

SPIELDS RACING
AND
OTHER BIZARRE DELIGHTS

Written by Victor M. Onet Jr.
Shields National Champion, 1988.

The following is an attempt to outline some of the stuff we do on Wizard, Shields #80, to increase boatspeed and improve our racing performance. I am only a weekend warrior - like virtually all Shields sailors - without any professional credentials so, above all, don't consider anything I might say to be gospel. The regimen I've mentioned seems to work for us most of the time. On the other hand, if it doesn't coincide with your approach or style, it might not work for you. I do hope, at the very least, it will give you some food for thought.

I have not presumed to get into racing strategy or tactics - subjects far better left to Dave Perry and Stuart Walker. When I have touched on these areas as in "A Debutante She Ain't," it is only to describe something unique to a Shields.

My thanks to Andreas Josenhans, Ched Proctor, Peter Beame and Steve Moore - of North Sails East - who never seem to tire of being helpful to and supportive of the Shields Class. Their Shields Tuning Guide prompted me to try this piece.

The mast:

Make certain the mast is straight as a dye. Apply 800 pounds of tension to the uppers and 300 pounds to the lowers. Rake as far aft as possible so that it is actually pressing against the back end of the partners. This might require a toggle in the headstay. Not to worry, the minute you put any tension on the backstay, the mast will bow forward and won't eat the deck. The idea is to get the center of effort as far aft as possible to create some semblance of weather helm.

Andreas Josenhans of North Sails describes the rather neutral feeling of a Shields helm when going to weather as a "pressure float." This is to say when you sail the boat upwind in moderate air the helm will sort of float and requires only occasional pressure from two fingers on the hiking stick to hold course. Make certain to have this pressure...herein and forever after to be known as the Josenhans finger principle. It is one of the few "feels" you will get from the boat.

The mainsail:

Halyard: Pull the sail to top black band and mark halyard at the schieve. Leave downhaul or cunningham alone or adjust to barely hand tight which leaves "speed" wrinkles in the luff to encourage a fine entry (ie angle of attack).

Backstay: When sailing in 10 to 15 apparent-windspeed, pull the backstay until inversion wrinkles just start to appear. Put a mark (on the backstay tail) about two inches forward of this spot. Our experience suggests this mark represents a point beyond which

you seldom, if ever, want to go. It would have to be blowing 20+ (true) for us to get much beyond the inverted condition.

Ease the backstay until there is just enough tension to arch the mast a fraction of an inch off the back of the partners and mark that spot (This setting will represent the tension required to steady the rig when going downwind). The main has about 6" to 7" of luff curve. What you have just done is to define that distance in terms of linear backstay tension - a very important exercise.

The jib:

Like the big boys say, "trim the front of the jib and the back of the main." Set the halyard so that you can always see the beginnings of scallops at the hanks. If the wind comes on, tension only to maintain this condition. If you "honk" on the halyard, you will pull the draft too far forward, especially with a new sail and the entry becomes blunt, like so:



While you have a wide "groove" (ie angle of attack) and the boat is forgiving and easy to steer, your ability to point is impaired. Less tension, as indicated by little wrinkles (scallops) at the hanks looks like this:



Now you have a fine entry, the groove is narrow, the boat is more difficult to steer but wants to point.

The sheet primarily controls the leech but also tensions the foot which flattens the lower part of the sail. Generally, people say to lead it (fore/aft) so all three tell-tales break together. I like to lead it just forward of the "T" so the top third of the leech "stands" - top batten 5 degrees to 10 degrees off centerline - with moderate sheet tension. Then, when you trim so the top batten is parallel to the centerline of the boat, the top (windward) tell-tale will break a little bit before the middle or bottom ones do. Be particularly careful not to close off the leech as the boat will stop. After all, the poor, baby lead-sled weighs almost 5000 pounds and needs all the power she can get. As an aside, if you have to stretch the living hell out of the foot to create the described leech tension, you best pay a midnight visit to your local sailmaker.

