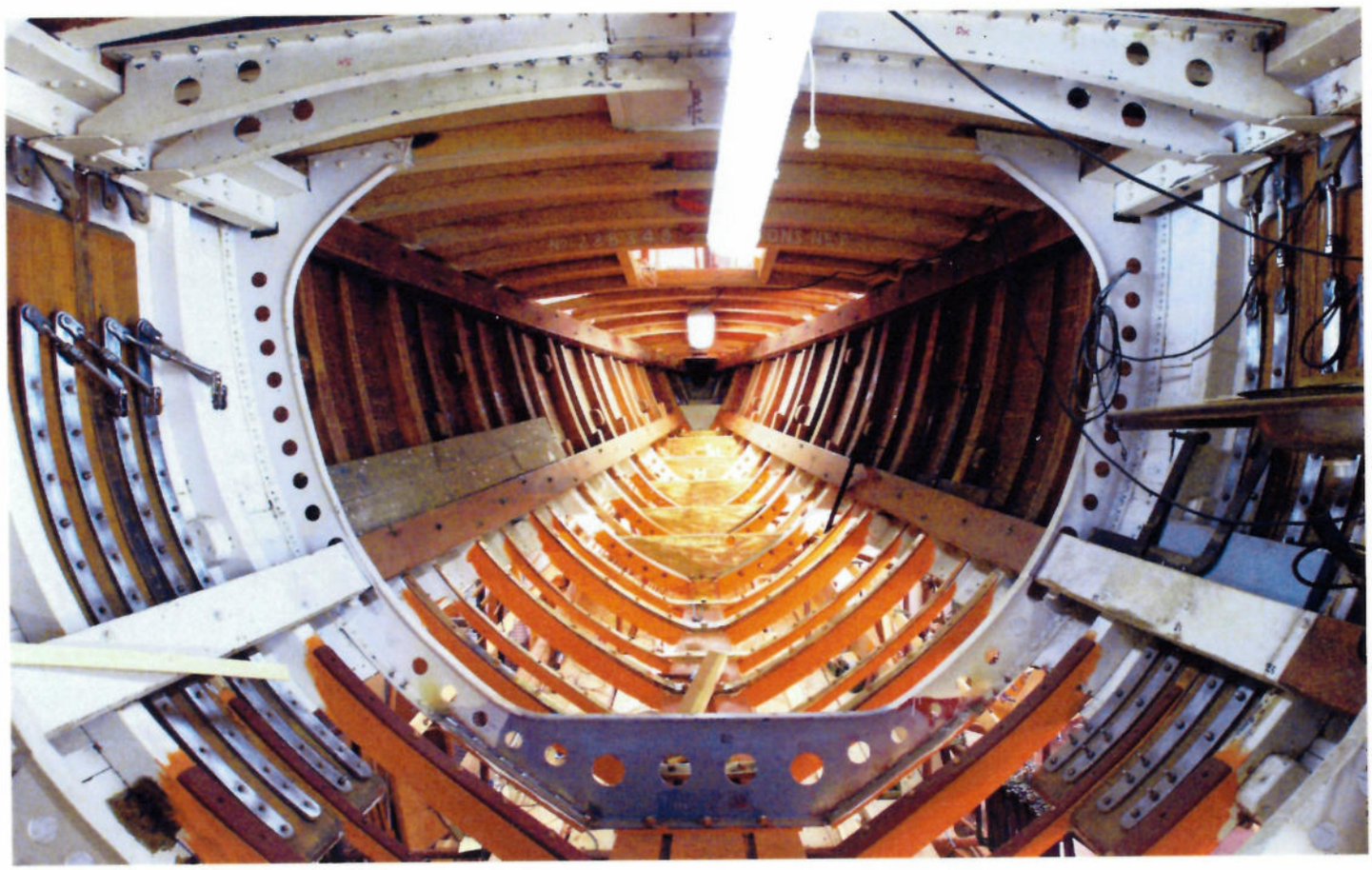
The sum of this evolution was ***Vim***, the most revolutionary and advanced pre-war Twelve.

The America's cup created a technological revolution. Twelve Metres were sounding boards for trials and experiments in materials, technologies, design programs; new solutions in extreme conditions, the results of which are applied not only to the rest of the sailing world, but also to other sectors of industry.

How and where did 12s innovate? Let us make a quick analysis, once again referring the reader to Chris Freer and his book, "***The Twelve-Metre Yacht***".

a) Design

Computer use became fundamental, designers connecting directly with the huge machines used for university research and in industrial design. Tank testing was also imperative, with ever larger and more numerous models.



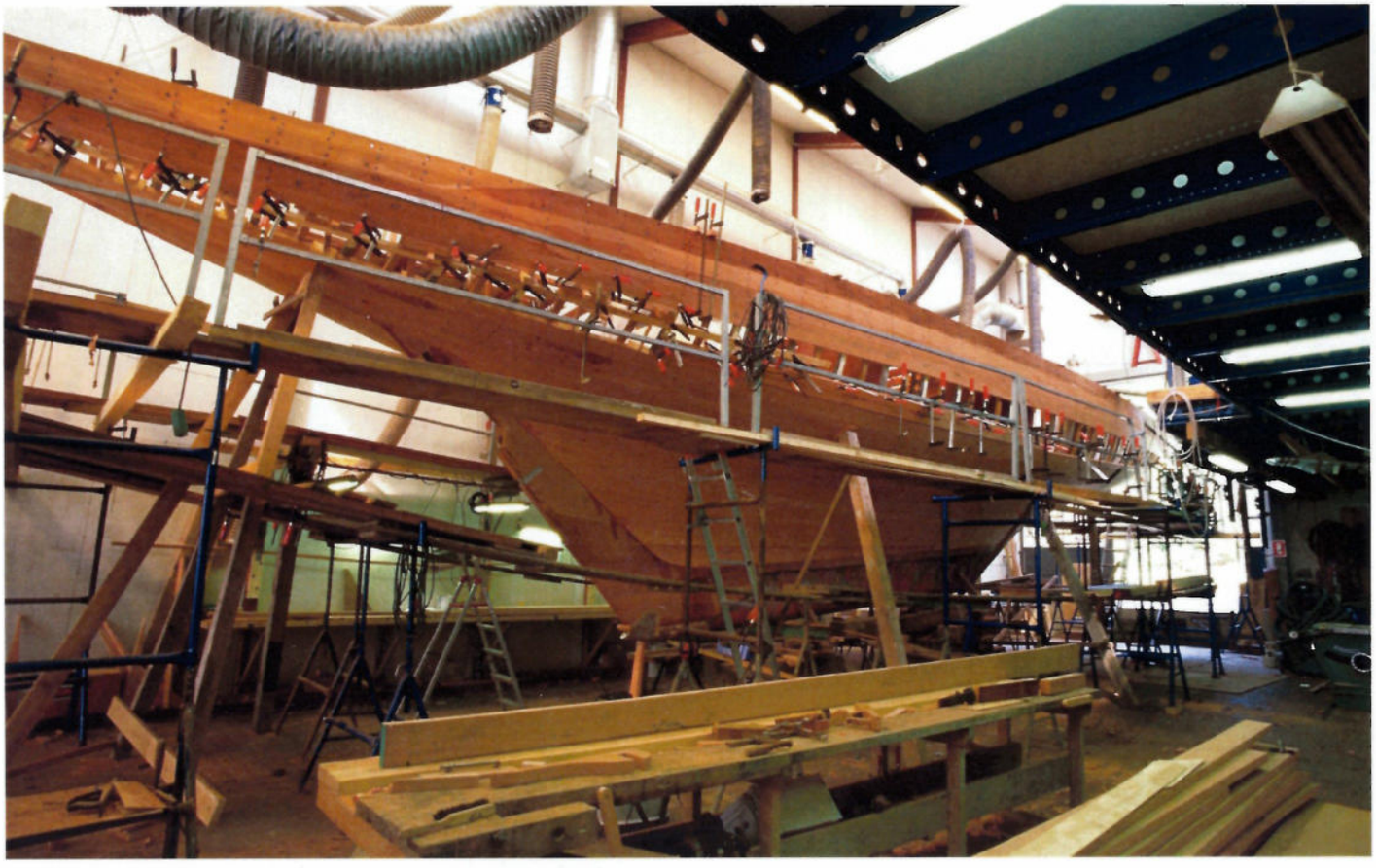
Vim, 1939, refit

Hull shape refined and incorporated Stephen's two revolutionary solutions for ***Intrepid*** in 1967- a shorted keel separated from the rudder. This decreased wetted surface and increased maneuvering speed. In 1983 ***Australia II*** was the first to mount two winglets, which simultaneously reduce draft and lower the center of gravity.

b) Hull

Lighter and more rigid hulls are the aim. Wood hulls are built double planked, but again Olin Stephens innovated with the first aluminum hull, saving two tones, to the advantage of on-board hardware and added weight in the keel. Fiberglass will be the merit of the New Zealanders with the first hull of ***New Zealand*** in 1986.

Lowering the center of gravity, all possible maneuvers are brought below decks, including winches and coffee-grinder commands.
Twin helms were born.



▲ *Erna Signe*, 1911, refit

c) Spars

Wood was left behind for aluminum, and ***Gretel*** will use the first tapered mast. Booms and the upper halves of masts are made in titanium to save weight aloft, by lowering the center of gravity and increasing righting moment.

d) Sails

A real revolution took place for the first America's Cup challenge of 1958 when Ted Hood tried out the first dacron sails on ***Vim***, to be used later on ***Columbia***. Since then, sails assume a vital importance both in race results and as a part of overall costs. The use of computers in sail design, and the change from woven materials to plastic panels (1977) allow unthinkable performance increases, but at the same time need highly strengthened masts, rigging and hulls. There were no spending limits for lighter and more rigid sails, giving acceleration and speed to the yacht unimaginable before, and ever more sophisticated materials (Mylar, Kevlar, Spectra) called for ever more sophisticated tuning. Sails are now composite to optimize a material's characteristics in different parts of the sail. Aramaic resin materials give greater rigidity and are used at the points of highest stress. They are combined with polyester panels for the areas needing high aerodynamic efficiency.

Costs increase exponentially (see the following section), as the number of sails required increases, each with a specific wind range and sea state.

If the Cup is only four races long, a participant's preparation lasts at least a year. With a sail budget of over half a million dollars in the 1980's, someone responsible to oversee the expenditures was also needed. New materials allow significant weight savings, and a sail livery in 1974 was composed of a mainsail, five genoas and six spinnakers weighing in at 600 kg, while ten years later with the new materials (and one more genoa and spinnaker) it was down to only 440 kg.

Costs

We have already noted that a First Rule Twelve cost about £1,850. This increased to about £4,850 for Twelve at the end of the 1930's.

At the beginning of the post-war Cup, costs are much higher and the NYYC Syndicate needed $300,000 for the ***Columbia*** campaign.

As the years go by, the complexity of mounting a challenge causes costs increase exponentially.

◀ *Nyala*, 1938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The 1974 defense cost the Courageous Syndicate $1,250,000, of which $850,000 were for the boat and fitting out, while $400,000 were destined to logistics (transport, crew, port dues, administration, and so forth).

Ten years later, the campaign for a Cup challenger was estimated to cost about $3,000,000, with $1,400,000 for the design, construction and fitting out, and $1,600,00 for logistics.

Hull construction alone cost $180,000, budget for the sail program for the entire campaign was $600,000.

Vema III, 1933


GB 2

a new Summer...

After ten editions, the 26th America's Cup was the last to be run with the Twelve Metre Class. High costs and a general feeling that the International Rule had outlived it's usefulness bought forward the adoption of a new class of yachts, named and built expressly for the Cup: the International America's Cup Class (IACC). Compared to Twelve Metres, the IACC are longer (75' LOA), lighter (24 ton displacement, 34% lighter), with increased sail area (500 m^2, a 66% increase). They are a spectacular concentration of high technology, and are in no way related to the eighty year history of the International Rule.

What a long way we have come from when Johan Anker sailed **Rollo** from Oslo towards Cowes, to beat his friends and rivals.

