STARDUST

I.S.C. Y.R.A.

ORIGINATED 1911 ORGANIZED 1922

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Star Class Newsletter for the 1st, 2nd and 12th Districts

MARCH REGATTA SCHEDULE

5th District
March 16-17 Spring Gold Cup, NHYC
March 22-24 Alamitos Bay Olympic Classes Regatta

20th District
Mar. 3-8 Bacardi Cup

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BISCAYNE TROPHY & MIAMI OLYMPIC CLASSES REGATTAS

The end of January was a busy week for the Star Class on Biscayne Bay. On January 26-27 the Biscayne Trophy took place, with 42 boats participating. Peter Bromby with Martin Siese up front got themselves in gear and ran away from the field with three firsts and a second.

Then, with barely enough time to breath the Miami Olympic Classes Regatta took place, beginning on January 30. Again Bromby and Siese managed to rack up a couple of firsts, but was bested by Marc Pickel with David Giles up front who also managed to get a couple of first places.

While there were four days of racing planned at the 2002 OCR only the first two days were completed. The first two days were sailed in ideal conditions with the wind blowing between 10 to 15. On the third day there was no wind, and on the fourth day there was not enough wind to get the fleet all of the way down the bay to the Star course which was in the next county, or there abouts.

Despite the grumbling of some, it was ruled that this OCR was not governed by the Class weight rule since it is not an Olympic trials regatta.

For the OCR the Stars were run on Olympic-sized courses. With such short courses there was a lot of congestion at the marks creating a sort of bumper-car type situation. Rumor has it that next year either the number of entries will be restricted or the courses will be longer and thus consequently there will be fewer races, probably two each day instead of three as was the case this year.

2002 BISCAYNE TROPHY REGATTA

January 26 - 27, 2002

Pl.	Sail	Skipper	Crew	R1	R2	R3	R4	R5	Total
1	7988	Peter Bromby	Martin Siese	1	1	1	(7)	2	5
2	7714	Gonzelo Aravjo	Marcos Iglesias	(9)	3	9	4	5	21
3	8067	Mark Reynolds	Magnus Liljedahl	2	18	(dns)	3	3	26
4	8007	Jose M. Vanderploeg	Diego Fructuoso	14	5	7	1	(20)	27
5	8068	John MacCausland	Sean Delaney	(21)	12	5	2	9	28
6	7953	Ian Barker	Edmund Peel	3	10	4	(ocs)	15	32
7	8025	Iain Percy	Steve Mitchell	13	14	2	5	(18)	34
8	7876	Douglas Schofield	Bob Schofield	19	4	(21)	10	4	37
9	8014	Riccardo Simoneschi	Nando Colaninno	7	(ocs)	3	18	10	38
10	8038	John Vanderhoff	John Avis	5	9	15	9	(dnf)	38
11	7959	Alexander Hagen	Carsten Witt	(29)	13	16	14	1	44
12	7995	Augie Diaz	Dave Caesar	8	16	14	(17)	6	44
13	7997	Ross Macdonald	George Iverson	12	6	(ocs)	15	11	44
14	7817	Max Treacy	Anthony Shanks	15	11	10	12	(17)	48
15	8043	Jock Kohlhas	Rick Peters	16	2	26	(28)	12	56
16	7996	Mark Herrmann	Dimitriz Yachavinko	11	(20)	20	13	16	60
17	7673	Mark Mansfield	Killian Collins	6	8	(ocs)	11	36	61
18	7836	Iain Murray	Andrew Palfrey	18	23	8	(32)	14	63
19	7626	James Freeman	Matthew Freeman	4	15	19	(31)	26	64
20	8072	Doug Smith	Mike Moore	17	(ocs)	6	19	22	64
21	7864	Kevin McNeil	Kevin Murphy	31	21	13	6	(dnf)	71
22	7950	Jimmie Lowe	Andrew Higgs	28	22	22	(ocs)	8	80
23	7225	Hyde Pierce	Chuck Nevel	23	24	18	16	(27)	81
24	7631	George Szabo	Austin Sperry	10	(dnf)	Dns	24	7	84
25	8083	Mark Holowesko	William Holowesko	25	25	11	(26)	24	85
26	8017	Todd Gay	Pat Brewer	30	(35)	17	20	21	88
27	7931	Jeremy Davidson	Louis Holmes	20	(36)	30	8	31	89
28	7753	Marc Blees	Bastiaan Nort	24	(28)	23	27	23	97
29	7970	Nelson Stephenson	Scott Norris	26	31	12	30	(39)	99
30	7596	Michael Mark	David Bolyard	32	(34)	27	21	19	99
31	7369	Steve Haarstick	Chip Bryce	(40)	7	31	34	30	102
32	7471	John Bainton	Will Christenson	(42)	30	37	25	13	105
33	8063	Bert Collins	Guy Avellon	34	19	25	(ocs)	29	107
34	7824	Hank Rowan	Rick Burgess	33	29	28	23	(34)	113
35	7785	Davis Buckley	Corey Baker	(36)	26	34	22	32	114
36	7300	Michael Jones	Bill Sykes	35	17	33	33	(38)	118
37	7370	Rob Emmet	Mike Voeltner	(41)	27	29	29	33	118
38	7566	Steve Rubinkam	Brad Lichter	(39)	33	32	35	25	125
39	7688	Larry Parrotta	John Jenkins	27	(38)	35	37	28	127
40	7832	Chris Lanza	P. Leary	38	32	24	(ocs)	37	131
41	7585	Sharon Crockett	Bonnie Unsworth	22	37	38	(dns)	dns	140
42	7902	E.F. At Atkinson	Ted Germann	37	(39)	36	36	35	144