Our new North jib wants to be trimmed (thwartships) right on the fore and aft car so we never use the thwartships leads at all. Most other (Sobstad, Shore) jibs are led all the way inboard on the thwartships' track and get eased outboard as the wind increases. If the jib throws a little backwind into the main, it doesn't seem to matter. If however, from the helmsman's position, you can notice backwinding, it is probably excessive and the leads should be eased until you can't actually see its effect.

Two Boat Tuning:

The next step is to tune up with another boat. Going upwind, adjust the backstay so that mainsail draft appears to be 45-50% behind the mast - or, obviously, about in the middle of the sail. Trim sheet so that the top batten is parallel with the boom and the top "woolie" is flying 10% -20% of the time. Set up outhaul and traveller as desired but don't touch again. Set up the jib as described and forget it. Be absolutely certain your tuning partner doesn't touch anything after he locks in what he considers to be appropriate trim. Sail for a while, get comfortable and see how it goes. The boats should be well separated - one to leeward and slightly ahead. Then, in a sequence of your choice and one at a time, make small adjustments to backstay and main sheet (which always must be trimmed together) outhaul, traveller, and if need be, cunningham. Make sure vang is always slack upwind. If tensioned, it hooks the top part of the leech to weather which is a no no. You will also want to test the jib controls one at a time. Remember, the other guy must never touch anything. Do this several times on long boards so you are sure you are getting good data. If you can't find settings which are demonstrably faster, try to back into them by finding ones that are demonstrably slower. By the process of elimination and with great patience you will eventually enhance boatspeed. Mark each control when it is seen to be faster than the previous setting.

When you are a rocket, let your partner become the "rabbit" and make his adjustments (one at a time) against your new-found "fast" marks. If you have the stamina, change windward/leeward positions and repeat the cycle. If you really want to get into it, change helmsmen to even out any difference in personal skill.

Downwind, set up side by side, well apart and test pole height, pole position and spinnaker trim. Don't overlook mainsail and mast settings. Give yourselves lots of room to travel so that each new setting can be observed for a meaningful period of time.

You are literally "ratcheting" each other up to speed. When it is all said and done, you will have invested half a day or more in this rather tedious exercise but I guarantee you will be faster than last year.

Obviously, your "fast" settings only apply to the conditions in which you developed them. Yet, you now have damn good reference

points (all marked) from which you can adjust, in or out, for whatever Mother Nature brings. It is these little adjustments - away from your marks - for prevailing wind and sea conditions which will be critical to successful boat speed. Excellence in making them depends, almost entirely, on the time you are willing to spend in the boat both practicing and racing.

Overall trim, 2 modes:

We try to get off the starting line powered up in what Stuart Walker calls "go gear." For good reason, discussed later, it is frantically important to get away from chopped-up air and water. As a result we try to manufacture raw speed at the start and don't worry too much about pointing. Starting at the front of the boat, here is the general picture which varies plus or minus according to wind strength and sea conditions.

Jib Halyard

Setting: A little more than hand tight. Scallops only just removed.

Result: Draft forward a little and deep; full entry. Jib tell-tales affected only by significant changes in heading as this setting provides wide groove.

Objective: Power, acceleration, speed.

Jib Sheet

Setting: Moderate tension.

Result: Leech open 5 degrees to 10 degrees at top batten, bottom of sail relatively full.

Objective: Power, acceleration, speed.

Jib Lead

Setting: See previous description.

Mast Position/Backstay

Setting: Ease 4 to 6 inches from pointing mark which you developed in tuning process.

Result: Mainsail and jib draft forward and slightly deeper than pointing setting.

Objective: Power, acceleration, speed

Main Sheet

Setting: Moderate so that -

Result: Top batten is angled or twisted off 5 to 15 degrees to leeward. Top "woolie" flying 20% to 30% of the time.

Objective: Power, acceleration, speed.

Yang

Setting: No tension; should only be used downwind to keep top batten parallel to or slightly open from boom.

Cunningham/Downhaul

Setting: Only slight tension unless draft has wandered aft in a used sail (more than 50% behind mast)

Result: Speed wrinkles along luff. Draft stays in designed position.

Objective: Power, acceleration, speed.

