

MR. BOYLE'S SELF SAILING SQUARE-RIGGERS

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THE MODELS, AND PHILOSOPHY, OF DOUGLAS J. BOYLE

ON INEXACTITUDE

The following is a bit of detective work, placed on top of the chance reading of an old article. It is informed by my own interest in real, and model, square-riggers, as well as by the knowledge of other people who either knew Mr. Boyle, or whose eyes were also caught by his efforts. As I have gathered information, I have found more questions than answers, and have had to draw some of my own conclusions. Where that has happened I will mention it in the text, and I shall always be ready, grateful in fact, if someone knows better, and sees fit to tell me so. With these warnings in mind, please carry on and read the story of one mans' boats, and the principles that governed his approach to their building. If you're anything like me, you'll find that they're very far from the ordinary run of ship models.

The Cicely Fairfax, becalmed, c.1952



THE ARTICLES, AND THE PICTURES

From November 1932 to April 1933, Douglas J. Boyle wrote a small series of articles about his boats, for a magazine called 'The Model Yachtsman, and Marine Model Magazine', (later shortened to 'Marine Models' and, apparently, nothing to do with MMD). In them he explains some of his tactics in modelling, and the strategies that lay behind them. In the reprint available on the Internet, some pictures are included, as if from the same time, and some of the same pictures have been given to me by Ron Cowl, of York Ship, and Ship Model Society, with his, later, dates marked on them. Therefore, I cannot vouch for the exact dates on the pictures, and will quote the best information that I have. Perhaps, in the end, exact dating is not the point; these models come from pre radio-control days, and represent the zenith of what was done then, perhaps that's how we should look at them, rather than worry too much about whether the date is 1932 or 1950.



ABOVE: Eileen O'Boyle in 1950. This is the hull, with fo'c'sle head and poop, which appears in the two most detailed drawings



ABOVE: The Eileen O'Boyle, or a second full rigger? The picture is thought to date from 1950. Note she has no poop, or fo'c'sle head

ON HULLS, AND THEIR CREATION

"If a man has a real feeling for beauty in ships, he will surely carve out of the solid log a lovely creation, without any plans whatever, provided that he has, fixed in his mind, that ideal creation, or dream ship, which every model shipbuilder ought to have glowing in his imagination."

Thus Mr. Boyle, on the subject of hulls. He goes on to say, "The hull of a model ship, regularly sailed, has a rough time of it. We must have a strong hull, and a sound one."

Mr. Boyle, therefore, built his hulls by carving them out of solid wood. In the case of the Eileen O'Boyle, he did it in around 1905, but his philosophy was to continually improve his creations. Every year, his boat(s) would come out of the water for a re-fit, during which he would re-carve, and re-shape, always striving for a bit of extra speed, or sea-kindliness from his models.

"A dug out hull grows with her builder. It is likely to be better, and more beautiful in shape, after twenty years than when it was just completed... Every successive re-fit and rubbing down... gives one the opportunity to remove... little blemish in the lines... which every builder will continually be noticing in his models."

His models were big and heavy, the Cicely Fairfax weighing in at around 98 lb (45 kg), with keels that could weigh up to, and



ABOVE: Is this the second full rigger? This is the vessel seen in the less detailed general arrangement drawing, and the picture is thought to be from the late 1940s

beyond, 45 lb (21 kg). It was vital, therefore, that his hulls could take the weight, and also stand the potential shocks of being caught, and turned, at the end of each run up, or down, the pond, for these were the days of 'free sailing', which I shall come to later. He also had advice that is still pertinent today, about the decks of windjammers,

"You MUST have sound hatches, with high coamings. A windjammer is very wet in a wind; and constant sponging out on a bitterly cold day leads to corruption of language. The model needs to be as tight as a submarine on her decks. And don't forget the scupper holes through the bulwarks. The ship must rid herself quickly of deck wash, especially in the waist... Ships are not yachts. Their main decks and well decks become small swimming baths if not given rapid clearance."

Withal, he never loses sight of the beauty of such ships,

"Give her a noble sheer... and a good sweep out over the water at the stem, they are the birthright of the windjammer, the noblest of sailing vessels."

With these illustrations of his basic approach, we'll now go on to look at the operation of the ships, and some of their details.