2002 MIAMI OCR

January 30-February 2, 2002

Pl	Bow	Skipper	Crew	R1	R2	R3	R4	R5	R6	Total
1	42	Marc Pickel	David Giles	6	1	10	2	2	1	12
2	51	Peter Bromby	Martin Siese	1	3	18	5	1	5	15
3	15	Ross Macdonald	George Iverson	3	5	7	3	6	3	20
4	36	Vincent Brun	Mike Dorgan	5	6	3	9	4	4	22
5	33	Iain Percy	Steve Mitchell	12	9	4	1	8	2	24
6	48	Mark Reynolds	Magnus Liljedahl	18	2	9	7	3	7	28
7	41	Alex Hagen	Carsten Witt	11	11	2	10	5	17	39
8	52	Augie Diaz	Christian Finnsgard	2	17	14	8	10	11	45
9	17	Terry Hutchinson	Andrew Scott	10	10	5	19	12	10	47
10	38	Iain Murray	Andrew Palfrey	20	26	6	15	15	6	62
11	12	Jose van der Ploeg	Diego Perez	27	7	16	11	19	12	65
12	40	Mark Mansfield	Killian Collins	14	15	12	13	dnf	13	67
13	30	John MacCausland	Sean Delaney	7	19	24	12	16	16	69
14	19	Rick Merriman	Bill Bennet	9	24	15	14	23	8	69
15	44	George Szabo	Austin Sperry	15	18	8	17	11	26	69
16	50	Peter Vessella	Brian Fatih	33	12	23	18	7	19	79
17	27	Mark Hermann	Dimitri Yakovenko	16	22	17	6	28	20	81
18	34	Riccardo Simoneschi	Ferninando Colaninno	47	4	29	21	13	16	83
19	24	Alfonso Domingos	Bernardo Santos	17	8	37	16	27	33	101
20	55	Jock Kohlhas	Rick Peters	32	16	1	27	34	27	103
21	11	Douglas Schofield	Robert Schofield	8	25	11	28	33	36	105
22	57	Andy Lovell	Prieur Leary	19	39	20	4	31	34	108
23	25	Doug Smith	Michael Moore	24	29	ocs	30	17	15	115
24	54	Larry Whipple	Darren Jensen	30	36	25	23	18	21	117
25	43	Hyde Perce	Chuck Nevel	21	27	13	35	37	25	121
26	13	Gonzalo Araujo	Marcus Iglesias	13	31	25	22	32	30	121.6
27	28	Leonidas Pelekanakis	Kostas Manthos	40	33	22	31	9	31	126
28	23	Jimmie Lowe	Andrew Higgs	31	32	28	38	29	9	129
29	29	Max Treacy	Anthony Shanks	29	13	31	33	dnf	24	130
30	58	Andrew Hurst	David Munge	41	21	36	20	24	32	133
31	26	Arthur Anosov	David Ceasar	28	38	ocs	40	14	14	134
32	49	Marc Blees	Bastian Kort	35	20	26	37	16	dnf	134
33	35	Bill Allen	Fred Weber	22	30	21	39	22	dnf	134
34	22	Ian Barker	Edmund Peel	26	42	dnf	24	20	23	135
35	56	John Foster	John P Foster	39	23	30	36	26	22	137
36	20	Kevin McNeil	Kevin Murphy	23	34	38	26	42	18	139
37	37	Jeremy Davidson	Louis Holmes	25	14	27	25	dnf	dns	141
38	47	Todd Gay	Patrick Brewer	34	28	19	41	35	35	151
39	31	James Freeman	Matthew Freeman	44	40	32	32	25	28	157
40	18	Bill Abbott	Scott Town	45	35	34	34	30	29	162
41	14	Stephen Braverman	Nigel Mendez	37	37	39	42	38	37	188
42	39	Michael Jones	Bill Sykes	36	45	35	44	36	38	189
43	53	Chris Rogers	Patrick Hallquist	42	46	dnf	29	40	39	196
44	21	Robert Teitge	Martin Calabrese	43	44	33	46	43	40	203
45	45	Paul Sustronk	Mike Wolfs	4	dnf	dns	dnf	dns	dns	204
46	10	Bert Collins	Guy Avelon	38	43	dnf	45	39	dnf	215
47	15	Rob Emmet	Mike Voeltner	46	41	dns	43	41	dns	221
48	32	E.F. Atkinson	Ted Germann	48	47	40	47	44	dnf	226
49	46	Sharon Crockett	Bonnie Unsworth	49	48	dnf	dns	dns	dns	247

THE DEVELOPMENT OF SPARS IN THE STARS

HISTORY OF THE STAR RIG

When the Star rig was designed in 1911 by Francis Sweisguth it was a gaff rig with a long overhanging boom. This was a fairly common rig for racing boats of the era. The rigging which held the mast in place were the jibstay, a single set of shrouds which attached at the jibstay intersection, and a set of backstays which also attached at this point. Because of the hoops on the luff of the mainsail there were no spreaders.

In the early 1920's the Class made the switch from the gaff rig to the short Marconi rig. The use of spreaders became possible, although not mandatory, and several different rig configurations were tried out. Then, when the Class voted to go to the present rig dimensions in 1930 again the question of how many spreaders and their placement was left up to the discretion of the skipper. As a matter of fact, the experimental rigs tried out in 1929 under the direction of Francis Sweisguth used double spreader rigs, and during the 1930's double spreader rigs were predominant in the Class. In the middle of the 1940's the present rig configuration was experimented with and then generally adopted. Stan Ogilvy in his book "Successful Yacht Racing", (1951, page 60-61) gives the advantages and disadvantages of this rig, with his list of advantages far outweighing the list of disadvantages.

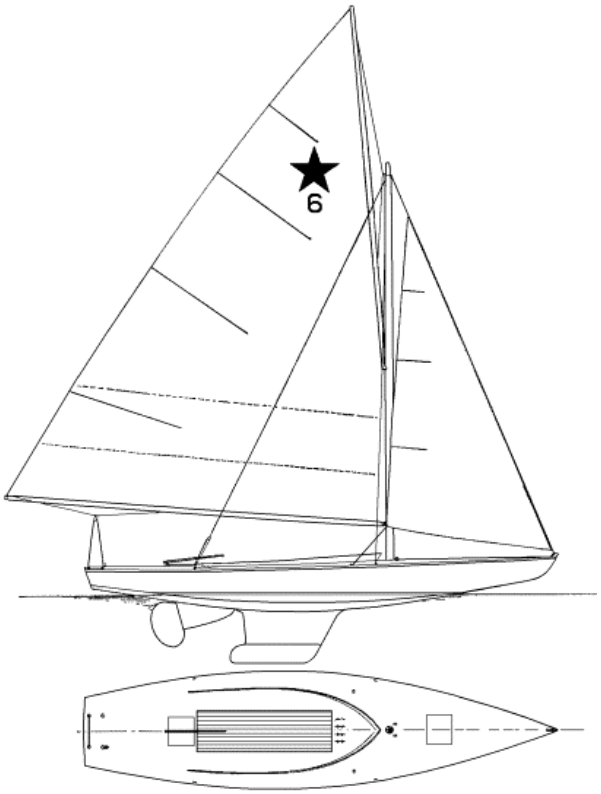
Despite this there were always some people wanting to try out other rig configurations, and in the era of wooden rigs this was a relatively simple matter. For example, on the cover of the 1960 Log is a picture of Harry Nye in one of his Gales showing the double spreader rig. But it would seem that by and large the list of advantages enumerated by Ogilvy continued to operate even into the aluminum spar era which began in 1971 and little thought has been given to going to another design. Specification 10.3.2. clearly states that the size, design and number of spreaders is optional.