Outhaul

Setting: Moderate tension so that -

Result: Vertical plane of sail is located 3 to 4 inches away from boom. This setting is particularly sensitive to sea conditions. Bottom part of sail is full.

Objective: Power, acceleration, speed.

Traveller

Setting: Car slightly (3 to 4 inches) to weather of centerline so that -

Result: Boom is just to leeward of centerline but will be closer to or on centerline when main gets trimmed later on. Allows eased mainsheet to inject "twist."

Objective: Power, acceleration, speed.

When we get out of the pack and into clear air, we shift to "pointing gear."

Jib Halyard

Setting: Ease to beginnings of scallops.

Result: Draft aft and no longer deep, fine entry. Tell-tales get sensitive to small heading changes as groove has narrowed.

Objective: Point with speed.

Jib Sheet

Setting: Tight to moderate tension.

Result: Top batten on centerline, flattens bottom of sail.

Objective: Point with speed.

Jib Lead

Setting: Unchanged

Mast Position/Backstay

Setting: To or near point mark.

Result: Main draft aft, sail is flatter, flattens jib.

Objective: Point with speed.

Main Sheet

Setting: Tight to moderate so that -

Result: Top batten parallel with boom, top "woolie" flying 10% to 20% of the time.

Objective: Point with speed.

Yang

Setting: No tension.

Result: Low angle of attack (high pointing)

Objective: Point with speed.

Cunningham/Downhaul

Setting: No tension (see previous comment)

Duthaul

Setting: Tight to moderate tension so that -

Result: Vertical plane of sail is located flush with boom - actually touching it - to 2 inches away depending on sea conditions. This means you have virtually eliminated the "shelf" in the foot of the sail.

Objective: Point with speed.

Traveller

Setting: Car still 3 to 4 inches to weather so that -

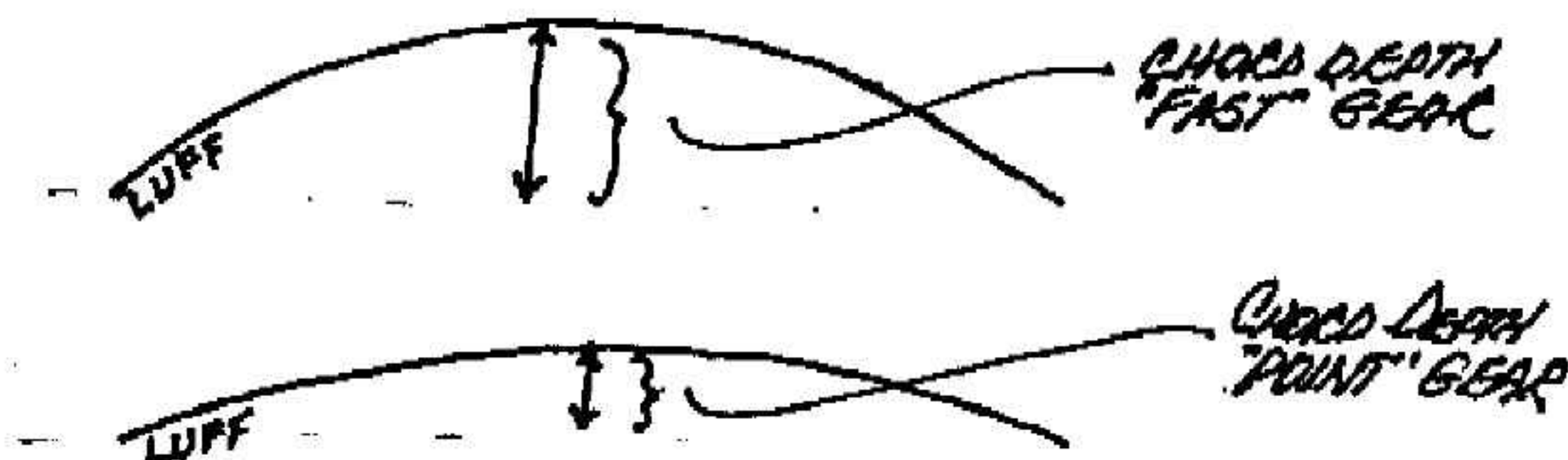
Result: Boom is on centerline with main trimmed to "point" - top batten parallel to boom etc.