The International Rule is now more than 100 years old, and along with the 6 and 8 Metre Classes, the Rule shows no sign of aging. The activity of the three Classes continues at full regime, with successful regattas and dozens of yachts at their respective national championships. No new builds are foreseen for the Twelves (contrary to the two other classes), with the exception of the replica of ***Javotte*** (to be named ***Kate*** - in any case she will be built with modern technology and materials) and a never before built Anker design.

Ten years ago many 12s were to be found in sheds ashore; now not many are left abandoned, and in the foreseeable future we can imagine that almost all remaining Twelve Metres will be back on the water.

The heart of this renewed activity is the International Twelve Metre Association (ITMA). The Association has regained and stimulated the interest of owners, revitalized the class, and updated the rules with the "International Twelve Metre Class Rule 2001" and following versions.

Twelve Metres are now divided into several sub classes to be able to race together.

We must mention "Appendix E" of the 2001 Rule which states that Classic and Vintage Twelve Metres must be in line with the version of the Rule in being at their launch.

In the meantime, new fleets have come into being, staging a succession of lively events, and characterized by a less extreme professionalism than in the days of the America's Cup. We now have

◀ On board ***Seven Seas***, 1935

the American races, between June and September in the New York area; the Baltic Season, in continuous expansion with yachts from Denmark, Norway, Sweden and Germany; and the Mediterranean events, concentrated on the French Riviera.

Charting a Twelve also contributes to the finances of running a Twelve Metre today. In Newport, Rhode Island, both Seascope and America's Cup Charters have a wide choice of classic and modern Twelves to choose from. The resources garnered from charter activity allow many historically important Twelves to be maintained in perfect shape.

The growing worldwide interest in traditional yachts has benefited the 12s too. During the 1980's, both in America and in Italy, the 12s are again under scrutiny as elegant seaworthy yachts, giving great satisfaction both in racing and cruising.

If thanks are due to Bob Tiedermann in the United States, with both ***Gleam*** and ***Northern Light*** racing again, in Italy we must praise Giorgetti & Magrini, who dedicated part of their work to researching and refitting Twelve Metres. The first important restoration was undertaken on ***Tomahawk*** in 1987 by her new owner Alberto Rusconi. Both ***Cintra*** and ***Vim*** were later restored for the same owner, with ***Trivia*** and ***Flica II*** restored for other ones. The fever spread, and in the following years in Europe all the following Twelve Metres are restored: ***Erna Signe***, ***Evaine***, ***France II***, ***Magnolia***, ***Nyala***, ***Seven Seas***, ***Thea***, ***Vanity V***, ***Varuna***, ***Vema III***, ***Wings*** and ***Zinita***. More recently ***La Spina***, ***Anitra***, ***Heti***, ***Sphinx*** and ***Inga*** have been completed, while ***Blue Marlin*** and ***Danseuse*** are about to be completed.

It's like re-reading the annals of yachting during the Thirties!

Conserving the integrity of pre-war 12s during restoration is based upon two suppositions.

One: Twelve Metres built to the Class Rule previous to the America's Cup races can never compete with boats designed for those races. The technological advances and the nature of the races are such to make this impossible. Therefore it is foolish to try to bring an older Twelve ***up to date***, the only result would be to compromise a boat which has important historical value. The pre-war Twelve was born to voyage and to race, with sea-keeping qualities that were demonstrated in numerous crossings between England and the Continent. The Twelve Metres that raced for the America's Cup were built for match racing in special conditions dictated by the venue.

Two: the design of Twelve Metres during the first 35 years of the International Rule developed according to the technology then available; we have discussed the influence that new techniques and materials had on them. The last boats launched before the war, like ***Vim*** and ***Tomahawk***, manifest an equilibrium of all the elements involved; spars, hull, rig and sails, using the most ad-

On board ***Kookaburra II***, 1985


K-14
K-14

vanced technology then available. Modernizing a classic Twelve means compromising this harmony and destroying a classic boat (not to mention the risk of breakage when loads transmitted to the hull and spars are vastly increased beyond what they originally were).

According to this school of thought, the refit was undertaken in accordance to the original drawings. *Cintra*, *Trivia*, *Flica II*, *Nyala* and *Vanity* were restored in this manner.

Others have gone in the opposite direction with less orthodox refits with ample use of modern materials and technology. If the rig used was not original, sails were cut with modern materials, winches bigger and more modern, the interiors not at all according to style and period Rule, these can be judged as factors of a more or less gravity. But the use of episodic resins or lamellar planking, using technologies completely unknown at the time of original construction, are surely to be condemned. Unfortunately, with several of the aforementioned factors taken together, we must ask ourselves why wasn't a replica made, instead of completely altering a period hull. If the answer is linked to the ambition to restore that particular Twelve, here we have completely lost the

◀ *Flica II*, 1939 ▲ *Seven Seas*, 1935 ▼ *Vema III*, 1933

soul of the yacht and have contributed to completely destroying her.

Let us discuss the restorations of ***Cintra*** and ***Nyala***.

Cintra dominated the racing season in England in 1909 and 1910. With ***Magnolia***, she is the oldest Twelve still in existence and the only one with her original gaff rig. She was found in 1990 in terrible condition, converted to cruising, with a two level deckhouse exaggeratedly high compared to the freeboard, her stern cut off and a big inboard motor installed.

The restoration was supervised by the Studio Giorgetti & Magrini and done by the Cantiere La Bussola at Fiumicino. Those few elements found were used in the reconstruction: some photos, the original sail plan, an overall drawing and sketches of the mast made by William Fife. Roughly 50% of the original planking in Honduras mahogany was in reasonable condition while the knees and ribs of galvanized iron, typical of construction at that time, were in poor condition. Fortunately the acacia ribs were in excellent condition, so that it was possible to work on the planking

without the risk of deforming the hull. The deck beams of elm, the keel, the stem and stern posts were also in excellent condition. The upper part of the rudder and the rudder housing were in oak, equally in excellent condition.

After partial removal of the hull planking, the deck was rebuilt: sheets of 20 mm marine plywood covered with planks of 15 mm yellow pine (like the original decking) and by mahogany partners, carlings and hatches. The hull was then planked and caulked and afterwards treated with modern products. The lack of original plans led to an intense search among old photos and books in order to reconstruct the mast and rigging. The only modern concessions were six small winches for two halyards, the main sheet and the lower running back stays. The interior was restored to its original smaller volume. Moving forward, we have the engine compartment with the batteries, fuel tanks and the small auxiliary motor; the companionway steps separate the chart table to starboard from the oilskin locker to port, two facing leather couches, a bulkhead dividing the living area from the working area, the galley to port, heads to starboard, and the sail locker in the bow.

The result cannot be criticized; it is enough to compare the Beken's 1909 photos to those made today.

In 1995, the restoration of ***Nyala*** was of a different order of magnitude as she arrived at the Cantiere Navale dell'Argentario on her own bottom from Livorno, where she was delivered from the USA on the deck of a freighter. She needed work to eliminate past modifications and sloppy workmanship.

Regarding the construction techniques of the epoch and especially those of the Nevins yard where the double planked ***Nyala*** was built, the original drawings were fortunately available for consultation, as were Sparkman & Stephens. At the time the use of glue in marine construction was limited and greater reliance was placed on the accuracy of the woodworking while pegs and screws in silicon bronze, together with the caulking, held the structure together and watertight. The hull was rebuilt using the original timber and techniques. In order to work on the structure of the boat the interior was removed. A large part was the original Eastern White Pine, which was saved and reinstalled after the other work was finished. The double planking below the waterline was replaced, some of the oak ribs, the bronze and steel knees were all replaced. The mast step was put back in its original position, having been moved about a meter aft some time earlier. A 62 HP motor with a drive shaft length of over 5 meters was installed under the cabin sole to lower the centre of gravity. The deck was rebuilt with 35 mm planks of Sitka Spruce, using the traditional method of cotton caulking covered with black rubber. The mast partners were replaced. The deck beams, after removal, were partially replaced. The stern and transom were re-

▼ *Nyala*, 1938

built. The cockpit was rebuilt as originally designed. The deck hardware is composed of the restored originals, including the original coffee grinders constructed by the Nevins yard. The hatches, excepting the centre hatch, were rebuilt following the original plans. The same American woods used during ***Nyala***'s construction were procured for the restoration. All the screws are of silicon bronze.

But one important detail remains to be discussed: the mast and the rudder. Considering the care taken overall to reconstruct faithfully; it seems strange that in both cases the owner requested that carbon fiber be chosen as the material for the mast and rudder. The intent was to improve her sailing performance, but the result was contrary to expectations. The natural rigidity of carbon fiber added to the excessive thickness required by the minimum weight requirement resulted in a mast which impaired performance. Added to this were the difficulties with the rudder, which was a source of turbulence. Adding insult to injury, ***Nyala*** was disqualified from racing on account of the above mentioned modifications as they were in contrast with the current CIM rules.

The following year the rudder and mast were changed: the rudder was rebuilt in wood following the original plans and was better integrated with the hull lines, the mast was rebuilt according to the model made by Sparkman & Stephens in 1939 to replace the original wooden mast, utilizing the experience of ***Vim***.

Nyala gained a half-knot and went back to racing with her original balance, and to winning: in 2008 she won the Twelve Metre Worlds in Flensburg (Germany). This is the best argument for strict restorations, respectful of the original design and the era in which it was produced.

Regarding modern Twelves, restoration is not the proper term; it would be better to say extra-ordinary maintenance with the aim of bringing the yacht back to her original state, while updating onboard equipment. New interiors for cruising have also been implemented.

In this category fall ***Columbia***, ***Courageous***, ***Easterner***, ***Enterprise***, ***France II***, ***Gretel II***, ***Intrepid***, ***Ikra II***, ***Sovereign*** (modified in 2000 in her bottom) and ***Victory '83***.

At the beginning of the 21st century, interest in Twelve Metres has spread across the world.

At the 2001 World Championships thirty-five yachts, a number never before heard of, were present at Cowes during the America's Cup Jubilee.

This was an exceptional moment, but such numbers demonstrate the vitality of the class and was the turning point for years to come. In fact, the next four editions of the 12 Metre Worlds have been equally successful.

The American journalist and yachtsman Carleton Mitchell, owner of ***Finisterre***, and author of the volume dedicated to the first Cup in Twelve Metres, entitled the volume "***Summer of the Twelves***". Fifty years later we would like to end this new edition with the desire that today we are again witnessing a new summer for the 12 Metre International Rule and the Twelve Metres.

the Hall of Fame

Johan Anker (1871-1940)

Johan Anker was born in Halden, Norway, to a well known family of important entrepreneurs in the timber industry. Owners of vast forests, the Ankers were very active in national politics of the time. As a young man, Johan Anker looked after the family properties; at thirty-four he decided to leave the family business to become a full-time naval architect.

After having won a state-funded scholarship to study yacht design under William Fife III and Max Oertz, in 1905 he decided to found his own yard with yacht builder Christian Jensen. Anker & Jensen A/S stood in Vollen, close to Oslo. Their association lasted only eight years, and in 1915 Jensen left the company, selling his shares to Anker and establishing his own yard. Anker & Jensen, considered one of the most important Scandinavian yards, continued under the same name until the end of the 1930's.

In addition to the activity of the yard, Anker also designed and raced, establishing himself as one of the most competent authorities in all aspects of yachting. Together with William Fife III, Alfred Mylne, Alfred Benzon and Charles E. Nicholson, he was part of that small group of leading experts which, with the collaboration and under the guidance of Brooke Heckstall-Smith, studied and launched the technical rules that guided yachting history in the first half of the Twentieth Century; ***in primis***, the International Rule and its different versions.

One of the best sailors of the time, he won an incredible number of races. Of special importance are his Olympic gold metals: in the Twelve Metre Class with ***Magda IX*** in the 1912 Olympic games; his designed and built yachts won two gold medals in the same class in 1920; in the Eight Metre Class he won three gold metals in 1912, 1920 and 1924, and two silver medals in 1920 and 1936; in the Six Metre Class he won two gold's in 1912 and again in 1928. The Norwegian royal family, especially King Haakon and Crown Prince Olaf, were also passionate yachtsmen; they became fast friends and Anker often helmed their yachts.