TUNING THE STAR RIG

GAFF RIG ERA

From all available descriptions of the early Stars there was little which could be done to fine-tune the rig. The mast was placed in a hole

in the deck and the butt in a simple mast step. The chainplate consisted of a strap of metal protruding from the rail slightly aft of the mast. There was only one hole in this strap to which the shroud was tied. As designed, there were no adjustments which could be made to either the rake or the position of the mast. The mainsail was lashed onto the boom and the gaff, and hoops were sewn to the section of the luff of the mainsail which slid up and down on the mast. The possible adjustments were such things as jib and mainsheet tensions, backstay tension, halyard tensions, and outhaul tensions on the boom and the gaff. The outhaul adjustments were made only before setting sail, and even the halyard tensions, once set, were not adjusted once the boat was underway. However, by 1917 Gardner was recommending sail track and slides on the boom to facilitate sail care.



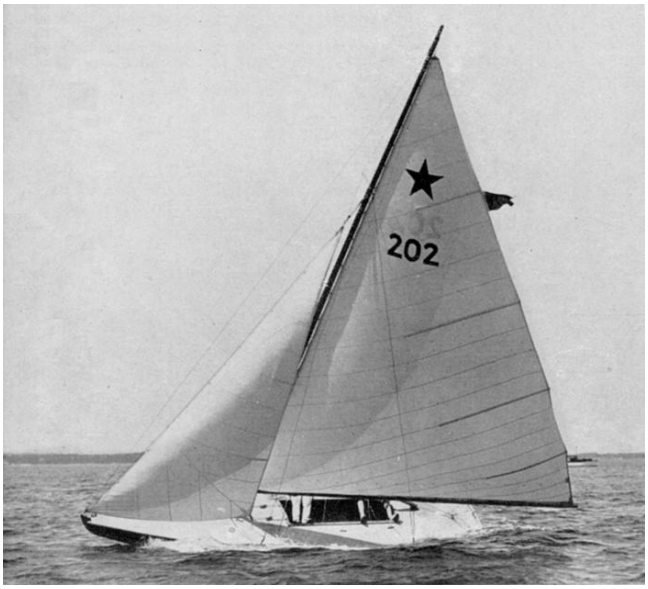
The Star as originally designed

SHORT MARCONI ERA

In 1921 the first major change in the Star rig took place. For a couple of years previous to this various people had been experimenting with a Marconi rig which would take the place of the mast and gaff. Because the gaff was carried vertical and practically parallel to the mast it was a simple matter to switch from one rig to the other without having to perform major surgery on the mainsail. In 1921 the Marconi rig was allowed as an alternative to the gaff rig, and by the end of 1922 most of the top skippers had made the changeover to what is now called the short Marconi rig.

Once the short Marconi rig was adopted sail tracks were put on the mast and boom and sail slides on the sails. There were two advantages to having sail tracks and slides: 1) sails could be more easily changed before setting sail, and 2) the outhaul and halyard tensions could be varied.

For two years running, 1922 and 1923, Bill Inslee of the Western Long Island Sound fleet was the Champion of the Star Class. Bill wrote an article about boat preparation for the April-May, 1924, issue of Starlights. This article is very illuminating in letting us see what a top skipper considered to be necessary to tune up his Star. Bill deals with everything concerning the boat. He begins with a description of how to get the smoothest bottom. Then he deals with getting the proper balance in the helm when going to windward. He mentions the importance of the proper position of the keel, the placement of the mast, the rake of the mast, the position of the jib fairleads, and backstay tension as various components which went into getting a balanced boat. It might be mentioned that as designed the keel was a little too far forward and it became quite common to move the keel as part of the process of getting the boat tuned up. Added to the various items concerning tune and boat care touched on in the article there is mention of a way, by using an adjustable headstay, to control the draft of the sail depending on the strength of the wind by flexing the mast. It is obvious that by this time the top skippers did not just take the boat as it was originally designed and built, but worked on it to bring the boat into balance and make various aspects of the rig adjustable.



Adrian Iselin's Ace in 1925

Backstays Tracks make an Appearance

The backstay arraignment did not change until the mid-1920's In the above picture of the Ace taken in 1925 the backstays are still as originally designed, a 2-to-1 block-and-tackle system located on the rail at the aft end of the cockpit. Backstay tracks were made popular the following year when

Ben Comstock and Bill Gidley won the World's in Rhody. Walter C. Wood of their fleet had devised a backstay track system. In a fashion which has become a hallmark of the Class every top boat had to have these "Rhody runners". It took the Class another 60 years to move away from backstay tracks, and now on some of the recent boats we are back to the 2-to-1 block-and-tackle system, although now located further forward.

THE EARLY TALL MARCONI RIG ERA

During 1929 a second rig change was under consideration by the Star Class. Experiments were carried out on a high aspect-ratio mainsail. The boom was shortened and the mast lengthened to the present dimensions, and the sailing qualities of the Star dramatically improved. This new rig was adopted for 1930.

Rig Configurations

Just as in the short Marconi rig era there were a variety of rigging configurations on the tall Marconi rig. However, for most in the 1930's the standard was to have a double spreader rig. To control the masthead two systems of stays were used. Some went to having a jumper strut at the jibstay intersection along with the upper set of spreaders. Others used a headstay. While there were no specified dimensions for mast sections, the earlier Logs during the wooden spar era recommended 3½" round at the deck. This was changed to the more realistic number of 3" in the 1946 Log.

Batten Lengths

The original specifications for batten length read: "Upper batten not over 3', other three battens not over 5' 9". Three allowed in jib, located as per plan, not over 1' 9" each." With the modern sail plan the length of the battens in both the main and the jib were shortened. The new specifications in the 1930 Log read: "Upper batten not over 30", 2 middle battens not over 48", lower batten not over 36". Three allowed in jib, located as per plan, not over upper batten 8", other 2 battens 12"." (Note the slight problem with the wording.) No information is available as to why the change was made, but because it was common to reef the main in those days maybe it was determined that lowest batten in the mainsail was always getting in the way of the reefing operation and so it was shortened to 3'. As a guess the upper batten was shortened from 3' to 30" because the batten otherwise was getting fairly close to the mast because of the sharper angel at the headboard.

Stiff Masts

At first for some unexplained reason the knowledge shared by Bill Inslee six years earlier about the benefit of a flexible rig to control the draft of the mainsail by varying the tension on the headstay / jumper stay was ignored and the early tall rigs were carried ram-rod straight. The masts were also, by all accounts, massive in comparison to the masts which were to come later on.

Colin Ratsey's Joy in the 1932 Olympics
Note the substantial mast and straight rig.