Objective: Point with speed.

All of the above

All of the above can be distilled in the following (over-simplified) illustration which applies to both the jib and the main-sail. It makes the point (I hope) by a certain amount of graphic exaggeration. The idea, of course, is to induce power (speed) in "Fast" gear without being overly concerned with pointing. In pointing gear, one creates a far more efficient foil for windward work. Note

that the point of maximum chord depth - draft - moves aft in "Point". In terms of actually shifting gears, the backstay, main sheet, jib sheet and outhaul are the important controls.



The Cardinal Sin

The penultimate grievance is overtrim. If you feel slow or appear to be going backwards relative to nearby boats, ease everything 2 inches. The boat needs drive. When things get choked off, it stops.

Don't Be a Heel

Never, never let the boat heel so there is less than 4 to 6 inches of freeboard on the leeward side of the hull. If there is less, you are going sideways. This angle of heel is a function of crew - weight, constantly playing the traveller and "feathering" the boat in the puffs. In 12 knots of wind (true) or over, the traveller, in my opinion, is the critical string and should be rigged so one crew member, sitting on the weather rail, can play it like a violin every second of every weather leg. He should be able to visualize 4 to 6 inches of lee-side freeboard showing at all times. If, on a mile and a half weather leg, he hasn't made fifty to one hundred adjustments, send him off to the golf course where he can take one hundred and seven cuts per round and probably feel good.

Said another way, if a guy lets every third wave hit the chainplates and I maintain a more or less constant 4 - 6 inches of freeboard, he will soon be playing serious catch-up, everything else being equal. This is because the boat was designed around 1965 which might as well have been the dark ages in terms of hydrodynamics. As a result, the keel isn't the greatest lifting device known to man. If you "tilt" it appreciably, it goes to sleep real quick and the hull goes sliding away to leeward. Similarly, if you pinch the boat, the keel stalls almost immediately with the same result.

The Rudder

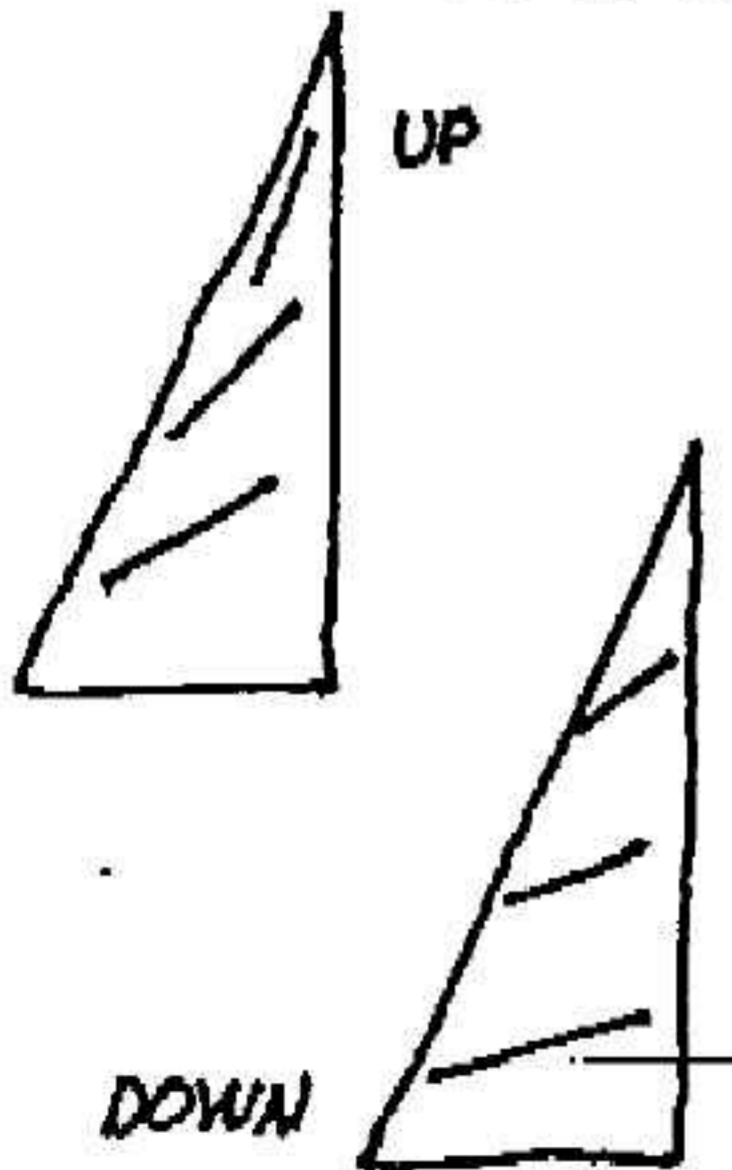
By modern standards, the rudder has maybe 20% to 30% more wetted surface than necessary. Also, because it is attached so far forward as compared to today's skegs, it is relatively ineffective. It is, in essence, a badly located barn door which, when over-used, drags the boat backwards and sideways - directions in which one seldom wants to go. Think of swinging the tiller full-throw across the cockpit, moving it from a position where the tip touches one side of the hull to where it touches the other side. Call that arc - I bet