Anker & Jensen built prolifically over the years. Although the yard never built very large yachts, the number of metric boats produced is impressive. Total production was 430 yachts, among which were two Fifteen Metres, fifty-two Eight Metres and sixty Six Metres. As far as the Twelve Metres are concerned, Anker is the Class's most prolific designer with twenty yachts, all very elegant and fast. Only four are still sailing: ***Danseuse***, ***Désirée*** (ex-***Sybillan***), ***Thea*** (ex-***Santa***) and ***Vema III***.

Above all the Anker name is responsible for one of the world's most famous and successful designs: the Dragon. Still in production, thousands of this one-design have been built and the class is always very active.

Towards the end of the Thirties, due to the difficult international economic situation and fierce competition from the Bjarne Aäs and Christian Jensen yards, Anker & Jensen's activity was reduced to a minimum and rented to two of the employees. Johan Anker returned to his family business. He died shortly after, in a now Nazi occupied Norway.

Nothing better than the following could resume the great talents of this reserved northern gentleman: in 1911, Anker leaves Oslo on ***Rollo***, the Twelve Metre yacht designed and built by himself and by sail he arrived in Cowes. ***Yachting World*** confirms: "In 1911 he attended the Cowes week winning four firsts and one third out of seven entries. He entered also the first Europe Week still in Cowes. In this class we had the one outstanding victory of the regatta, ***Rollo***. Mr. Anker's yacht of his own design and building is no slouch. With large body and more sail than the others, she is a fine type of boat, and her designer sailed her with great ability. Mr McIver set his teeth in a long cigar, and he had Mylne with him in the cockpit; but neither ***Javotte***, ***Alachie***, nor ***Ierne*** could hold the Norseman with her

black hull and red-jerseyed crew. At the celebration dinner, the President of the Royal Yacht Squadron granted Anker and his crew as follows: "Our Norwegian friends have built their own boat, have sailed across the North Sea, manned by their own crew. They arrived here safe and sound and they have now won nearly all the first prizes in the races. That is what I call sport". (Yachting Monthly, Sept. 1911)

David Boyd (1902-1989)

Born in his family home at Fairlie (Scotland) in 1902, David's father was employed as a carpenter at the Fife yard. The Boyd family moved to Ardrossan when David was fourteen; having completed his studies at Fairlie, Boyd found work as an apprentice in a shipyard and enrolled in evening courses at Glasgow. After finishing his apprenticeship, Boyd held several different positions before returning to the Fife yard as a draftsman. It is here that Boyd added Fife's elegance and work organization to his already extensive experience in design and construction.

In 1931 Boyd moved to Sandbank where he collaborated with the Alexander Robertson & Sons yard, bettering the already high quality of his work. As head designer for the yard, Boyd drew the lines for several cruising yachts, including his favorite, ***Zigewner***, a 34 ton yawl, in 1936. In the same year he became director of the yard. In 1937 he drew the lines for the Six Metre ***Circe***, his most famous design, winner of the 1938 Seawanahaka Gold Cup, where she defeated ***Goose***, designed by Olin Stephens. ***Circe*** successfully defended the Cup in 1939 against the Norwegian ***Noreg III***. The yard continued its Six Metre production after the war and became the principle European builder of the class.

Several other designs carried his name: ***Titia*** also won the Seawanahaka Cup, and represented England at the 1952 Helsinki Olympics; ***Royal Thames*** won the One Ton Cup in 1958; several 5.5 Metre and cruising yachts were launched; in 1966 he drew the lines for ***Piper***, a very successful 24 foot one-design; in the mid 1960's came ***Sunburst***, an Eight Metre CR that dominated the class.

Boyd's fame was tied to the Twelve Metres he designed for the America's Cup: ***Sceptre*** was the 1958 Cup Challenger, though defeated by ***Columbia*** 4-0. Then came ***Sovereign*** for the 1964 Cup, losing to ***Constellation*** and ***Kurrewa V***, the Twelve commissioned by the Livingstone brothers in tandem with ***Sovereign***. These three designs were the cause of considerable criticism, mostly unmotivated. The designs, not only elegant, were competitive, and their lack of success in the Cup should be attributed to the clear superiority of the exceptional design capacity of Olin Stephens, perfect American organization, and the inefficiency of the English skippers and crews.

Boyd retired in 1967 and dedicated his remaining years to his passion for nature, passing away in 1989.

Philippe Briand (1956)

Philippe Braind was born in La Rochelle (France) in 1956, son of Michel Braind, a well known yachtsman. As a young man, Briand decided that his future was in yacht design, and at the age of nineteen collaborated with Pelle Petterson, developing the Twelve Metre ***Sverige***, the Swedish challenger for the 1977 America's Cup.

Briand opened his own design office in La Rochelle in 1978, "Philippe Briand Yacht Architecture". A brilliant designer and yachtsman, Philppe Briand has created a considerable number of large designs. He is also well known for his design of the Twelve Metre ***French Kiss***: she gained the semi-finals in the Freemantle America's Cup challenger series in 1987. ***Mari Cha III*** and ***Mari Cha IV*** were also skippered by Briand, twice bettering the Atlantic crossing record. He continues his design interest in the America's Cup with lines drawn under the new rules.

William Starling Burgess (1878-1947)

William Starling Burgess was one of America's most famous and eclectic architects. Born in Boston in 1878, he was the son of Edward Burgess, the designer of the three America's Cup defenders ***Puritan***, ***Mayflower*** and ***Volunteer***. Starling Burgess, though orphaned at twelve, inherited his father's analytic spirit and experimental nature. He grew up in a period of financial difficulties; though the Burgess' were an eminent and well-to-do Boston family, in 1875 they unfortunately lost most of their patrimony. Though enrolled at Harvard, Sterling left his studies soon after starting.

William Starling Burgess was known for his eclectic nature:

- Yacht designer and builder, three time winner of the America's Cup and creator of many innovative designs. In 1905 Burgess opened a shipyard in Marblehead, Massachusetts; here he designed his most popular boat, the 14 foot ***Brutal Beast***. Known for it's simple construction, it was the most popular mass-produced school boat until the 1940's. After the First World War, he returned to yacht design with his plans for the three J-Class America's Cup defenders: ***Enterprise*** in 1930, ***Rainbow*** in 1933 and ***Ranger*** in 1937. Teaming up with other architects (Frank C. Paine, among others), their collaborative efforts gave birth to many other designs: the most memorable were ***Advace***, ***Gosson*** and ***Ellen***. An avid researcher in the behavior of metals, Burgess became a consultant to the Aluminum Company of America. Here he created several special aluminum alloys used both in the construction of ***Ranger*** and in the automobile industry.
- Aircraft designer since 1909, when he opened the Herring-Burgess Company in Marblehead with Augustus Moore Herring. During the First World War the company was one of the largest local employers with an 800 strong workforce. The company's many projects numbered building aircraft under license from the Wright Brothers and seaplanes for the American and Canadian armed forces. Starling Burgess sold the company in 1917. Later absorbed by the Curtiss Aereoplane and Motor Company, Burgess continued as a consultant for the US Government.
- Experimental automobile designer
- Poet and editor

Starling Burgess' Twelve Metre designs emerged from his close ties with the Abeking & Rasmussen yard. Rasmussen met Burgess in 1920 and although their collaboration began with motorboats, their rapport developed further with the construction of several Metric class yachts, six of which were Twelve Metres: ***Anitra***, ***Iris***, ***Isolde***, ***Onawa*** and ***Waiandance***.

His sentimental life was just as memorable, with five marriages, divorces, scandals and five children. William Starling Burgess passed away in 1947.

Britton Chance jr. (1940)

Born in Philadelphia in 1940, Britton Jr.'s father was a scientist and olympic champion with a gold medal in the 1952 Olympics in the 5.5 Metre Class. At fifteen, Britton Jr. decided on a career in naval architecture. Starting with correspondence courses, during summer vacations Chance attended the Stevens Institute where he worked for a few months with Ray Hunt. Later, in collaboration with Ted Hood, Chance Jr. participated in the ***Nefertiti*** project, primarily in tank testing. In 1967 his 5.5 Meter design ***Cloud IX*** won the World Championships, and the 5.5 Metre ***Wasa*** took the gold medal in the 1968 Olympics. With these successes Britton Chance Jr. made his name, and with numerous winning designs under the IOR. he also asserted himself outside the Metric Classes.

With his first Twelve Metre, ***Chancegger***, Chance began his collaboration with Baron Bich in 1968. ***Chancegger*** was followed by ***Mariner***, then the

modification of *Intrepid* for the 1970 America's Cup. Chance then collaborated with David Pedrick and Bruce Nelson for the series of four *Stars and Stripes*, with the final *Stars and Stripes '87* bringing the Cup back to the United States.

Clinton Crane (1873-1958)

Clinton H. Crane was an atypical figure among yachting designers. He received his degree from Harvard in 1894 and promptly moved to Scotland to continue his studies at Glasgow University. Returning to his home country, he established his company in 1900. Dedicated to both motor and sail yacht design, he worked as an amateur, designing just for himself and his friends. Of special notice was the design of *Endymion*, a schooner which held the record for the Atlantic crossing until bettered by *Atlantic* in 1905.

The sudden death of his father in 1912 forced Crane to close his design office and work full time in the family's mining activities, where he remained as president until 1947. But from 1922 on he continued yacht design part-time, creating several important designs. *Weetamoe* was a J Class, drawn with the assistance of Cox & Stevens for the defense of the America's Cup; she made it to the semi-finals. Crane also drew several designs to the Universal and International Rule. Two Twelve Metres were of particular interest, *Seven Seas* and *Gleam*; both are still sailing and in splendid shape.

William Fife III (1857-1944)

Born in Farlie, on the Firth of Clyde, Scotland, William Fife III (or Jr.) was the third generation of the famous family of Scottish yacht designers and builders to carry on with the family tradition. The Fife shipyard was established by William's grandfather, William Fife I, in 1807; the first large yacht constructed was *Lalash*, built directly on the village beach in 1812. William Fife II began to work in the yard in 1835; he continued and expanded his father's activity. William III built his first yacht in 1890 and soon became the most famous of the three, with the yard becoming the most important of the period. Inheriting an important Scottish tradition of builders was of no detriment to him however: William III was rightly known on his own merits. Fife was also noted for his commercial ability, receiving orders from European royalty, high-society families, and from countries as far away as Australia.

The success of William III's yacht *Dragon* prompted him to adopt the symbol of a chinese dragon as the symbol of the yard, and from then on his designs became known with this name. His yacht's were extremely elegant (the only prerogative of his designs), robust, and of high quality construction, all due to the maniacal attention of their builder.

Fife designed two yachts for Thomas Lipton and his America's Cup challenges: *Shamrock I* and *Shamrock III*, beaten respectively by *Columbia* in 1899 and *Reliance* in 1903, the latter both Herreshoff designs.

The emergence of the International Rule brought commissions for Fife to build dozens of yachts to the Rule: the 23 Metre *Cambria*, the 19 Metre *Mariquita*, and the 15 Metres *Shimna*, *Mariska*, *Hispania*, *Tuiga*, *Vanity*, *Sophie Elisabeth*, *The Lady Anne* and *Maudrey*. Forty-four Eight Metres and dozens of Six Metres were also built.

Fife built nineteen Twelve Metres; eight still exist and are either sailing or about to be restored: *Cintra*, *Magnolia*, *Erna Signe*, *Mariline*, *Lady Edith*, *Zinita*, *Miquette* and *Vanity V*. Among the Twelve Metres built in Great Britain, perhaps Fife's 12s weren't faster than the Mylne and Nicholson designs, but they were undoubtedly the most elegant. Nicholson designed nineteen Twelve Metres and Anker was attributed with twenty.

Apart from his racing designs, Fife also designed several yachts for cruising. Still sailing we have *Altair*, *Belle Aventure*, *Hallow'een*, *Kentra*, *Moonbeam III*, *Moonbeam IV* and *Sumurun*. William III's

definition of a great yacht remains valid: a yacht must be both "fats and bonnie".
William Fife III died in 1944, single and without children. His name was entered in the America's Cup Hall of Fame in 2004.
The yard continued it's activity for a short period under the guidance of a grandson.