Walter von Hütschler and Flexible Spars

Walter von Hütschler rediscovered the benefit of a flexible rig, although, according to him, quite by accident. What Walter claims he was really trying to do was to eliminate as much weight aloft as possible by paring down the mast and boom. He took so much wood off the mast that it became flexible on its own. He learned how to control this flexibility and because of the advantage of sail draft control Walter became unbeatable for the years 1937 - 1940. Only because of a problem with his rig in the first race of the 1937 World's did he not win the series that year.

Walter von Hütschler in his Pimm, #1420, in 1938

Because of the flexible spars the sail tracks began to buckle. These came off fairly quickly and the tracks were replaced by boltrope grooves. Walter was one of the early leaders in having boltrope grooves in his spars. Many cotton sails still in use in the 1950's showed signs of once having had sail slides being sewn to the boltrope even though they were now used

on masts with grooves.

In 1940 Parkman Yachts published a pamphlet written by Walter entitled "*Little but Perfect*" in which he describes the operation of flexible spars. His main thesis in the pamphlet is that once the rig is set up properly the flexing of the rig is automatic. The more the mainsheet is pulled the more the rig flexes and the flatter the mainsail.

During the late thirties there was a variety of designs for adjustable mast steps and adjustable mast partners. Some skippers tried to induce bend using these mechanical devices in conjunction with the backstay. It was part of Walter's mission in writing the pamphlet to disabuse these skippers of the notion that forcing the mast to bend was of any benefit.

Throughout the 1940's the double spreader rig began to be replaced by the single spreader rig which we still use today. Also during these years masthead halyard locks began to be employed. The tension on halyards which were cleated on the deck or below deck proved to be too much for the mast, especially when it started to flex. There were reports of masts exploding because of the pressure which built up on the mast due to the load of the halyard.

In order to compensate for the loss of an adjustable halyard, a moveable gooseneck fitting, consisting of the gooseneck having a slide and a track being mounted on the backside of the mast, came into use. The moveable gooseneck, in conjunction with an adjustable outhaul, made it possible to adjust the boltrope tension on the luff and foot of the mainsail while under sail. As the boat rounded the windward mark the crew would let off the outhaul and after setting the whisker pole would jump up on the deck and pull up the gooseneck until the luff boltrope was slack. Then the blocks in front of the mast were pulled and the mast was let forward. Finally the boom vang, if the boat had one, was hooked into a fitting on the rail. The reverse operation had to be performed before round the leeward mark.

George & Juanita Elder in ISCYRA VI in 1941
Items of note: massive mast; mechanical mast partners; roller reefing with “claws”; fixed gooseneck; below-deck halyard cleating; single jib fairlead loop; long chainplates; snubbing winch.

THE 1950’s AND 1960’s, A TIME OF INNOVATION

Wooden Spar Construction

As masts got lighter and more flexible through the 1940's, 50's and 60's, the technique for building mast out of wood became more sophisticated. The masts of the thirties were often made out of a single piece of wood. (Try finding a single piece of Sitka spruce today which is long enough for a Star mast!) But it was found that there was a benefit in having masts built up of two or more pieces. Laminated masts tended to exhibit a more uniform bending characteristic. Various methods of lamination were tried. The simplest was to glue two 2 x 4's side-by-side creating a mast with the lamination fore-and-aft. This was then planed down to about 2½” wide by 3½” deep. The masts from Old Greenwich Boat Co. were more sophisticated and were built up of four pieces of 7/8” x 3" Sitka spruce which were laminated front to back with the boards running athwartship. Eichenlaub and other West Coast builders went to building a Sitka spruce box around a red cedar or redwood core. In general the Etchells masts tended to be 2½" wide and 3½" deep whereas the Eichenlaub and other West Coast masts (Eriksson for example) tended to be closer to having a square cross section, about 2¾” wide by 3” deep.

Tuning Wooden Spars in the 1950’ and 1960’s

The thesis of automatic spar flexing as espoused by Walter von Hütschler was taken to heart by Skip Etchells. Once Skip had gotten his boats dialed in there was very little adjustment available to the skipper as the boat was delivered from Old Greenwich Boat Company. For example, during the 1930's, 40' and 50's the chainplates on many boats were at least one foot long with a series of holes drilled into it, usually about an inch apart. This was so the mast could be moved back and forth for the full allowable length of the mast partners and the shrouds moved accordingly. By the time the "D" series O.G.'s were built in the late 1950's by Skip the chainplate was 3 inches long with three holes drilled into it, and of these holes the forward-most hole was the only hole for the lower shroud. While there was quite a long adjustable mast step in the boats there was really a very limited position in which the mast could placed due to a fairly limited amount of room fore and aft at the mast partners. Also by the time the "D" series were built mast blocks which looked like fat-bottomed T's took the place of mechanically adjusted mast partners. It was found to be much quicker to just pull the blocks out from in front of the mast when letting the rig forward on the run rather than having the crank the mast partner forward.

Jumper Strut versus Headstay

When the first version of the tall rig was tested a jumper strut was used to control the masthead. While it was well known that using a jumper strut allowed for more pressure to be placed on the jibstay and thus make the jibstay tauter, for some reason many people used headstays. For example, Skip Etchells went with a headstay in his early model boats. It was

not until about 1965 that he switched to using with jumper struts on his boats. However, this jumper, rather than being a single strut, was a V shaped strut made out of an aluminum casting with a pair of aluminum dowels stuck into it.

Aside from placing more pressure on the jibstay, another benefit of having a jumper strut was that if the correct thickness of wire was used there was enough stretch or spring in the wire so that once the correct tension was set up on the wire the masthead would automatically flex to the proper curve as the wind strength fluctuated. The wire most commonly used was a 3/32" halyard wire.

Backstays

On many of the boats up to the late 1950's there was only a single backstay which was attached to the jib halyard cheek plate ears at the jibstay intersection. On these boats the amount of bend in the mast was controlled by the tension on the headstay or jumper strut wire and the amount of blocking fore and aft of the mast at the partners. As masts got lighter and lighter it was found necessary to have both lower backstays and in the cases of really light masts masthead backstays in order to keep the mast from breaking while going downwind. It was quite some time before the lower backstay began to be used to power up the rig as well.

Traveler

From the very beginning Stars had travelers. It was not until Dennis Conner took his traveler off in the mid-1980's that boats began to abandon its use. However, even today there are skippers who because they sail with light crews feel that having a traveler is of great help in windy conditions.

The original traveler was a brass rod located on the transom. (See the original sail plan above.) As designed there was no control over how far the slide went on the rod, but some skippers placed stops on the rod to limit the distance the traveler slide would travel.

During the 1930's tracks began to replace these rods. Often, two tracks were placed on the afterdeck, in part to help control the position of the "claw", a cage affair which allowed for roller reefing. Some boats even had a third traveler which crossed the cockpit approximately where the barney post is located today.