ABOVE: Another picture of the second full rigger, thought to be from the late 1940s. Note the Jamie Green set under the bowsprit, and the reduced rig, as compared with the other picture

MASTS, YARDS AND STANDING RIGGING

In the articles, Mr. Boyle explains at length how to determine the correct positioning of masts along a hull, the correct angle at which to set a bowsprit and the best proportions to seek, when deciding where to mount the yards, also the lengths to choose for each yard, in relation to the beam of the vessel. He rejects completely the stepped lower, top and topgallant masts of the real ships; his method was to create his masts as one piece, the objective being,

"If you smash a mast on Friday night, it is advisable to be able to fit another by 2-30 on the following afternoon, after dinner."

The whole point of all this is that he recommends that you, the builder, should design your own ship, not slavishly follow plans of some pre-existing vessel.

His method of yard attachment was simplicity itself. He fastened large eye screws, about half an inch in diameter, to the appropriate places on the fore side of the masts, and then placed similar eye screws, of smaller diameter, in the centre of each yard, pulled open the eyes, and hooked them on to the larger eyes on the masts. The yards then slid around the larger eye screws, to allow the yards to brace right around the masts, from one tack to the other. The sails are fastened permanently to each yard, with a loop of line fastened to each bottom corner, or clew, which is, in turn, hooked on to the yard beneath. The whole tower, of sails and yards, will then hang securely from each mast, without the need for halliards or lifts to support it. His philosophy of sail design was a simple one, and one that works just as well today,

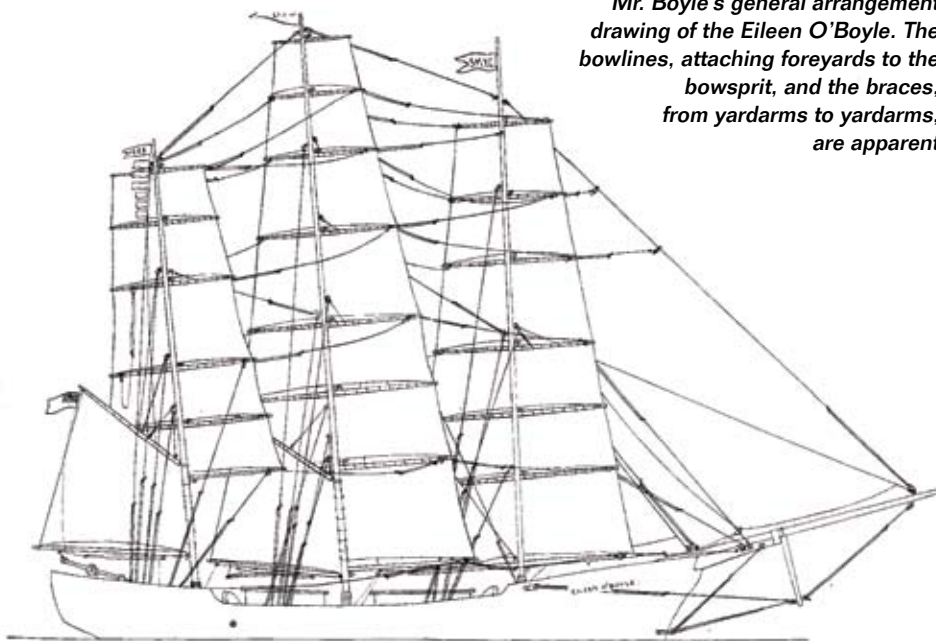


ABOVE: The Naomi de Lacey racing with the Cicely Fairfax. This picture is within the 1932/33 articles, as they appear on the Internet. Is it from then, or the 1950s? Whatever its date, these vessels make a striking sight. Would you like to stop one at the far end of the pond, and turn it round?

"Flat sails and a tight leach mean good sailing to windward... the beautiful, bulging sail of the Sixteenth Century Carrack must be avoided at all costs. You will never sail to windward with those!"