Franco Giorgetti & Giorgio Magrini

In the late 1970's Franco Giorgetti and Giorgio Magrini founded their design office, which thanks to their rigorous and precise design strategy rapidly became one of the leading Italian studios. They have drawn numerous medium and large yachts, both sail and power, for important owners.
Of particular interest is their activity in classic yacht restoration, where we find their work on *Creole* and *Te Vega*. They were also responsible for the restoration of the Twelve Metres *Cintra*, *Flica II*, *Tomahawk* and *Trivia*.
Giorgetti & Magrini were the designated designers for the "Consorzio Italia", with two Twelve Metres: *Italia I* and *Italia II*. *Italia I* was the pilot project for a final design, *Italia II*. Unfortunately *Italia II*, though benefiting from all the on the water testing of the first yacht, sank when launched, and compromised the final result.

Thomas Glen-Coats (1878-1954)

Son of Thomas Glen-Coats, first baronet and member of parliament. The Coats were a well known family of industrial mill owners. They were all passionate yacht racers with a strong love for the sea. George Coats was the owner of several sail and motor yachts, among which was the Twelve Metre *Alachie*; his brother Andrew was the owner of *Cintra*.
Thomas C. Glen-Coats began designing yachts as a very young man, and was often to be found in Alfred Mylnes' office. Coat's drew three successful Twelve Metres: Heatherbell, *Hera*, and *Iris*. The first was designed for Coats' uncle Andrew and built in the Alexander Robertson Yard; she sailed with Thomas as skipper. *Heatherbell* took part in the 1912 Helsinki Olympics under the Finnish flag. *Hera* Coats' designed for himself, and as skipper (with Alfred Mylne as a member of the crew) won the 1908 Olympics. Iris was the only second generation Twelve drawn by Coats; her lines were copied from the Six Metre *Echo*. She was also successful, finishing third in the 1927 class championships.

Frederick E. "Ted" Hood (1927)

Born in Beverly, Massachusetts, in 1927, he began sailing as a youngster in the waters of Marblehead. Ted Hood is surely one of the most famous sailors, designers and businessmen of American yachting. His curriculum is exceptional in all the activities that he directed personally.
Among his innumerable successes as skipper are the Bermuda Race, the Marblehead - Halifax, and the 1974 SORC. In 1974 he also won the America's Cup with the Olin Stephens designed *Courageous*. Hood built her; she was the first aluminum Twelve Metre. Three years later he designed *Independence* for the 1977 Cup. She was beaten in the challenger selection trails by *Courageous*.
Ted Hood's construction activity began in Marblehead, and in 1985 was moved to Portsmouth, Rhode Island, where he built the "Ted Hood Marine Complex". Part of this was Little Harbor Marine, a year-round assistance facility for his clients. Some time later Little Harbor transfered it's activity to Formosa (Taiwan). With lengths between 35 and 75 feet, over 6,000 Little Harbor boats were built before 1999, when he sold the entire complex to Hinkley Yachts.
Yet it was as a sailmaker that Ted Hood will be best remembered. He was a pioneer of synthetic sailcloth; sails of his own production were first experimented with in the 1958 America's Cup. Hood also pioneered the first roller-furling head-

sails, along with internal boom and mast furling systems. During the 1980's, Hood Sailmakers was the largest sailmaker in the world.
Regarding Twelve Metres, Hood designed ***Nefertiti*** in 1960, and ***Independence*** in 1977. His yard built ***Courageous***, which he skipped to victory in the 1974 Cup.
Today, Ted Hood is president of his design studio, Ted Hood Yachts, LLC. His name was inserted in the America's Cup Hall of Fame in 1993.

Ian Howlett (1949)

Born in England in 1949, Howlett is considered one of the most successful designers of modern and innovative yachts. Having concluded his studies at Oxford, he specialized in naval architecture at Southampton University, and completed his training as head of the tank testing and wind tunnel work units at Wolfson Marine Craft. In 1977, he left Wolfson to become an independent yacht designer and marine consultant. Success immediately followed with the design of the British America's Cup challenger, the Twelve Metre ***Lionheart***, well known for its revolutionary flexible topmast.
Victory'83 followed: as one of the outstanding Twelve Metres in the 1983 edition of the America's Cup, she is still considered the fastest Twelve built for the Cup with a traditional non-winglet keel. Modified and updated by Howlett in 2008, ***Victory'83*** began a new career by winning the Modern Category at the 2009 Twelve Metre World Championship in Newport. Howlett also designed another successful Twelve, ***Crusader***.
Howlett is specialized in the design of International Rule metric boats and is the author of breakthrough designs in both Six and 5.5 Metre yachts.

Steven Killing (1950)

Born in Canada in 1950, Steve Killing graduated from Western Ontario University in 1972, and until 1979 worked for the well known C&C Design Group. Killing accumulated enormous experience at the National Research Council of Ottawa in this period, completing an exclusive testing tank for hull models.
During his period at C&C, Killing was responsible for the revolutionary 40' design, ***Evergreen***, winner of the 1978 Canada's Cup where she beat Agape, a Ron Holland design. In 1979 Killing founded his own design office, "Steve Killing Yacht Design", well known for it's versatility and expertise with advanced material construction.
Steve Killing was involved in four editions of the America's Cup. First as assistant to Bruce Kirby in the design of the Twelve Metre ***Canada I*** in 1983, then as project manager for ***True North*** in 1987; he was also a consultant for Team New Zealand in the early 1990's.

Bruce Kirby (1929)

Born and raised in Ottawa, Bruce Kirby sailed as a youngster with his brother, and at the age of eight was given his first boat, a 12' Dinghy. Later, the Kirby brothers moved on to the International 14, with promising results. In the meantime Bruce continued his classic studies and graduated with a degree in journalism in 1949. He worked at the ***Ottawa Journal*** until 1975.
In 1956, in addition to moving to Montreal for a period with the ***Montreal Star***, Kirby was also a member of the Canadian sailing team at the Melbourne Olympics, where he finished eighth out of 24 in the Finn. In the Tokyo 1964 Olympics he came in eleventh in the Laser class.
In 1958 Kirby began his design career with an International 14, known as the ***Kirby Mark 1***. It was a successful design, with twenty-eight built in all, and two of them were used by the Canadian team, winners of the 1961 International 14 Worlds. Kirby went on to design other versions of the ***Mark 1***; particularly successful were the ***Mark III*** and ***Mark V***.
In 1965, Kirby and family moved to Chicago,

where Kirby took over as editor of "One Design Yachtsman Magazine", today known as "Sailing World". Six months after arriving in Chicago, Kirby was asked for a new design. The Laser was born in 1971 and so far 182,000 Lasers have been built. In 1993 the Laser was chosen as an Olympic Class and debuted in Savannah in 1996. The success of the Laser convinced Kirby to abandon journalism, and he began to design full time. Since then Bruce Kirby has created over 60 projects, both racers and cruisers. Notable are the San Juan 24 (a Quarter-Ton IOR), of which over 1,200 were built, and the 23' Sonar, with over 800 built.

Kirby also designed two Twelve Meters, ***Canada I*** and ***Canada II***. Both gave good results and are still sailing.

Ben Lexcen (1936-1888)

Yachtsman and naval architect, Lexcen was born as Robert Miller in Newcastle, Australia; at sixteen he designed his first boat and began to campaign her in local races. Soon after, Miller and his friend Whitworth founded Miller & Whitworth. Primarily a boatyard, they were also known as sailmakers and chandlers. One of their first important projects was the Contender, chosen as a possible successor to the Finn in 1967.

Miller's fortune began when he met Alan Bond. Bond commissioned an ocean racer from the young designer; ***Apollo***'s success opened a decade of collaboration between the two, culminating in their historic conquest of the America's Cup in 1983. Bond brought Miller's Twelve Metre ***Southern Cross*** to his first (unsucessful) challenge for the Cup in 1974; shortly therafter Miller left Miller & Whitworth, and to avoid confusion changed his name to Ben Lexcen.

After two more defeats in the 1977 and 1980 Cup challenges, Lexcen realised that only a decisive innovation would allow them to overcome the highly experienced Americans. His decision was to study emersed hull shape, with the aim of increasing stability and manouvrability. Gathering ideas from the aereonautical industry and other previous experiences, he designed ***Australia II*** with her winged keel; she also had the shortest waterline length of any Twelve Metre ever measured. The Americans protested in vain, as the Jury decided that the Australian design was within the rules both of the Twelve Metre Class and of the America's Cup. Attributing the design of the winged keel to the Dutch, and not to the Australians, was decisive.

With John Bertrand at the helm, ***Australia II***'s victory was the more exceptional as the series was won by a close four to three margin. Lexcen then designed ***Australia IV*** for the 1987 Cup, but she was beaten during the selection series by ***Kookaburra III***. For the first time in ten years, Australia's Cup challenge was not a Lexcen design. ***Kookaburra III*** then lost to ***Stars and Stripes '87*** four to zero.

André Mauric (1909-2003)

Son of a cabinetmaker, Mauric was born in Marseilles in 1909. A passionate yacht racer, he began his studies in mathematics, but the 1929 crisis forced him to interrupt his studies. Mauric taught himself naval architecture while working as a foreman in Charles Baudouin's shipyard, where he designed harbor craft and fishing boats until the beginning of the Second World War. Mauric also designed a few racing sailboats, including a version of the well known olympic Star class, and at the same time raced quite successfully. He made his name in 1972 with the half-tonner ***Unthinkable***; she won the Half-Ton Cup and her modified lines gave birth to the Beneteau First 30, the first boat of this size to be built in mass production. In 1973 he drew ***Melody***, a great success for Jeanneau, and ***Pen Duick VI*** for Eric Taberly's Whitbread attempt. In 1975 it was the turn of ***Jabadao***, followed in 1978 by ***Kriter V*** and in 1983 by ***Kriter VIII***. His America's Cup activity was limited to Baron Bich's two

Twelve Metres, ***France*** and ***France II***, neither of which was very fortunate.
Andre Mauric passed away in 2003.

Gary Mull (1937-1993)

Gary Mull earned his degree in mechanical engineering at U.C. Berkeley. As a designer, Mull was primarily known for his fiberglass yachts. His designs were built in series of various lengths. The most successful were the Santana 22, 27 and 37; the Ranger 22, 23, 26, 29, 32, 33 and 37; the Newport 30 and 33; the Freedom Independence 28, 30, 36, 42 and 45; the Humbolt 30 and the Pocket Racket. All these models were built in mass production as club yachts.
Gary Mull also designed several Six Meters, Half-Tonners, Two-Tonners and the maxi yacht ***Sorcery***. As far as Twelve Meters are concerned, Mull created two designs for the Golden Gate Challenge: ***USA*** (E-1) and ***USA*** (R-1).

Iain Murray (1958)

Australian, he distinguished himself in the Sydney 18' skiffs, winning six world titles in six years. In 1984 he also won the Etchells Worlds.
Murray's fame as designer emerged from his collaboration with John Swarbrick on the three ***Kookaburra***'s for the America's Cup Australian challenges. ***Kookaburra III*** won the challenger's selection trails, but was beaten four to zero by ***Stars and Stripes*** in 1987; she went on to win the 1988 Twelve Metre Worlds.