From what Walter von Hütschler writes in his pamphlet, apparently the traveler slides on these early travelers were controlled by stops which had to be manually set.

By the 1950's people came to the conclusion that roller reefing was not very effective. Thus the need for having two or three traveler tracks ceased to exist and it was found that a single traveler, located on the frame just behind the rudder post, was enough. It was also realized that being able to control the traveler slide was important so a rope or wire was attached to the slide. With this the slide could be kept in the center in light winds, and as the wind increased the traveler could be let off as needed to keep the boat balanced.

Synthetic Sails

During the 1950's sails began to be made out of synthetic materials. First nylon was tried, but the material proved to be too stretchy. Orlon was somewhat more stable and sails made from this material appeared in the mid-1950's. Finally Dacron came on the scene in the late 1950's. While it is questionable

STARS UNDER CONSTRUCTION AT PURDY BOAT COMPANY

This picture was taken sometime during the 1930's at the Purdy Boat Company of Port Washington, N.Y. Four Stars are being built, two of which are nearing completion. The deck layout, fairly standard for the time, is clearly visible on the boat in the foreground. Note that this particular Star has a mid-cockpit traveler. The one directly behind it does not, but does have the double traveler system.

whether Dacron sails were superior to cotton sails as long as the cotton sails were in top condition, it was obvious that Dacron sails held their shape better and were not affected by getting wet, something which is rather hard to avoid on any boat but in a Star particularly.

With synthetic materials came the ability to have windows placed in the sails. At first these windows were small, the total allowed measuring three square feet. With window space at such a premium, only windows in the lower mainsail were used. Today a total of a little more than 8 square feet is allowed and windows are placed both in the main and the jib.

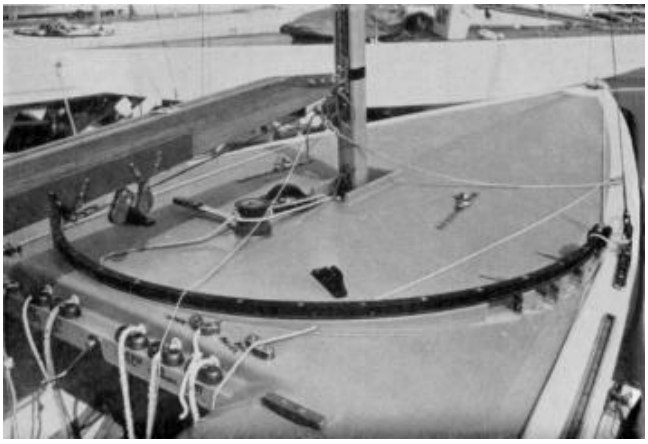
Changes in the Jib Luff Wire System

During the 1950's jib construction underwent a change. Up until this time the jib was hanked onto the jibstay wire. Then Murphy & Nye came out with a jib which had the jib luff wire sewn into it. The luff wire was purposely sewn in a little long so that as the pressure on the jib luff cloth increased it could stretch until the slack in the wire was taken up. Once the jib was raised the halyard was locked aloft and the wire in the jibstay took the place of the standing jibstay. By 1960 this had given way to having the jib luff wire floating freely inside the jib luff cloth at the tack. A separate shackle had to be installed on the deck at the jib tack which independently controlled the amount of tension on the jib luff cloth. The next step after this was to have a threaded jib. In this operation the jibstay had to be disconnected and threaded down the pocket in the jib luff. After loosing a few masts over the back the Governing Committee decided that the jibstay could not be disconnected at anytime to raise the jib. Thus boats which wanted to continue the practice of threading the jibstay into the jib luff had to have a second wire outside the jib luff. This second wire was put to use in pulling the mast forward on the runs, but going upwind was always a nuisance as it was hard to find the right tension to keep it from flailing about while at the same time not have any appreciable tension on it. The system of having two separate jibstays remained in use up until the last of the black aluminum mast days. Now, in a sense the principal of jib construction has come full circle, with the jib being attached to the standing jibstay, which has become the supporting jibstay once again. Now however the jib is zippered onto the jibstay rather than being hanked to it.

Jib Fairlead Adjustment

Jib fairleads have run the range from being a single loop on the deck to being fully adjustable both fore and aft and athwartship. As designed the Star had a single loop on the deck. By 1924 when Bill Inslee wrote his article on tuning it appears that his fairleads were fully adjustable in terms of positioning, although it seems that this could only be done manually. Despite the obvious need to have some adjustment of the fairleads certain builders continued to offer only a single loop right up into the 1950's.

With the old high-cut jibs the fairlead was positioned about 10" aft of the mast and about 17" off center. Many boats had tracks running along the 10° line so that the fairlead could be adjusted fore and aft, but not laterally. However, Barber haulers came into use in the early 1960's so there was no need for lateral adjustment. When the jib slot needed to be opened up this was accomplished by pulling on the Barber hauler.



In 1969 Lowell North bought a Buchan boat, # 5392. This shot of the deck layout shows wooden spars. Note the single jib fairlead track on the 10° line and the Barber hauler running from a jam cleat to the rail and then back to the boom for storage. This was the last year in which only wooden spars were allowed.

By the late 1960's "deck sweeper" jibs took the place of the standard high-cut jib, but the angle at which the fairlead should be placed remained the same. In the articles about tuning written by Malin Burnham and Lowell North there was a difference of opinion as to what degree off center the fairlead should be placed. Malin called for 9° whereas Lowell mentioned 10° to 14° depending on the strength of the wind. As the picture above shows, Lowell had a single jibsheet fairlead track along the 10° line and Barber haulers to trim the jib off the 10° line.

Jib Sheet Systems

When the Star was designed the jib sheet was just a single line led from the jib clew through the jib fairlead and from there to a cleat. By the 1930's it was felt that there was need to be able to pull on the jibsheet tighter in windier conditions. A winch was placed on the deck just forward of the cockpit and commonly a cleat was installed in center of the forward edge of the cockpit in order to cleat the jib. Although originally used on some boats in the 1930's, it wasn't until the 1970's that the two-part jibsheet system became common, eliminating the need for the winch.

Cunningham

About the same time that jib cloth downhauls were introduced onto Star boats Cunninghams began to be used to tension the mainsail's luff boltrope. At the very least this made life easier for the crew but it also made adjustment to the mainsail's luff boltrope more efficient. In terms of rigging this was not a very difficult changeover. Instead of having the crew jump up on

the deck to slide the gooseneck up or down on the gooseneck track the boom was allowed to be left at the black band and a line was led to the mainsail tack cringle, or in some models of sails to the Cunningham cringle which was a few inches above the tack cringle. There was not standard setup for this: some had a cleat just below the black band to which the Cunningham rope was cleated and others led the Cunningham rope below deck, sometimes to a block-and-tackle arraignment.