the tip travels six or seven feet - one cycle. Now think of a one mile windward leg and the amount of movement - or the number of tiller cycles - a helmsman puts into that distance. For the sake of argument, I bet a lousy helmsman puts in three to five cycles while Moose McClintock, the other extreme, probably puts in less than one cycle for the same distance. Envision two boats, side by side, going upwind on a beautiful day as the Buzzards Bay chop is building. Imagine one guy having to swing the tiller from one side of the boat to the other five times while the other guy simply cruises. At the end of all that thrashing about, how much distance did tiller-happy lose? I really don't know but would guess the loss to be one to three boat lengths. A good Shields helmsman can "influence" the bow with only the smallest "pressure" on the helm which causes the rudder to move maybe a sixteenth of an inch. There are a lot of "sixteenths" in six or seven feet. And a three boat length lead at the weather mark ain't bad for doing damn near nothin'. It's a classic case of less being more.

The Groove

Not to be confused with jib luff entry as already mentioned. The groove of which I speak is the Holy Grail for some guys as in "we got it in the groove and really moved out" or "all you have to do with a Shields is find the groove and it goes like hell." Beware this groove: it doesn't exist!

Moving the boat upwind is actually a series of S-turns that should resemble the trail of an amiable and well-fed boa constrictor out for an afternoon crawl. The outer boundaries of such progress are defined, for me anyway, by the bottom jib tell-tale and a feel for the power or pressure the boat is absorbing from the wind which is difficult to describe.



As you steer towards the wind, the bottom tell-tale should "float" up to an angle of about 45 degrees from straight back or horizontal. The middle tell-tale will be up say, to 60 or 65 degrees and the top tell-tale will "stream" straight up. At this point the boat begins to loose power and you can feel it sort of want to straighten up even before it begins to do so. Pressure on the helm puts the bow down a little, the sails grab some wind, the bottom tell-tale floats to 10 to 15 degrees up from horizontal (but never horizontal) and the boat wants to heel - so up we go again...and so on. I'm not sure, but I think I'm talking about heading changes in the magnitude of 3 to 5 degrees. The result of this delicate little tango - particularly if one's senses are having a good day - can be pretty groovy.

It almost goes without saying that you should always "take a bite" or "feather" on every puff.

Tacking

Most people will disagree but I think it is particularly difficult to tack the boat efficiently. I make a concerted effort to be a pro every time we flop but when I look back, the wake often resembles a "fish-tail."

Consider two guys tacking, side by side, and forgive my lack of talent for the graphic arts.



Onet has given 1/8 to 1/4 of a boat length to Fallon per tack and after almost seven or eight such presentations is, upon arrival at the weather mark, almost hysterical and wondering what happened.