Mr. Boyle fitted yards to the bottom of his courses, that is the square sails at the bottom of each mast, which, on the real thing, were 'loose footed', held down by tacks running forward, and sheets, running aft. He did this for reasons that we'll come to in a later part of this piece, but it matters now because he also treated his standing rigging in a very individual way, in order to cope with this peculiarity. The standing rigging of a real windjammer, the shrouds and backstays, are secured right in the bulwarks of the ship, so that port and starboard stays are as far apart as possible, the better to brace the masts. As he had yards at the bottom of his courses, Mr. Boyle could not attach his shrouds etc. in this way, for they would impede his bottom yards from bracing right round. Thus he attached them to angle sections, which he called channels, set in to the deck, well inboard from the sides of the ship, and, of course, astern of each mast. Doing this enabled his yards to brace well round,

"You must be able to jam your yards very far round, when close hauled, right on to the backstays. It follows that the farther in the backstays are on the deck, the farther round will your yards..."



Mr. Boyle's general arrangement drawing of the Eileen O'Boyle. The bowlines, attaching foreyards to the bowsprit, and the braces, from yardarms to yardarms, are apparent

that), and so on. This joining of the yards was carried out, in the same manner, all the way up the masts, so that, if the yards on the foremast were braced round, from one tack to the other, the yards on all the other masts followed suit, all going from one tack to the other together. Thus, all the square sails "worked as one". The lines that joined the ends of the yards he called braces.

It follows from this that the control for bracing round the yards need only be fitted at the ends of the ship, Mr. Boyle so arranged matters that what he called "the only real braces" were lines leading to the yards on the aftermost mast, starting with the yard at the bottom of the aftermost course (see above on the need for the shrouds and backstays to allow the yards to swing in a full arc, from tack to tack). They were adjustable, by the use of bowsies, and were attached

swing, and the higher you will be able to point up to windward with perfect safety."

The backstays and shrouds were all fitted with hooks at each end, so they could be attached and removed easily and quickly, and also had bowsies, so their tension could be adjusted. The whole could then easily be dismantled at the end of a day's sailing. The forward running stays on each mast were treated in the same manner, hooked on to mast and channel, and easily dismantled. The halliards of the fore and aft sails (the jibs and the staysails) were run to the channels for their attachment, via screw eyes at the appropriate heights on their masts. Their downhauls were hooked on at the appropriate positions forward of their masts, and their sheets were also run to the channels. The channels themselves were given a generous number of holes, in which to fasten all of the above, and Mr. Boyle was as methodical as were the real ships in having a specific order in which to secure everything.

"Remember the old sailing ship adage... a place for everything, and everything in its place. Every separate halliard and backstay should have its own hole in the channel, held there by its own hook. You should be able to find any particular halliard at once, even in the dark!"

RUNNING RIGGING, FREE SAILING AND THE RUDDER

Mr. Boyle sailed his boats before the days of radio control. He had to set up his rigging and rudder in such a way that he could send his boats away from one end of the pond, and have them fetch up where he wanted them, when they arrived at the other. The adjustments available were those required to cope with the direction from which the wind was blowing, in relation to the direction he wished his boat to take, in order to sail to the point that he had selected, altogether a very difficult proposition! As you might now have come to expect, he had his own ideas on the rights and wrongs of going about it,

"Let it be understood at once that it is absolutely hopeless to attempt to manage the model as the real ship was managed. You are sailing a great ship without a single man on board... the principle to be held in mind is this; that your square sails, be they six or twenty, must work as one sail."

The first arrangement that he made to achieve this end was that he connected all the yards together, fore and aft. So, the yard at the foot of the fore course was joined, at each end, with the yard at the foot of the main course (on the mast behind), and that, in turn, was joined to the yard on the mizzen course (on the mast behind

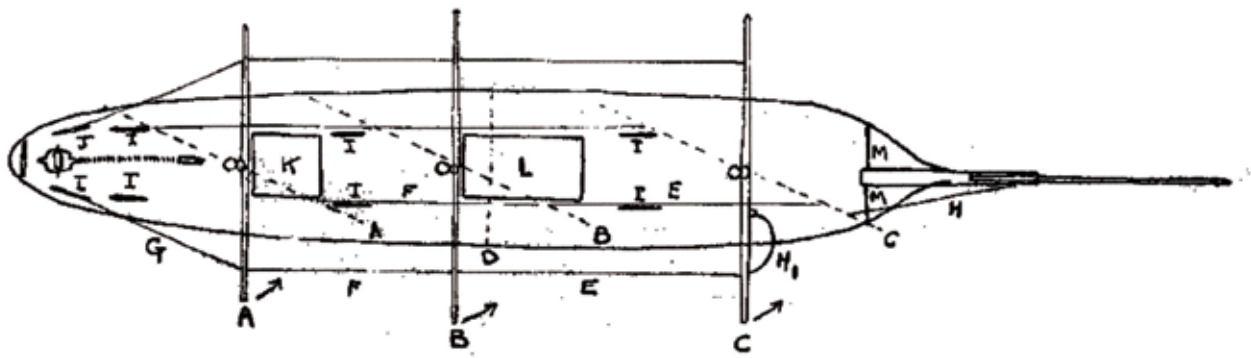
to the channels abaft the aftermost mast, be it the mizzenmast of a three master, or the jigger mast of a four master. By the use of these braces, he could set the yards at the angle he wanted. He found, in practice, that he very rarely used these braces, as he found the most useful control lines to be the bowlines (as he called them) which performed the same function, at the other end of the ship.