Duarte Bello, designer of Star Fittings
Star # 3870, Faneca, with a circular boom vang in 1962

Boom Vang

It is hard to imagine today, but up through the mid-1950's the major way of keeping the boom from lifting while on the run was to have the crew sit on the boom! During the late '50's various methods of doing this mechanically came into being. One was to have two or more hooks along the rail into which another hook hanging on a wire suspended from the boom was placed. This wire was led below deck, usually to a boom vang drum. The trouble with this boom vang was two-fold: 1) every time the skipper wanted to gibe the crew had to unhook the vang as part of his preparation for the gibe, and 2) when the wind was really blowing it was really quite some chore to unhook the vang.

In the early 1960's Duarte Bello, the Star boat fittings design wizard and manufacturer, came up with the idea of a circular vang track. However, this idea did not catch on immediately and the first step which people took towards having a circular track was to have vang car track mounted on each rail. At least this way the crew did not have to make the correct decision as to which of the vang hooks on the rail the vang should be hook to, and if there was a change of angle of the boom the car would just slide along the track to compensate for the change of angle. Of course, when gibing the vang still had to be unhooked and rehooked on the other side once the gibe was completed.

Finally, in the late 1960's the circular vang track became more common, but competing against this was the boom vang lever which began to show up in the mid-1970's. The lever was attached to a channel post which was directly behind the mast and bolted to it. The only real defect with the boom vang lever was that a depression aft of the mast had to be made so that the lever would have enough leverage.

Mast Rake and Position

Over the years greater and greater mast rake had been used. When the tall Marconi rig first appeared the general tendency was to keep the end of the boom about 1' to 1½' feet off the transom when hard on the wind. By the late 1950's 1' was more the norm, and by the latter part of the 1960's two-blocking the boom is mentioned by Malin Burnham in his article on tuning. Since the jibstays were not of a standard length there was no mention of the magic number which is used in today's tuning guides.

Because the masts were not bent as much as they are now the location of the upper and lower shrouds on the chainplate was reversed. The uppers were attached to the chainplate at about the front of the mast and the lowers were positioned about 1" to 1½" in front of the mast.

The mast was positioned so that the end of boom (or if it had the black band the band) came just to the transom or slightly inboard of it.

General Principles

The general principle which operated throughout the 1950's and 60's was once you had the boat properly set up the harder it blew the harder you pulled. In light to moderate breeze the jib was set just tight enough so that the first thing to show signs of luffing as you pointed the boat up was the first few inches of the luff of the main. As the wind picked up the jib was trimmed harder, the mainsheet pulled in harder, the outhaul and downhaul / Cunningham tightened, and the traveler eased.

In San Francisco particularly during the late 1950's when the wind got to its customary 25 knots it was common to see a huge bubble in the main with just the jib and batten area of the main working. This was because both the jib and the main were strapped in really hard and the traveler was let off until the end of the boom was above or beyond the corner of the stern. Whether this was fast or not is questionable: the San Francisco fleet at the time was not very competitive with the rest of the West Coast boys.

Lowell North and Jim Hill on North Star, #3877 in 1957. Note the amount of backstay rope.

Lower Backstays
And Powering Up the Rig

As mentioned above, the original purpose of the lower backstay was to keep the mast from pumping in rough seas and became common on boats in San Francisco and the West Coast generally in the late 1950's. Collective memory can't exactly place when the use of lower backstay to power up boat came into play. However, photos from the late 1950's of Lowell North's North Star, #3877, show what looks like very substantial block-and-tackle on the lower backstay, so perhaps even by this time some few skippers were using the lower backstay for more than just stabilizing the rig.

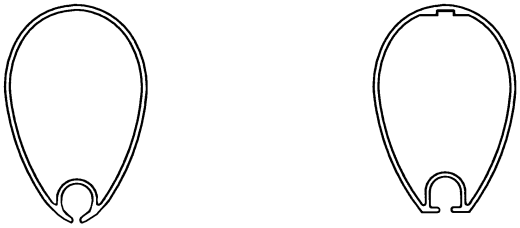
Despite this conjecture even by the mid-1960's when Malin Burnham and Lowell North wrote articles for Starlights about tuning a Star neither of these articles mentions that the lower backstay was used to power up the rig. They agree that the purpose of the lower backstay was to keep the mast from pumping in rough conditions. Bill Buchan wrote an article for the November, 1980, issue of Starlights and again there is no mention of the lower backstay being used to power up the mainsail. Bill noted recently that "once you found the magic adjustment spot they weren't changed all that much."

ALUMINUM SPAR ERA

In 1971 spars made of materials other than wood were first allowed by the Star Class. The new paragraph in the specifications for spars read, "*Other materials.* Spars of aluminum, fiberglass, or plastic, or combination of fiberglass and plastic with wood, are permitted…" As Alan Holt pointed out in his article *Modern Mast Technology*, "The Star Class was one of the last one design classes to adopt aluminum spars as there was much trepidation that aluminum would not be as good as wood. Aluminum tip weight was set so that the ultra light wood masts would not have an advantage over the proposed metal masts. It was soon evident, however, that aluminum spars were stiffer and/or smaller (less windage) than wood for the same weight, cheaper, stronger and more maintenance free - an obviously unbeatable combination. Aluminum spars dominated the first major regatta after their introduction."

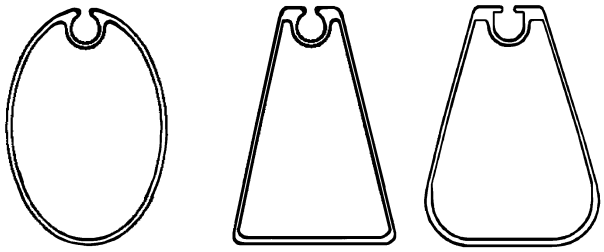
While Alan, who runs Spar Tech with Richard Gates, focuses on aluminum spars in the article, mention should be made that fiberglass and composite spars were also experimented with, but these experiments did not prove to be successful.

As with any new technology, there was a steep learning curve with aluminum spars. In the first years of production there was a rapid succession of models of mast sections built by Spar Tech. Between the introduction of aluminum spars and 1972 the models went from A to D. Both the A and B section masts required jumper struts in order to keep the masthead from falling back too much. The B section had a V jumper. With the D section enough stiffness was built into the mast so the jumper stay was no longer needed. The D section, at first black anodized and then later silver, continued to be used by Spar Tech until 1992, and is still the section used by Emmeti. The F section with the flat back is currently in production by Spar Tech. The F section not only has added beef in the area around the flat back, but also has extra material on the inside of the leading edge, giving the mast more stiffness fore and aft.