Again, I'm not sure of the answer but what I try to do is throw the boat - firmly and quickly - through the eye of the wind so that the helm gets centered at the exact moment the bow points at the new course. I find if I try to let the boat "shoot", it inevitably loses enough headway so as to require additional helm which then pulls the bow beyond the course of the next tack. Anything gained to weather is lost via the resultant correction which creates a "fish-tail." After you tack, look back at your wake. If you are consistently giving your competition a gift, best you do some work on technique.

Particularly in a situation which could be called "more sea than air," a left-over lump, for example, it is important to ease backstay, main and jib sheets an inch or two during a tack so you can power out of it. This requires having good equipment located properly as in an 8 to 1 double-ended backstay led forward on both sides of the boat. If nothing else, leave the new jib sheet eased for a few seconds after you flop.

Reaching

No rest for the weary. Once the spinnaker is set, we try to play every puff that comes through. With four guys, someone is looking over his shoulder to watch the wind. As a puff approaches, he says something like "I've got one coming" and just before it hits, he says "puff, puff, puff": the helmsman says "down, down, down" and the trimmers say "ease, ease, ease." At first this will sound rather like a drunken recess in a kindergarten class. Yet it keeps everybody's head into the main objective which is to get the bow down early so you convert more energy (from the wind) into forward movement along the track and not into heeling moment. When the puff begins to die, the helmsman says "up, up, up" and the trimmers (both mainsail and spinnaker) say "trim, trim, trim." As a rule,

when we come, "up, up, up" it is not to the course for the mark. It is to a course parallel to the original one but below it to whatever extent we have sailed off to leeward. This often helps you separate from guys to weather who tend to work up to fight off each other. Obviously, the tactical situation will dictate how deep you go. Particularly on beam to broad reaches, it is remarkable how much you can gain when you come screaming into the mark on an angle 30 degrees more favorable than the competition. This assumes one has the fortitude to stay low until the last 100-200 yards from the mark. Inching up over the last third of the leg doesn't seem to work.

Running

Most people don't ease the mainsail enough when travelling dead downwind. In fact, in heavy air, most people seldom travel dead downwind at all in fear of a killer jibe. There is a school of thought (to which I adhere) that says "tis far better to wipe out the crew than lose the race."

As a demonstration, in moderate wind, sail dead downwind (on the masthead fly) and then try sailing off (by the lee) another 5 to 10 degrees. No problem. Then you must gather the courage to do this in 12 to 15+ (true), in a seaway, when the boat actually likes to sail by the lee. We have a guy leaning against the boom. When he starts to squeal like a stuck pig and veins appear in his neck we come up a little. Under 10 to 12 knots, the boat doesn't like this point of sail so you have to pick the correct side of the course, tack downwind, and play any 10 degree shifts that come along. For this drill a masthead fly is essential.

If, in the process of roaring dead downwind in a breeze and a seaway, the boat starts to rock and roll from side to side, don't be too quick to stop it. This somewhat hair-raising experience is fast. It becomes the supreme test for the helmsman, who must really concentrate on keeping the bow boring along in an absolutely straight line. You have to anticipate the next "swing" way before it happens and get some of the barn door into it real early. At the same time, it is worth remembering that "Moose" ain't going to put as many cycles into this exercise as the average guy. No matter what they tell you at the bar, it is almost impossible to stick the pole in the water. On the other hand, there is a limit to this madness which has a lot to do with one's state of mind and the onset of one's personal equinox. When that point is reached, strap down the chute (twings, sheet, guy), head-up or do both. After all, this too shall pass,

Crew Weight/Location

Upwind and close-reaching: We try to keep everybody located on the weather rail as far forward as possible and as close together as we can manage- a real love-in.

Downwind and broad-reaching: Move crew weight to just aft of amidships and adjust so the boat is not heeling at all. Here again, we try to keep weight "together" except when you start to rock and

roll. At that point, spread crew out side to side and fore and aft. You will be surprised at how much of a dampening effect a scattered weight distribution will achieve.

In light air, position weight as above but use it to encourage 5 to 10 degrees of heel going upwind. You want about the same amount of weather heel when going downwind so as to coax the spinnaker out and away from the main.