Alfred Mylne (1872-1951)

Born in Glasgow in 1872, Mylne was one of England's greatest naval architects. Known for elegance and exceptional sailing qualities, almost all of his designs were victorious. Alfred Mylne began his professional career as an apprentice to the Scottish yard of Napier, Shanks & Bell; in 1892 he began a further apprenticeship under George L. Watson, who valued him enough to bring him to the United States for the Cup match between Watson's ***Valkyrie III*** and the American ***Defender***.
Mylne opened his own office in 1896 where he was joined by Thomas Glen Coates. Member of an important Scottish textile family and passionate yachtsman, Glen Coates not only collaborated with Mylne but designed his own successful Twelve Metres, among which were ***Heatherbell***, ***Hera*** and ***Iris***.
The design office was very active in the Metric Classes; one of the very few 19-Metres ever built was his. ***Octavia*** was built for William Burton, a prominent figure in English yachting and important client for Mylne; for Burton he drew the Twelve Metres ***Veronica***, ***Marina*** and ***Jenetta***. The first and only Olympics for the 12 Metre Class were held in Scotland in 1908. Mylne took part with ***Mouchette*** and Glen Coates with ***Hera***; the latter won the gold medal.
In 1911, Mylne and his brother Charles bought the Bute Slip Dock yard on Bute Island. Here he concentrated almost all his yacht production. The Mylne design office was very active in producing both small and medium one-designs and larger yachts. Among the latter were ***Panda***, ***Panope***, ***Thendara***, ***Fiumara***, ***Albin*** and ***Radura***. Not all were built in his yard.
Mylne was an important designer of Twelve Metres: ***Mouchette***, ***Nargie***, ***Cyra***, ***Javotte***, ***Moyana II***, ***Marina*** and ***Jenetta*** all carry his name, and all were successful. ***Marina*** was an innovative representative of yacht rigging.
Alfred Mylne passed away in 1951, but his office continued under the guidance of his grandson Alfred Mylne II and later with Ian Nicholson. In 2007 it was incorporated into the Ace Marine design office.

Charles E Nicholson (1869-1954)

Charles E. Nicholson was born in 1869. His father, Ben Nicholson, began work in 1842 as a shipwright at Camper's Gosport yard; Camper was the great-grandson of Calense Amos who founded the yard in the 1700's. Ben Nicholson soon stood out at the yard, producing his own designs.

Camper retired in 1863, and Ben was his natural successor. The yard, now known as Camper & Nicholson, was financed by Camper and the Lapthorn sailmakers. When his three sons began to work at the yard, in addition to construction, Ben was responsible for the restoration and maintenance sectors. With Charles' natural design talent and the racing successes of his first designs, his father was happy to keep him in the company. Early commissions were for small boats, but large yachts were necessary for commercial success. This would be a difficult change to enact in the years bridging the turn of the century, given the new handicap rules. But first ***Brynhyld***, then ***Nyria*** in 1906 brought Charles into the nautical limelight. The new yacht was defined as magnificent, strong and fast: Charles Nicholson's fame and prestige went to the stars. The Fifteen Meter ***Istria*** was launched in 1912: a revolutionary design, she sported the first Marconi sail-plan. ***Istria*** beat all the Fifteen Meters of the time, seven designed by Fife and four by Mylne. The only sector where Nicholson had yet to garner success was with the large Class A schooners, dominated by America and Germany. Nicholson's answer was ***Margherita***, in 1913 the winner of all races but one.

By now Charles Nicholson's fame was such that Sir Thomas Lipton commissioned the new British challenger for the America's Cup from his pen. When the First World War broke out, with ***Shamrock IV*** in mid-ocean, the world of racing was brought to a halt. No resurgence in yachting was seen until the 1920's, even then a shadow of former times. As one of the first European architects to believe in the most important innovation of the century, in 1921 Nicholson decided to convert ***Nyria*** to the new bermudan rig. Ten years later, King George commissioned Nicholson to refit ***Britannia*** to take advantage of the latest universal norms, creating the largest Bermudan rig seen until then.

Most of Charles Nicholson's activity was concentrated in Six and Twelve Merte class construction. And with ***Vria***, now known as ***Creole***, he created the three masted staysail schooner rig, with staysails on all masts, reducing the need for a numerous crew.

In 1930 Sir Lipton commissioned another Cup challenger, ***Shamrock V***, from Nicholson, who then designed the two ***Endeavours*** for Tom Sopwith. The English didn't manage to take the Cup from the New York Yacht Club, but the first ***Endeavour*** was recognized as being faster than the American defender ***Rainbow***, and the second was the only challenger to have won a race from ***Ranger***.

During the Second World War Nicholson managed the conversions of many of his motor-yachts to wartime service. This was one of his last efforts: after the war he designed two dinghy classes and launched ***Deb*** in 1949, the first 5.5 Meter, destined to replace the costly Six Metres. His design career drew to a close and he was rarely seen in the yard. In 1951 his health worsened and he died in 1954 at the age of 85.

His name is written in the America's Cup Hall of Fame.

Nineteen are the Twelve Metres designed and built by Nicholson; all have achieved important results. The followeing are still in existence: ***Clymene***, ***Flica***, ***Foxhound***, ***Bloodhound***, ***Evaine***, ***Blue Marlin***, ***Trivia***, ***Wings***, ***Tomahawk***.

Max Oertz (1871-1929)

Born in 1871, the brilliant and eclectic engineer (he was also a pioneer in the aviation industry) began his building activity at first in Finland,

then in St. Petersburg. Oertz later opened his own yard near Hamburg. It rapidly became the best German yard, both for the excellence of his designs and the quality of their construction.
Though undoubtedly an excellent designer and builder, Oertz owes his fortune to Kaiser Wilhelm II, with his desire to bring German yachting to the highest level and rival his Royal English cousins, undiscussed leaders of yachting's great traditions. Almost inexistent at the end of the nineteenth century, German yachting rapidly rose to prominence in Europe and the world under the influence of the Kaiser and some of the important German families.
Max Oertz was one of the prime actors during of the time, with the design and construction of the Krupp family's ***Germania*** and the Kaiser's ***Meteor***.
Three Twelve Metres were designed by Oertz: ***Davo II*** and ***Davo III***, the latter still sailing as ***Noordster III***, while the former is considered to be the first Twelve Metre ever built. ***Heti*** is another Oertz Twelve, recently restored and given her original gaff rig.
Max Oertz passed away in 1929.

Alan Payne (1921-1995)

Australian, Alan Payne was born in 1921, and passed away in 1995. A brilliant naval architect, he began sailing in Sydney and received his degree from the Naval University of New South Wales. Payne began his practice in 1945, and was the only Australian to design exclusively sail and motor yachts.
In 1962 when Australia decided to mount its' first America's Cup challenge, of the four possible candidates to design a Twelve Metre Payne was considered the only truly prepared professional. He began his brief with a correct methodology over a period of four years. Payne first studied ***Vim***, the Twelve that came very close to being chosen as the defender for the first Cup using the Twelve Metres. Vim was brought to Australia by Sir Frank Packer. Payne tested thirty models before arriving at the definitive lines for ***Gretel***.
Gretel was very innovative and was a surprise during the 18th America's Cup against ***Weatherly***, winning one race and coming in very close during a second race. In fact, it was the American skipper Bus Mosbacher who made the difference, as ***Gretel*** was faster off the wind.
After the ***Dame Pattie*** episode, Payne was requested to design the third Australian Challenger: ***Gretel II***. She was, if possible, even more dangerous than ***Gretel***, and the four to one result of the battle against ***Intrepid*** didn't show her real value, as she could have won on boat speed.
Payne designed another Twelve, ***Advance***, in 1983, without particular merit. Payne was admitted to the America's Cup Hall of Fame.

David R. Pedrick (1948)

Born in Philadelphia in 1948, David Pedrick's design career began in the Twelve Metre Class right from the start. An excellent mathematician and scientist, Pedrick graduated from the "Webb Institute of Yacht Design" in 1970, and in the same year Pedrick began work at Sparkman & Stephens, where he presented his first project, a study on ***Weatherly***'s rig.
In 1972 Pedrick was nominated head designer for ***Courageous***. As head designer, he perfected an analysis of hull behavior in rough water at the Steven's Institute. Pedrick was also involved in the design of ***Weatherly***'s rig and on-board electronics.
In 1973 he oversaw the design team for the maxi's ***Tempest*** and ***Kialoa III***, and was nominated head designer for another Twelve, ***Enterprise***, for the 1977 defense of the America's Cup. At the same time, while continuing work on the ***Enterprise*** project, Pedrick decided to leave S&S and founded "Dave Pedrick Yacht Design".
From 1977 through 1979 Pedrick works on modifications to ***Kialoa III*** and the ***Condor of Bermuda***.
In 1982 he designed the maxi ***Nirvana***. After

dominating the racing in 1982 and 1983, ***Nirvana*** was converted for cruising. The list of yachts for racing and cruising from Pedrick's pen is lengthy; one example to remember is ***Savannah***, a 27 meter Spirt of Tradition of exceptional elegance and luxury.

Returning to the Twelve Metres, after his collaboration with the S&S 12s, he designed six of his own. In 1979 he accepted Russell Long's request to modify the skeleton of ***Independence*** and build a new Twelve: ***Clipper***. One of Pedrick's favorite designs, ***Clipper*** was penalized by crew and sail shortcomings, and didn't live up to her possible performance. In 1981 Tom Blackaller commissioned Pedrick to design his second Twelve, ***Defender***; she was never fast.

It went better for Pedrick in 1985, when he worked with Bruce Nelson and Britton Chance Jr. on the designs of Dennis Conner's four ***Stars and Stripes***. In 1987 ***Stars and Stripes '87*** bought the America's Cap back to the USA.

Since then Pedrick has also restored the Twelve Metres ***Courageous*** and ***Hissar***.

Henry Rasmussen (1879-1959)

Henry Rasmussen was born in Denmark to a family known for it's traditions in boat building. With this background he soon found work with Burmmester & Wain, where he gained experience in steel hull construction, while at the same time continuing his studies and earning his degree in naval engineering. In 1903 Rasmussen was offered an opportunity to start a new yard near Bremen. Here he met and befriended Georg Abeking; in 1907 they decided to start their own yard: Abeking & Rasmussen. At the beginning the yard's activity was limited to the winter storage of yachts thanks to the vast area made available by the Grand Duke of Oldenburg, at Lemwerder on the Weser River, across the river from the village of Vegesack.

The initiative was successful, and Abeking & Rasmussen became known in Germany as a yard run by a Dane capable of building fast and well built yachts. Almost immediately they were producing almost fifty boats a year; by 1910, after only three years of activity, they had built 95 yachts. Success was guaranteed, and since then the yard's activity has continued without interruption for over one hundred years. Abeking & Rasmussen is one of the few still active yards with such a long tradition.

Production range was vast: from simple one-designs to large sail and motor yachts, all characterized by excellent performance and solid and refined construction. Many of these yachts were produced in collaboration with the United States for important German families. Among these were over one hundred Concordia Yawls, fourteen Ten Metres and eleven Eight Metres. In addition, Rasmussen built the six Twelve Metres designed by W. Starling Burgess: ***Anitra***, ***Iris***, ***Isolde***, ***Onawa***, ***Tycoon***, ***Waiandance***; he both designed and built ***Anita***, ***Inga*** and ***Sphinx***. Like Johan Anker, Rasmussen was also an excellent yachtsman and was well known for his successes during Kiel Week.

Philip L. Rhodes (1895-1974)

Philip Rhodes was one of the most prolific and eclectic American yacht designers, known both for his racing yachts and one-designs. His creations ranged from small dinghys to pure America's Cup racers; from motor sailors to sailing yachts; not only pleasure yachts but military and commercial ships.

His most well known design was perhaps the ***Rhodes 19***, with over 3,500 built. Still in production, the ***Rhodes 19*** is used both for day sailing and as a racing one-design. There were also the ***Rhodes 22***, the ***Chesapeake 32***, and the ***Bounty II***, sloop or yawl, the first yacht built in series in fiberglass. Many other large yachts carry his signature.

Born in Thurman, Ohio, in 1895, Rhodes received his degree in Naval Architecture and Marine En-

gineering from M.I.T. During the First World War, Rhodes worked for the United States Army. With the War over, Rhodes founded a small company for naval assemblies. He took the decisive step in 1934, when he went to work for the famous design studio Cox & Stevens, where Rhodes soon became head designer. In 1946, the Philip Rhodes Company took over Cox & Stevens. The company closed it's doors in 1974 with the death of Rhodes.

Special notice should be given to his Twelve Meter design, ***Weatherly***. Built in 1958 by Luders for the first Cup to be run with the Twelve Metres, ***Weatherly*** was eliminated during selections. Modified, she returned to successfully defend the Cup in 1962, beating ***Gretel***.

Olin J. Stephens (1908-2008)

Olin Stephens is considered the most successful yacht designer of the Twentieth century. Both directly with his designs, and indirectly with the training of his students and collaborators, Olin Stephens undoubtedly had a decisive influence on the design of modern sail and motor yachts.