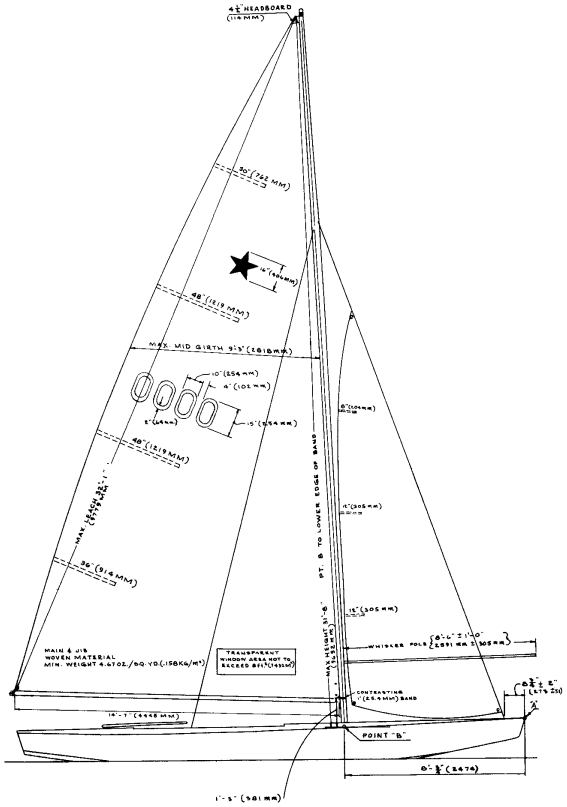


"D" and "F" section masts. Note the extra material on both the leading edge and the aft edge of the "F" section mast.

Booms have undergone more radical design changes. Oval sections were normally used with the black D section masts. The sharp-edged trapezoidal section came in 1987. This was replaced by the present rounded-edged trapezoidal section in 1989.



The oval, sharp-edged trapezoidal, and rounded-edged trapezoidal boom sections.



Sail Plan used in the 1978-1998 Logs

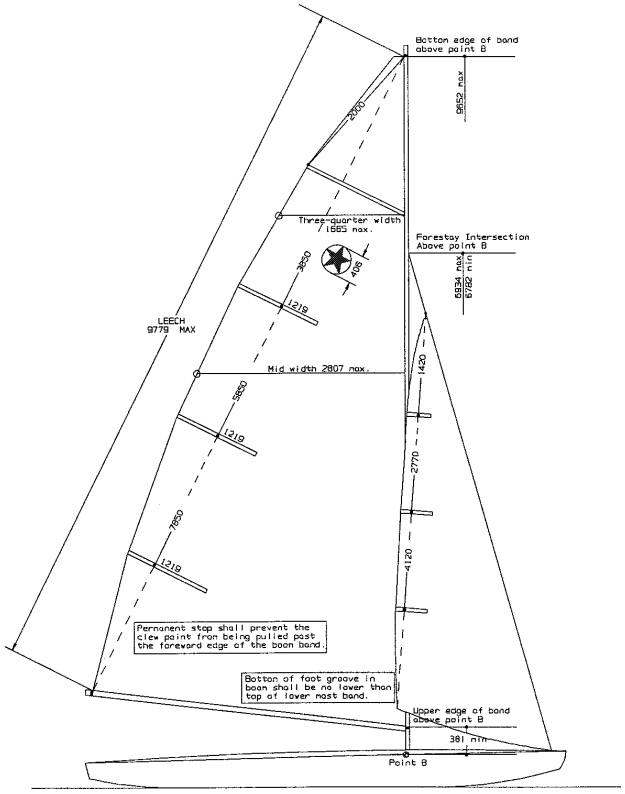
Rig Development in the Aluminum Spar Era

Once aluminum spars were adopted by the Class there was surprisingly little change in the overall rig configuration from that used in the late wooden spar era. At first there was some experimentation. For example Dennis Conner tried out having shorter spreaders, but apparently the extra load on the mast made it unstable. From time to time the double spreader system has also been tried, but until now such a system has not proved to be successful.

Sail Development in the Aluminum Spar Era
Yarn-Tempered Dacron and "Fat Head" Sails

With the advent of the aluminum mast which was more stable than the wooden mast it became possible to construct more powerful sails.

In 1978 Buddy Melges won the World's using a heavily yarn-tempered Dacron. While Buddy used this material to construct a flatter, slicker main to be used in the windy conditions of San Francisco, the use of this material created a real revolution in the art of sailmaking. Sailmakers found that with this stiffer sailcloth it was possible to add extra material to the upper roach which was not controlled by measurement at the time. As sail cloth material became better and stiffer and as the sail construction techniques became more sophisticated it was found that a fairly big roach could be constructed.



Sail Plan beginning with the 1999 Log

The resulting sails became known as "fat head" sails. Finally, in 1996, the Technical Committee instituted a 3/4-girth measurement to control the growth of the roach size. However, this measurement took into account the existing sails, thus allowing the development of the "fat head" sails to stand. One of the consequences of the development of the more powerful "fat head" sails is the optimum crew weight has gotten heavier and heavier. As a result the Class instituted a weight limit rule which came into effect in 1999.

Roach Comparisons

Three sails were compared to see what the difference in roach is: a 1957 Murphy & Nye, a 1962 North, and a 1999 North. Using the 1999 North as the base line and placing the

headboard holes in the same position the following are the variations in measurements:

	'57 M&N	'62 North
Roach at:		
Head Board	-1"	-¼"
Top Batten	-7¼"	-6"
3rd Batten	-6"	-6"
2nd Batten	-3 ½"	-3¾"
Lower Batten	-½"	- ½"

It should be noted that the length of the leech on the older sails was a bit longer than that of the modern sail, about 1". This is consistent with the fact that the rigs were carried more vertical at the time the sails were constructed. In the 1999 North the top batten is 59". If full-length battens were placed in the older sails these battens would have to be 51¾" in the M&N and 53" in the 1962 North.

The sail plans on the facing page are somewhat exaggerated, especially the 1998 sail plan. There is of course a certain amount of mast curvature which should be taken into account, and thus the amount of roach shown in the 1998 plan is greater than is really the case. Bill Buchan notes that ever since the late 1950's sails have been very close to the maximum dimension at the mid-girth measurement. From this one could infer that the leech from the clew to the mid-girth has stayed fairly much the same. In the "Star Class Tuning Guide" video there is a shot taken down the leech from the masthead. It is interesting to see that the ends of the lower three battens and the clew at the boom all line up in a straight line giving a straight leech between the boom and the third batten. This is in contrast to the 1998 sail plan in which there is a definite arc in the leech from the third batten to the boom. Also to be seen in this video shot is a gentle sweep of the leech from the third batten to the top batten followed by a more abrupt sweep from the top batten to the headboard.