A Debutante She Ain't

Shields are anti-social. They particularly dislike the company of other Shields. Their weight, inefficient underbody and cumbersome rig all contribute to the boats' inability to cope with chopped-up water and cut-up wind. That is why it is desperately important to get away from the starting line in clear air and smooth water. In my opinion, you can never, never afford to suck gas and should always throw in a tack or two quick tacks to get in the clear. If you find yourself in a clump of boats upwind or down and you suspect you are being adversely influenced by such company, bail out immediately. Avoid laylines fiercely. It is far better to overstand a layline by a couple of boat lengths (into clear air) than to wallow around in a parade. At the bottom mark, if you find yourself in or just behind a clump of boats, be prepared to tack right at the mark - even if the strings are in a mess.

You will never pass boats on a reaching leg, particularly in a breeze when competitors are throwing wakes all over the place, unless you are well separated from them up in the so called passing lane, 3 or 4 boatlengths to weather or 7 to 10 boatlengths to leeward prepared to "angle in" over the last 100-200 yards as described. It is also difficult to blanket and pass when running. Indeed the opposite seems to be true - you can cover from in front pretty effectively. I'm not sure why this is so, but I suspect it has to do with breaking through the leader's wake which, in my experience, is damn near impossible. I may be wrong but I think a follower should get on the other jibe, work on one's boat-speed and pray for a lift on which to jibe back. I would happily part with my personal incantation for such a just and righteous event if I thought it would help. It won't; it will only improve your vocabulary.

It is obvious, particularly in big fleets, that guys who early on are able to separate from the pack sail away with the race. This phenomina is an absolute. It is why speed - at the outset of a race - is critical. Those who are compelled to be part of the first and second leg herd are destined for a death march to the bottom of the fleet from which, unlike Douglas MacArthur, they may never return.

The Most Important Ingredient

In a sense, I've saved the best for last. By far, the most important ingredient in a happy-making race equation is crew - or should I say crew-work. Make every effort to assemble and keep a regular team. I use the word "team" with fear and trepidation because at the outset, you may well have harvested a rag-tag group of enthusiastic screw-ups. Now it is up to you to forge your band of merry

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men/women into a slick sailing machine. This requires practice and lots of it. You will have to schedule regular sessions and have to a predetermined agenda which could look something like this:

(2 Hours)

30 tacks
15 mark roundings with spinnaker sets
15 spinnaker jibes
15 take-downs with transition to upwind configuration

During the first work-out, you will see immediate improvement and the troops will be talking about what works best for each evolution. After two sessions, you will look upon the wing mark as a place to blow people away. After fifteen hours, you will resemble Stars and Stripes.

You might want to maintain a separation of powers. For instance, on Wizard I do nothing but steer. Peter Beame worries about sail-trim and boatspeed. Michael Neff watches things develop and dictates tactics while Woodie Glenn does the mast and foredeck. In terms of boat/sail handling everybody has a specific job. For example, when we tack, I simply put the helm over (no fishtail) while Woodie jumps in the boat and handles the jib. Michael eases the main two inches. Peter, administers the same treatment to the backstay. Fifteen or twenty seconds later, Woodie puts more trim into the jib and Michael and Peter tension the main and backstay. Seldom is a word spoken. Granted we have alot of time together but, believe it or not, we still practice before a major regatta.

Guess What Makes Perfect?

A word about practice as it applies to sailboat racing. Golfers seem to spend hour after hour whacking balls and messing around on the putting green. Tennis players always seem to be taking lessons or "hitting" with someone. What do sailors do? They hit golf balls or work on their backhand. I know of no other sport on which so many people spend so little time. Yet, ironically, I know of no other sport where "time" reaps so much reward. I realize it's difficult to get two or three people going in the same direction at the same instant. And I know it's painful to get the boat off the mooring etc., etc. But I also know that five hours of organized, disciplined, systematic practice will probably improve your season position by one boat. Ten hours should equal two boats. I will leave it to you to count the boats in your fleet, factor in your most recent competitive result and do the calculation that will turn your transom into a "new view" for your friends. All it takes is time.