Born in 1908, he left M.I.T. after just one year and began his working career at the age of nineteen as an assistant in a design studio. Stephens immediately came to the forefront with his brilliant ideas and innovations; at just twenty his design for a Six Metre was published in "Yachting". For a short time he worked at the Philip Rhodes offices, but soon came into contact with the broker Drake Sparkman who immediately made him a partner, responsible for design. The mythical Sparkman & Stephens was born (it was 1928), and most of recent yachting history owes them a great debt.

The legend began in 1931 with ***Dorade***, specifically built for the transatlantic race. Though heavily criticized as too innovative and unsafe for the open ocean, with a crew of only six (among whom were Olin, his father Roderick and his brother Rod), ***Dorade*** routed the competing fleet, arriving two days ahead of them all. It is a triumph for Stephens, and after another win the following year, he is rewarded by the famous ticker-tape parade down Fifth Avenue.

Since then Olin Stephens embarked on a highly successful career, working in complete symbiosis with his brother Rod. Olin is the mind, the man with brilliant intuitions at the design table. Rod is the one who puts the ideas into practice; an accomplished sailor and rigger, he takes care of the fine tuning of his brother's creations, creating and innovating himself in deck layout, innovative solutions, simplifying and making the rig more efficient.

The Sparkman & Stephens office has produced more than 2,000 designs, some of which are milestones in the history of yachting. ***Dorade*** completely rethought cruising-racing yacht design, with a design that would move quickly in any weather. Many designs were based on ***Dorade***, including ***Stormy Weather***, who won everything that could be won.

And after ***Nyala*** and ***Northern Light*** came ***Vim***. Stephens designed his third Twelve Meter for Harold Vanderbilt in 1939, and innovation was everywhere: hull lines, rig (the first aluminum mast), winches (the first coffee grinders), below decks. ***Vim*** traveled to England and won everything (19 victories in 28 starts), but most importantly, she became the starting point in Twelve Metre class design for many later projects (***Columbia***, ***Constellation*** and the Australian ***Gretel*** and ***Gretel II***).

After ***Vim***, Stephens' work remains closely tied to the America's Cup. His first experience was with Starling Burgess and the J Class ***Ranger***, defender in the 1936 Cup. Although the plans are signed by Burgess, Stephen's input was crucial. After ***Ranger***, all the Cup winning Twelve Metres were drawn by Stephens (with the exception of ***Weatherly***, designed by Philip Rhodes for the 1962 Cup) until 1983, when ***Liberty*** (the second American defender not from his pen) lost the Cup to the Australians. His designs were ***Columbia***, ***Con-***

stellation, *Courageous*, *Freedom*, but above all *Intrepid* (1967). With *Intrepid* Stephens profoundly changed not only Twelve Metre design, but changed the design of all racing yachts. *Intrepid* reduced wetted surface by separating the rudder from the keel; lowered the center of gravity and increased the rig's efficiency by lowering the boom.

Sparkman & Stephens' activity covered all of yachting's many aspects and it would be impossible to list all the yachts that dominated international yachting from the 1930's to the 1980's.

Olin Stephens passed away in September 2008 at the age of one hundred. He is sorely missed by all, as a man, a great designer, a lord of international yachting.

Johan Valentijn (1948)

Born in Holland in 1948, Johannes Valentijn grew up at the family yard while completing his studies in naval architecture and marine engineering. His career began in 1971 at Sparkman & Stephens.

Valentijn has participated in three America's Cup campaigns, with four projects: tuning *Liberty* in collaboration with Dennis Conner, followed by three other projects: *Magic*, *Eagle* and *France III*. Along with various projects for other important yards, he was production and yard director at Burger Boat Company in Wisconsin.

Andrea Vallicelli (1951)

Born in Rome in 1951, Vallicelli graduated with his degree in architecture, and is a professor at the Pescara University and at the Milan one. Vallicelli's design office, "A. Vallicelli & Co.", has created numerous cruising and racing designs, in various materials. Among them, the Italian Navy school ship *Orsa Maggiore* (28 meter ketch, 1994), and the maxi *Virtuelle* (24 meter sloop, 2000) in collaboration with Philip Starck.

For the Consorzio Sfida Italiana America's Cup 1983, Vallicelli designed the Twelve Metre *Azzurra* for the 1983 edition of the America's Cup in Newport, followed by *Azzurra II* and *Azzurra III* for the Fremantle America's Cup in 1987. *Azzurra* was quite successful, gaining the semi-finals and galvanizing the Italian public, creating a favorable climate for future challenges.

the Deed of Gift

introduction

The Deed of Gift is the century-old document that sets forth the rules for the America's Cup races.

The Cup first started in 1851 under the name of the 100 Guinea Cup. After several challenges and a reasonable amount of controversy it was deemed necessary to write down in a legal form exactly what the competition was all about, who was eligible and some basic rules of engagement.

In 1887 George Schuyler, the last surviving member of the syndicate that owned the schooner America which won the 100 Guinea Cup in 1851 at Cowes, England, prepared the Deed of Gift which is still used as the basis for the America's Cup.

Schuyler donated the Cup to the New York Yacht Club, of which he was a member, and designated the New York Supreme Court as arbitrator over any disputes involving the Deed.

It was 100 years before the court was required to arbritate a dispute between the defender and challenger, when New Zealand's Michael Fay, of the Mercury Bay Boating Club, attempted to block San Diego Yacht Club and Dennis Conner from sailing a catamaran against his 133-foot monohull in what became the biggest mismatch in the history of America's Cup.

Since the deed was written there have been numerous sort to clarify the original document.

the Deed of Gift

This Deed of Gift, made the twenty-fourth day of October, one thousand eight hundred and eighty-seven, between George L. Schuyler as the sole surviving owner of the Cup won by the yacht AMERICA at Cowes, England, on the twenty-second day of August, one thousand eight hundred and fifty-one, of the first part, and the New York Yacht Club, of the second part, as amended by an order of the Supreme Court of the State of New York dated December 17, 1956 and April 5, 1985.

WITNESSETH

That the said party of the first part, for and in consideration of the premises and of the performance of the conditions and agreements hereinafter set forth by the party of the second part, has granted, bargained, sold, assigned, transferred and set over, and by these present does grant, bargain, sell, assign, transfer, and set over, unto said party of the second part, its successors and assigns, the Cup won by the schooner yacht AMERICA, at Cowes, England, upon the twenty-second day of August, 1851. To have and to hold the same to the said party of the second part, its successors and assigns, IN TRUST, NEVERTHELESS, for the following uses and purposes:

This Cup is donated upon the conditions that it shall be preserved as a perpetual Challenge Cup for friendly competition between foreign countries.

Any organized Yacht Club of a foreign country, incorporated, patented, or licensed by the legislature, admiralty, or other executive department, having for its annual regatta on ocean water course on the sea, or on an arm of the sea, or one which combines both, shall always be entitled to the right of sailing a match for this Cup, with a yacht or vessel propelled by sails only and constructed in the country to which the Challenging Club belongs, against any one yacht or vessel constructed in the country of the Club holding the Cup.

The competing yachts or vessels, if of one mast, shall be not less than forty-four feet nor more than ninety feet on the load water-line; if of more than one mast they shall be not less than eighty feet nor more than one hundred and fifteen feet on the load water-line.

The Challenging Club shall give ten months' notice, in writing, naming the days for the proposed races; but no race shall be sailed in the days intervening between November 1st and May 1st. Accompanying the ten months' notice of challenge there must be sent the name of the owner and a certificate of the name, rig and following dimensions of the challenging vessel, namely, length on load water-line; beam at load water-line and extreme beam; and draught of water; which dimensions shall not be exceeded; and a custom-house registry of the vessel must also be sent as soon as possible. Center-board or sliding keel vessels shall always be allowed to compete in any race for this Cup, and no restriction nor limitation whatever shall be placed upon the use of such center-board or sliding keel, nor shall the center-board or sliding keel be considered a part of the vessel for any purposes of measurement.

The America's Cup
The Club challenging for the Cup and the Club holding the same may, by mutual consent, make any arrangement satisfactory to both as to the dates, courses, number of trials, rules and sailing regulations, and any and all other conditions of the match, in which case also the ten months' notice may be waived.

the original 1887 text

In case the parties cannot mutually agree upon the terms of a match, then three races shall be sailed, and the winner of two of such races shall be entitled to the Cup. All such races shall be on ocean courses, free from headlands, as follows: The first race, twenty nautical miles to windward and return; the second race an equilateral triangular race of thirty-nine nautical miles, the first side of which shall be a beat to windward; the third race (if necessary) twenty nautical miles to windward and return; and one week day shall intervene between the conclusion of one race and the starting of the next race. These ocean courses shall be practicable in all parts for vessels of twenty-two feet draught of water, and shall be selected by the Club holding the Cup; and these races shall be sailed subject to its rules and sailing regulations so far as the same do not conflict with the provisions of this deed of gift, but without any time allowances whatever. The challenged Club shall not be required to name its representative vessel until at a time agreed upon for the start, but the vessel when named must compete in all the races, and each of such races must be completed within seven hours.

Should the Club holding the Cup be for any cause dissolved, the Cup shall be transferred to some Club of the same nationality, eligible the challenge under this deed of gift, in trust and subject to its provisions. In the event of the failure of such transfer within three months after such dissolution, such Cup shall revert to the preceding Club holding the same, and under the terms of this deed of gift. It is distinctly understood that the Cup is to be the property of the Club subject to the provisions of this deed, and not the property of the owner or owners of any vessel winning a match.

No vessel which has been defeated in a match for this Cup can be again selected by any Club as its representative until after a contest for it by some other vessel has intervened, or until after the expiration of two years from the time of such defeat. And when a challenge from a Club fulfilling all the conditions required by this instrument has been received, no other challenge can be considered until the pending event has been decided.

AND, the said party of the second part hereby accepts the said Cup subject to the said trust, terms, and conditions, and hereby covenants and agrees to and with said party of the first part that it will faithfully and fully see that the foregoing conditions are fully observed and complied with by any contestant for the said Cup during the holding thereof by it; and that it will assign, transfer, and deliver the said Cup to the foreign Yacht Club whose representative yacht shall have won the same in accordance with the foregoing terms and conditions, provided the said foreign Club shall, by instrument in writing lawfully executed, enter with said part of the second part into the like covenants as are herein entered into by it, such instrument to contain a like provision for the successive assignees to enter into the same covenants with their respective assignors, and to be executed in duplicate, one to be retained by each Club, and a copy thereof to be forwarded to the said party of the second part.

IN WITNESS WHEREOF, the party of the first part has hereinto set his hand and seal, and the said party of the second part has caused its corporate seal to be affixed to these presents and the same to be signed by its Commodore and attested by its Secretary, the day and year first above written.

GEORGE L. SCHUYLER, (L.S.) In the presence of THE NEW YORK YACHT CLUB H. D. Hamilton.
by Elbridge T. Gerry, Commodore (Seal of the New York Yacht Club) John H. Bird, Secretary

interpretive resolutions to the Deed of Gift for the America Cup having concerned the Twelve Metres I.R.

They have been nine and have been approved between 1956 and 1987.