Experiments with Laminated Material

In the December, 1980, Starlights there is a note saying that for the year of 1981 jibs built Mylar and laminated materials would be allowed for testing purposes "in all event except AA, A, B, B-2, and Fleet eliminations." This testing was allowed into 1982, and then both the main and the jib were allowed to be built of these materials in the years 1983 and 1984. In these laminated sails the only substrates allowed were Nylon and Dacron. At the annual meeting in 1984, mainly due to the advise of the sailmakers who attended the meeting, the resolution allowing laminated sails was voted down, and with this the testing program was discontinued. It is interesting to note that the objections voiced then continue to be of concern: "that Mylar sails would be substantially more expensive, and that it could not yet be stated with any certainty whether they would last as long as sails of conventional material."

The controversy and experimentation with laminated sails has continued with the Class so far not being impressed with the results of such experiments. The main difficulty seems to be that the mast flexes too much, distorting the relatively inflexible laminated material and breaking down the sail fairly quickly. In other class which have flexible rigs, where carbon fiber masts and laminated materials have been adopted it has been found that a sail last only one hard regatta, and that at the end of the regatta the sail goes straight to the dumpster. Very expensive proposition indeed!

FINAL THOUGHTS

From the information supplied in this article it can be seen that there are many options in terms of how a Star is set up, both in deck layout and in how the mast is rigged. If Stars look pretty much the same today it is because trial-and-error has narrowed down the options to fairly limited parameters and there is general agreement on how the boat is to be set up. This does not limit the individual boat owner from trying out new ideas, or reusing old ones!

References:

Bill Buchan: *Some Thoughts on Upwind Speed,* Starlights, November, 1980.

Malin Burnham: *Tuning and Techniques,* Starlights, September, 1966 & May, 1967.

Alan Holt: *Modern Mast Technology,* Starlights, November, 1980.

William L. Inslee: *Fitting out Your Star,* Starlights, April-May, 1924.

Lowell North: *Tuning to Win,* Starlights, June & July, 1967.

Walter von Hütschler: *Little but Perfect,* Parkman Yachts, 1940.

Any of the above articles are available from the editor, either as electronic files or in hard copy.

Thanks to Bill Buchan, John MacCausland, Mark Reynolds and Jack Button for supplying information for this article.

Lowell North and Bill Buchan at the 1987 Bacardi Cup

REGATTA SCHEDULES

1st District

June 22-23	Arms-White, Mid
July 12-14	1st District Championship, CLIS
July 20-21	Ned Hay, CA
Aug 3-4	Secretary's Cup, BH
Aug 24-25	Atlantic Coast Master's, BH
Sept. 7-8	Bedford Pitcher, CLIS
Sept. 21-22	Nutmegs

5th District

March 16-17	Spring Gold Cup, NHYC
March 22-24	Alamitos Bay Olympic Classes Regatta
April 13-14	Delta Star Regatta, SYC
May 25-26	Rollins Bowl, SDYC
June 1-2	Cal Race Week/Green Star, CYC
July 13-14	5th District Blue Star, CYC
July 20-21	Baxter Bowl/Summer Gold Cup, NHYC
July 28-29	Lipton Cup, SBYC
Aug. 10-11	King of Spain, CYC
Aug. 14-25	**World's, CYC**
Au. 30-Sp. 1	Labor Day Pitcher Regatta, SDYC
Sept. 7-8	Black Star - Under #7000, CYC
Sept. 14-15	Fall Gold Cup, NHYC
Oct. 19-20	Calvin Paige, StFYC
Oct. 26-27	Ash Bown, SDYC
Dec. 14-15	Kriss Kringle Regatta, SDYC

12th District

June 7-14 2002 North American's, Lake Sunapee
http://www.sojourneys.org/sailing/northamerican.html

20th District: http://www.stardistrict20.org/

Mar. 3-8	Bacardi Cup
Apr. 24-30	Spring Championship, Tampa, FL

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Star Class videos available: the following videos are available through the Central Office: "Star Class Tuning Guide", Class promotional video "Fine Tuned for Excellence", 1999 World's: "The World of the Stars", 1987 World's: "Sail against the Best." Also available from the Central Office are Stan Ogilvy's book "A History of the Star Class" and a biography about Durward Knowles, "Driven by the Stars". For further information on these items of Star Class merchandise plus an order form please contact Diane Dorr at the Central Office:
iscyra@interaccess.com

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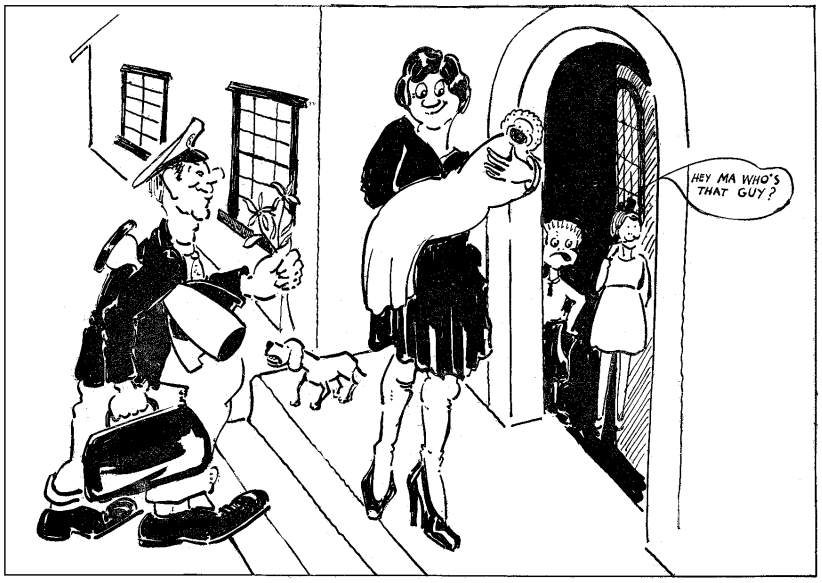
CARTOON CORNER

NOW THAT THE YACHTING SEASON IS OVER



Again we would ask Pat Clancy, the scrappy skipper of the Scrapper, how does he know. Is it a personal matter, or has he learned from observation of, or association with, the married men in the game? (And again Pat will probably tell us that it's none of our d--d business.)

Cartoon by Pat Clancy, Detroit River Fleet.
Starlights, November, 1928

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Place/ Boat #/ Skipper/ Crew/ Fleet/ Daily positions/ Score

Please contact the editor about any corrections to race results. While this cannot undo what has already been printed, it would be helpful in avoiding errors in the future.

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