They are:

1) **The Waterline Length and "Own Bottom" Amendment** (eliminated the requirement to sail to the races and the 44 foot waterline - 12/17/1956)

2) **The Interpretive Resolutions Adopted by The Trustees** ("constructed" construed as "designed and built" - 03/27/1958)

3) **Resolution Adopted by The Board Of Trustees** (availability of facilities and components/fittings/sails - 12/07/1962)

4) **Resolutions Adopted by The Board Of Trustees** (definition of "designed and built" in a country - 07/15/1980)

5) **Resolutions Adopted by AC Committee Of The Royal Perth YC** (requirements to satisfy "national" status - 05/15/1984)

6) **Resolutions Adopted by AC Committee Of The Royal Perth YC** (recinds footnot 2 of 1982 amendments - exchange of technology) (05/15/1984)

7) **Resolutions Adopted by AC Committee Of The Royal Perth YC** (use of testing facilities and towing tanks - 05/22/1984)

8) **The Arm Of The Sea Interpretation** (Chicago Yacht Club - 09/20/1984)

9) **The Southern Hemisphere Amendment** (defining the racing period - 04/05/1985)

1) THE WATERLINE LENGTH AND "OWN BOTTOM" AMENDMENT ORDER WITH RESPECT TO ADMINISTRATION OF GIFT DATED DECEMBER 17, 1956

NEW YORK YACHT CLUB, having filed a verified petition dated September 21, 1956, praying that an order be made pursuant to Section 12 of the Personal Property Law or otherwise, directing that the gift by George L. Schuyler of the America's Cup which was won by the yacht AMERICA at Cowes, England on August 22, 1851, in trust under a Deed of Gift dated October 24, 1887, shall be administered as if the minimum load water-line length of the competing yachts or vessels of one mast and thereby required to be forty-four (44) feet and without regard to and free from the direction contained therein that yachts or vessels competing for the America's Cup shall sail on their own bottoms to the port where the contest is to take place, and that such other and further relief as to the Court may seem just and proper be granted to petitioner; and it appearing to the satisfaction of the Court from said petition and the papers annexed thereto that circumstances have so changed since the execution of said Deed of Gift, in a manner not known to the said donor and not anticipated by him, as to render impractical a literal compliance with the aforesaid terms of said Deed of Gift; and it further appearing that the grantor of said Deed of Gift has died and that the Attorney General of the State of New York is the only person interested in this proceeding; and said Attorney General having appeared and certified that he has no objections to the entry of an order as prayed for by petitioner,

NOW, upon motion of Carter, Ledyard and Milburn, attorneys for petitioner, it is

ORDERED that New York Yacht Club, as trustee of the America's Cup given under the Deed of Gift dated October 24, 1887 made by George L. Schuyler, hereby is directed to administer the said Gift as if said Deed of Gift included no provision requiring yachts or vessels competing for the America's Cup to sail, on their own bottoms, to the port where the contest is to take place, and as if the minimum load water-line length of the competing yachts or vessels of one mast was thereby required to be forty-four (44) feet.

Enter, Hon. Edgar J. Nathan, Jr. J.S.C. Justice

2) THE INTERPRETIVE RESOLUTIONS ADOPTED BY THE TRUSTEES
Reprinted in full including Amendments
RESOLUTION ADOPTED BY THE BOARD OF TRUSTEES ON MARCH 27, 1958
(The "1958 Resolution")

WHEREAS, a question has been raised on behalf of certain individuals, citizens of a foreign country, interested in a possible challenge for the America's Cup, as to whether a challenge would be accepted by the New York Yacht Club if the challenger were designed in the United States but the hull built in the country of the challenging Club; and

WHEREAS, by the original Deed of Gift of the America's Cup dated July 8, 1857, it was expressly provided that the Cup should be "perpetually a Challenge Cup for friendly competition between foreign countries"; and

WHEREAS, by the second Deed of Gift dated January 4, 1882, it was provided that the yacht challenging for the Cup and the yacht defending must be "constructed" in the country to which the challenging and defending Clubs respectively belong; and the above recited provision that the Cup should be "perpetually a Challenge Cup for friendly competition between foreign countries" as again set forth; and

WHEREAS, by the third and present Deed of Gift dated October 24, 1887, it was again provided that the Cup should be a "perpetual Challenge Cup for friendly competition between foreign counties," and the second paragraph thereof contained the provision above referred to that the challenging and defending yachts shall be constructed in the countries they respectively represent;

NOW, THEREFORE, in view of the expressed intent of the donors of the America's Cup that is should be "perpetually a Challenge Cup for friendly competition between foreign countries," and the fact that in accordance with that intent and commencing with the first race for the Cup in 1870 down to the present time every challenger has been both designed and constructed in the country of the defending Club so that every challenger and every defender has been in all respects truly representative of the countries of the challenging and defending club and the Cup has become by tradition the symbol of the yachting supremacy of the country of the Club winning the challenge match:

RESOLVED that the word "constructed" wherever it appeared in the Deed of Gift of the America's Cup shall always be construed as "designed and built".

W. Mahlon Dickerson, Secretary

3) RESOLUTION ADOPTED BY THE BOARD OF TRUSTEES ON DECEMBER 7, 1962

[Rescinded July 15, 1980]

WHEREAS, certain citizens or subjects of foreign countries, members of yacht clubs which qualify under the Deed of Gift of the America's Cup, and which yacht clubs are considering challenging for the America's Cup, have raised the question as to whether the obtaining of components (other than raw materials), fittings and sails, or the use of design facilities such as a towing tank; outside of the Board's Resolution of March 27, 1958, construing the word "constructed" in the Deed of Gift as "designed and built"; and

WHEREAS, by Resolution dated March 27, 1958, the Board construed the word "constructed" wherever it appears in the Deed of Gift of the America's Cup as meaning "designed and built"; it is

RESOLVED, that the word "designed" includes the use of a design facility such as a towing tank, and that the work "built" included components, fittings and sails; and

WHEREAS, the Board recognizes that components, fittings and sails and the availability of design facilities such as towing tanks may not be obtainable in the country of the challenging club; it is

RESOLVED, that recognizing that such design facilities may not be available and components, fittings and sails may not be obtainable in the country of the challenging club, will consider a request for permission to obtain certain of the aforesaid components, fitting and sails and to use the aforesaid design facilities in any country other than that of the defending club;

RESOLVED, that whenever, the Deed of Gift of the America's Cup is printed this Resolution with preamble adopted by the Board of Trustees on march 27, 1958, interpreting the word "constructed" to mean "designed and built," be printed with the Deed of Gift.

W. Mahlon Dickerson Secretary

4) RESOLUTIONS ADOPTED BY THE BOARD OF TRUSTEES ON JULY 15, 1980
(The "1980 Resolutions")

AND AMENDED ON MARCH 9, 1982 (The "1982 Amendments")

WHEREAS by Resolution adopted March 27, 1958 (the "1958 Resolution") this Board interpreted the word "constructed" as used in the Deed of Gift of the America's Cup (the Deed of Gift") to mean "designed and built"; and

WHEREAS by Resolutions adopted December 7, 1962 (the "1962 Resolution") this Board set forth its interpretation of the words "designed and built" as used in the 1958 Resolution and set forth certain procedures relation to the application of such interpretation; and

WHEREAS because of the great increase in recent years in the exchange among the world's yachtsmen, yacht designers, yacht builders and sailmakers of technology, techniques, material and facilities for the design and construction of yachts, their rigs and their sails, the interpretations set forth in the 1962 Resolutions are no longer workable or meaningful;

WHEREAS the purposes of the Deed of Gift, particularly the provision thereof that the America's Cup "shall be preserved as a perpetual Challenge Cup for friendly competition between foreign countries", will be furthered by a requirement that the members of a candidate's crew shall be nationals of the country in which the club represented by the candidate is located; it is

RESOLVED that he 1962 Resolutions be, and the same herby are rescinded; and

RESOLVED that the 1958 Resolution be, and the same hereby is, ratified and confirmed; and

RESOLVED that for the purposes of the 1958 Resolution:

0. A yacht shall be deemed to be "designed" in a country if the designers of the yacht's hull, rig and sails shall be nationals of that country; and
0. A yacht shall be deemed to be "built" in a country in a country if the hull of the yacht, including all framing and all planking, plating or other form of surfacing of the hull, shall be fabricated and assembled, and if the yacht's sails shall be manufactured, in that country; provided that the foregoing provisions of this clause (b) shall not prevent the modification of the hull of any challenger, or candidate, in the country in which an America's Cup Match is to take place so long as the modification or manufacture (i) is effected when the challenger or candidate is in such country and (ii) meets the requirements of clause (a) above; and

RESOLVED, that notwithstanding the provisions of the foregoing resolution, any yacht which was eligible as a candidate for the America's Cup Match in 1980 shall continue to be eligible thereafter pro-

~~vided that any material modification of the hull, rig or sails thereof shall be designed in accordance with the requirements of clause (a) of the foregoing resolution and any material modification of the hull thereof shall be completed in accordance with the requirements of clause (b) of the foregoing resolution~~; and

[Rescinded July 1, 1980]
RESOLVED that, for a candidate to be eligible for an America's Cup Match in any year subsequent to 1980, every member of the candidate's crew must be a national of the country in which the club represented by the candidate is located; and

RESOLVED that henceforth any reference to the Deed of Gift shall be deemed to include reference to the 1985 Resolution and to these Resolutions, which shall hereafter be known as the "1980 Resolutions" and that whenever hereafter the Deed of Gift is printed or otherwise reproduced, the 1958 Resolution and the 1980 Resolutions shall be print

FOOTNOTES IN AMPLIFICATION
(March 9, 1982)

0. ~~The requirements that a person be a national will be satisfied if the person is domiciled in, or has a principal place of residence in, or has a valid passport of that country since January 1, 1982.~~> [Rescinded May 1984 and replaced with revised words]
0. ~~Designers of sails may cooperate on an international basis until March 1, 1982; after which date, sail designers of different countries may not collaborate. Sail designs done before that date may be copied exactly, while after that date the designers in a company may use the computer system and data bank of pre March 1982 date freely but must not put back into the system post March 1, 1982 information and must execute nationally independent sail designs~~

[Rescinded May 15, 1984]
(2) ~~(3)~~ A foreign designer – however he is designated – participating in the design of a boat or a sail would violate both the letter and spirit of the above Resolution, and any boat or sail so designed would be ineligible for use in America's Cup competition. Similarly, a hull or sails which are merely copies of those of a foreign designer would also be ineligible for use in America's Cup competition.

[Renumbered (2) May 15, 1984]
Regardless of whether a challenge has been accepted by the Defending Club in the belief that a boat complies with the Deed of Gift and subsequent Interpretive Resolutions, such acceptance does not immunize the boat form being challenged as to eligibility by another Challenging Club.

Vincent Monte-Sano, II Secretary

5) RESOLUTIONS ADOPTED BY AMERICA'S CUP COMMITTEE OF THE ROYAL PERTH YACHT CLUB ON MAY 15, 1984
(The "First 1984 Resolutions")

WHEREAS by resolution adopted July 15, 1980 and duly amended on March 9, 1982, to which Footnotes were included in amplification of such amendments (The "1982 Amendments") the then Board of Trustees noted that "The requirement that a person be a national will be satisfied if the person is domiciled in, or as a principal place of residence in, or had a valid passport of that country since January 1, 1982"; and

WHEREAS such note, by its slated date, has been interpreted to apply to the 1983 Challenge Match only; and

WHEREAS the 1987 and future Challenges for the America's Cup would be better served by a definition which would be applicable to all challenges beyond the 1983 Challenge Match; and

WHEREAS it is considered that two years provides a reasonable residential or documentary period for definition of a national; it is

RESOLVED that Footnote (1) of the 1982 Amendments be, and the same hereby is rescinded; and

RESOLVED that Footnote (1) of the 1982 Amendments be, and the same hereby replaced with the words "The requirement that a person be a national will be satisfied if the person has been domiciled in, or has had a principal place of residence in, or has had a valid passport of that country for no shorter period than the two years before the date of the first race of the applicable America's Cup Match" [Amended July 1, 1990]; and

RESOLVED that henceforth any reference to the Deed of Gift shall be deemed to include reference to these Resolutions, which shall hereafter be known as the "First 1984 Resolutions," and that whenever hereafter the Deed of Gift is printed or otherwise reproduced, as reproduced, the Second 1984 Resolutions shall be printed or reproduced as an integral part thereof.

D. Noel Robins Executive Director

6) RESOLUTIONS ADOPTED BY AMERICA'S CUP COMMITTEE OF THE ROYAL PERTH YACHT CLUB ON MAY 15, 1984

(The "Second 1984 Resolutions")

WHEREAS by Resolution adopted July 15, 1980 and duly amended on March 9, 1982, to which Footnotes were included in amplification of such amendments (the "1982 Amendments") the then Board of Trustees noted that "Designers of sails may cooperate on an international basis until March 1, 1982; after which date, sail designers of different countries may not collaborate. Sail designs done before that date may be copied exactly, while after that date the designers in a company may use the computer system and data bank of pre-March 1982 data freely but must not put back into the system post-March 1, 1982 information and must execute nationally independent sail design"; and

WHEREAS because of the great increase in recent years in the exchange among the worlds' sailmakers of technology, techniques, material and facilities for the design and construction of sails, due primarily to the greater accessibility of computerized systems and data banks; and

WHEREAS restrictions on the freedom of this accessibility are no longer enforceable in a practical sense; and

WHEREAS the purposes of the Deed of Gift cannot be furthered by the retention of the Footnote (2) of the 1982 Amendments; it is

RESOLVED that Footnote (2) of the 1982 Amendments be, and the same hereby is, rescinded; and

RESOLVED that Footnote (3) of the 1982 Amendments be, and the same hereby is renumbered "(2)"; and

RESOLVED that henceforth any reference to the Deed of Gift shall be deemed to include reference to these Resolutions, which shall hereafter be known as the "Second 1984 Resolutions", and what whenever hereafter the Deed of Gift if printer or otherwise reproduced, the Second 1984 Resolutions shall be printed or reproduced as an integral part thereof.

D. Noel Robins Executive Director

7) RESOLUTIONS ADOPTED BY AMERICA'S CUP COMMITTEE OF THE ROYAL PERTH YACHT CLUB ON MAY 22, 1984
(The "Third 1984 Resolutions")

WHEREAS, by Resolution adopted March 27, 1958, the then Board of Trustees interpreted the word "constructed" wherever it appears in the Deed of Gift of the America's Cup shall always be construed as "designed and built"; and

WHEREAS, by Resolutions adopted July 15, 1980, and amended March 9, 1982, the then Board of Trustees set forth its interpretation of the words "designed" and "built" as they appeared in the 1958 Resolution; and

WHEREAS, such interpretations of "designed" and "built" make no reference to testing and thereby leave doubt as to whether testing should be considered as part of the design process; and

WHEREAS, the purpose of the Deed of Gift, particularly the provision thereof that the America's Cup "shall be preserved as a perpetual Challenge Cup for friendly competition between foreign counties," will be furthered by a requirement that design testing should, where practicable, be carried out in the country of the club defending or challenging; and

WHEREAS, certain yacht clubs which qualify under the Deed of Gift of the America's Cup, and which yacht clubs are desirous of challenging for the America's Cup, have raised the question as to whether their use of testing facilities closely aligned to the design process such as towing tanks would be accepted by the defending club if such testing facilities were located outside the country of the challenging club; it is

RESOLVED, that the defending club at the instance of a challenging club, shall consider a request for permission to use towing tank facilities in any country other than that of the defending club, and may grant such permission should the defending club have evidence that adequate facilities do not exist in the country of the club requesting permission; and

RESOLVED, that towing tank facilities in any country other than that of the defending club may be used for the defending club when similar evidence exists that adequate facilities do not exist in the country of the defending club; and

RESOLVED, that henceforth any reference to the Deed of Gift shall be deemed to include reference to these Resolutions, which shall hereafter be known as the "Third 1984 Resolutions", and that whenever hereafter the Deed of Gift if printed or otherwise reproduced, the Second 1984 Resolutions shall be printed or reproduced as an integral part thereof.

D. Noel Robins Executive Director

8) THE ARM OF THE SEA INTERPRETATION
JUDGEMENT OF THE SUPREME COURT OF THE STATE OF NEW YORK DATED SEPTEMBER 20, 1984

An application having been made by the petitioner The Royal Perth Yacht Club of Western Australia Incorporated for an order interpreting certain provisions of a Deed of Gift of the America's Cup dated October 24, 1887 between George L. Schuyler and The New York Yacht Club, as amended by order of the Court dated December 17, 1956 (index No. 12696/56);

NOW, upon reading and filing the order to show cause dated August 8, 1984 (Alfred M. Ascione, Jr., J.) with proof of due and timely service of the Attorney General of the State of New York, the petition of the Royal Perth Yacht Club of Western Australia incorporated, verified the 30th day of July 1984, and annexed exhibits, and the affidavit of Eugene M. Kinney, sworn to the 20th day of July, 1984 and exhibits thereof, all in support of the petition, and the notice of appearance and consent of Attorney General of the State of New York, acknowledged the 13th day of August, 1984, consenting to the petition;

AND, a memorandum decision and order dated September 4, 1984, having been rendered granting the petition;

NOW, upon the motion of DeForest & Duer, attorneys for the petitioner The Royal Perth Yacht Club of Western Australia Incorporated, it is

ORDERED and **ADJUDGED**, that the petition of The Royal Perth Yacht Club of Western Australia Incorporated is granted with the consent of the Attorney General of the State of New York, representative of the public interest in the Deed of Gift, to the extent of declaring that the Deed of Gift entitles the Chicago Yacht Club, a yacht club of a foreign (i.e. competing) country as contemplated in the Deed of Gift, to enroll and compete as a contestant for the "America's Cup."

9) THE SOUTHERN HEMISPHERE AMENDMENT
ORDER OF THE SUPREME COURT OF THE STATE OF NEW YORK DATED APRIL 5, 1985

An application having been made by petitioner The Royal Perth Yacht Club of Western Australia Incorporation for an order amending a certain provision of a Deed of Gift of the America's Cup dated October 24, 1887 between George l. Schuyler and The New York Yacht Club, as amended by the Court dated December 17, 1956 (Index No. 12696/56);

NOW, upon reading and filing the order to show cause dated February 27, 1985 (Stanley Parness, J.) with proof of due and timely service on the Attorney General of the State of New York and The New York Yacht Club, the petition of The Royal Perth Yacht Club of Western Australia Incorporated, verified the 27th day of November, 1984, and annexed exhibits, and the affidavit of Charles E. Kirsch, sworn to the 26th day of February, 1985, and annexed exhibits, all in support of the petition, and the notice of appearance and consent of the Attorney General of the State of New York, acknowledged the 7th day of March, 1985, consenting to the petition; and there being no opposition;

AND, a memorandum order dated March 11, 1985 having been rendered granting the petition on default;

NOW, upon the motion of DeForest & Duer, attorneys of petition The Royal Perth Yacht Club of Western Australia Incorporated, it is

ORDERED, that the petition of The Royal Perth Yacht Club of Western Australia Incorporated is granted; and it is further

ORDERED, that the Deed of Gift is amended, and the trust established pursuant to the Deed of Gift shall hereafter be administered, as if, following the phrase "No race shall be sailed in the days intervening between November 1st and May 1st", there were added the following language: "if the races are to be conducted in the Northern Hemisphere; and no race shall be sailed in the days intervening between May 1st and November 1st in the Southern Hemisphere."

Enter, Hon. Elliot Wilk J.S.C. Justice

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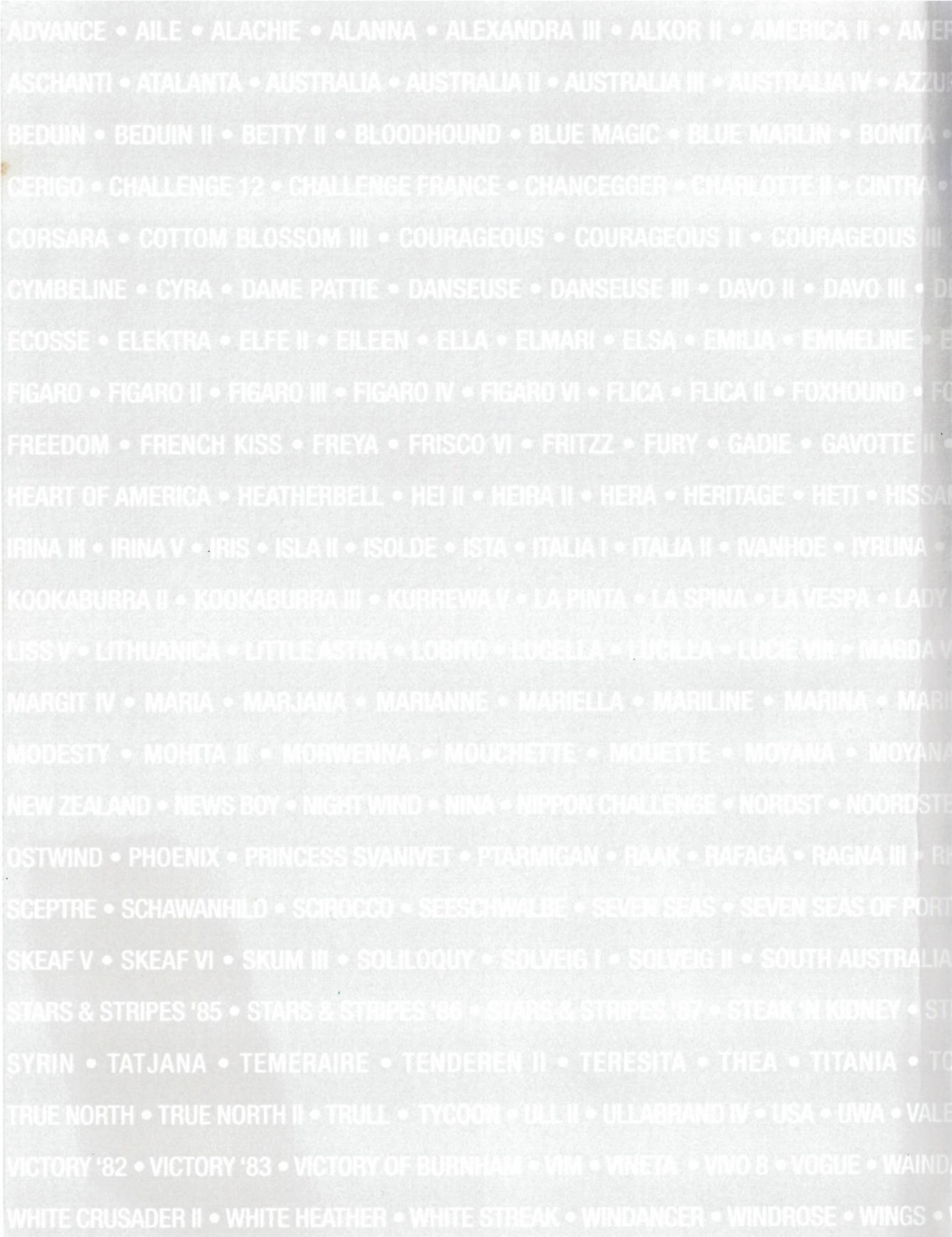
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LISS V • LITHUANICA • LITTLE ASTRA • LOBITO • LUCELLA • LUCILLA • LUCIE VII • MAGDA
MARGIT IV • MARIA • MARJANA • MARIANNE • MARIELLA • MARILINE • MARINA • MAR
MODESTY • MOHITA II • MORWENNA • MOUCHETTE • MOUETTE • MOYANA • MOYANA
NEW ZEALAND • NEWS BOY • NIGHT WIND • NINA • NIPPON CHALLENGE • NORDST • NOORDSTE
OSTWIND • PHOENIX • PRINCESS SVANIVET • PTARMIGAN • RAAK • RAFAGA • RAGNA III • R
SCEPTRE • SCHAWANHILD • SCIROCCO • SEESCHWALBE • SEVEN SEAS • SEVEN SEAS OF PORT
SKEAF V • SKEAF VI • SKUM III • SOLILOQUY • SOLVEIG I • SOLVEIG II • SOUTH AUSTRALIA
STARS & STRIPES '85 • STARS & STRIPES '86 • STARS & STRIPES '87 • STEAK & KIDNEY • ST
SYRIN • TATJANA • TEMERAIRE • TENDEREN II • TERESITA • THEA • TITANIA • TO
TRUE NORTH • TRUE NORTH II • TRULL • TYCOON • ULLI II • ULLABRAND IV • USA • UWA • VALE
VICTORY '82 • VICTORY '83 • VICTORY OF BURNHAM • VIM • VINETA • VINO B • VOGUE • WAIND
WHITE CRUSADER II • WHITE HEATHER • WHITE STREAK • WINDANGER • WINDROSE • WINGS •