The bowlines were attached to the foreyards from their forward sides, starting with the yard at the bottom of the fore course (hence, once again, the need for the shrouds and backstays to be secured inboard of the bulwarks, to allow the yards the room to swing round in a full arc, from tack to tack). They too were adjustable, by the use of bowsies, and, in use, were attached by hooks, to the bowsprit.

When not in use, and Mr. Boyle found that he often didn't need to attach the braces to their channels, or the bowlines to the bowsprit, they were simply hooked back on to their respective yards, leaving them as loops on the fore side of the sails (see later). He controlled the sheets of his fore and aft sails (the jibs, set from bowsprit to foremast, and the staysails, set between the masts) by leading them down to screw eyes set into the deck, one on each side of the mast, and then taking them back up to a position about half way along each side of a yard, so that when the yards were put on to the opposite tack, the pull on the sheets was taken on the other side.

Mr. Boyle's rudder arrangement was a device of which I have no experience, in the same way that I have no experience of free sailing, so here I am going to do my best to explain matters, with no personal knowledge. Should anyone read this who has experience of the above, I hope they will bear with a novice, both in terms of the names that I shall use, and of the use of the system.

He used a 'weighted rudder', that is to say a rudder that had a lead weight attached along its trailing edge (see his sketch). Apparently, such a rudder, when allowed to swing freely on a sailing vessel, will accommodate itself to the flow of water going past it, and allow the vessel to keep the course suited to the set of the sails. As the vessel tends to yaw slightly, the rudder will automatically compensate, and help to sail a selected course. To give some adjustment to this arrangement he added what he called tiller bars to the top of the rudderpost, above deck level. If he chose to do so (see later), he could attach to the forward tiller bar, either an elastic line, or a spring, in order to further modify the rudder's reaction to the wind and water. At the after side of the rudderpost was another tiller bar, which acted as a kind of "balanced flywheel". This additional tiller bar could also have been used to connect other things, e.g. the spanker, or a self-steering arrangement such as the Braine Steering Gear, to



- A -- Mizzen Yard (or Crojick)
- B -- Main Yard
- C -- Fore Yard
- D -- Approx midship position
- E -- Starboard Fore Brace
- F -- " Main Brace
- G -- " Crojick Brace
- H -- " Fore Bowline
- H1 -- " (hung up)
- I -- Channels for Backstays
- J -- Steering Gear
- K -- After Hatch
- L -- Main Hatch (with handle under)
- M -- The Stoppers to prevent ship crashing

ABOVE: Braces, bowlines and yards, Mr. Boyle's sketch of the running rigging for a full rigger

jamming the yards on to the backstays, and holding them there."

I know from my own experience, with my model windjammers, that you can sail 'hands off' like this, quite easily, when sailing with the wind abeam. If Mr. Boyle wanted to sail downwind, he had to adjust things a little, but all it meant was that he would haul the yards a little off the backstays, by adjusting the bowlines that were fastened from the foreyards to the bowsprit, in order to pull them into the correct position, thus pulling all the yards into the same position relative to the fore and aft line of the ship. The higher yards on the foremast also had bowlines, which were attached by sliding links to the stay that ran down from the foremast cap, to the end of the bowsprit. They were also fitted with bowsies, so that they could brace their yards around to the correct angle too. He would then set the rudder up in the way that I shall describe a little later, and send off the vessel, to take the wind on her quarter, for,

"A wind on the quarter is the windjammer's joy."

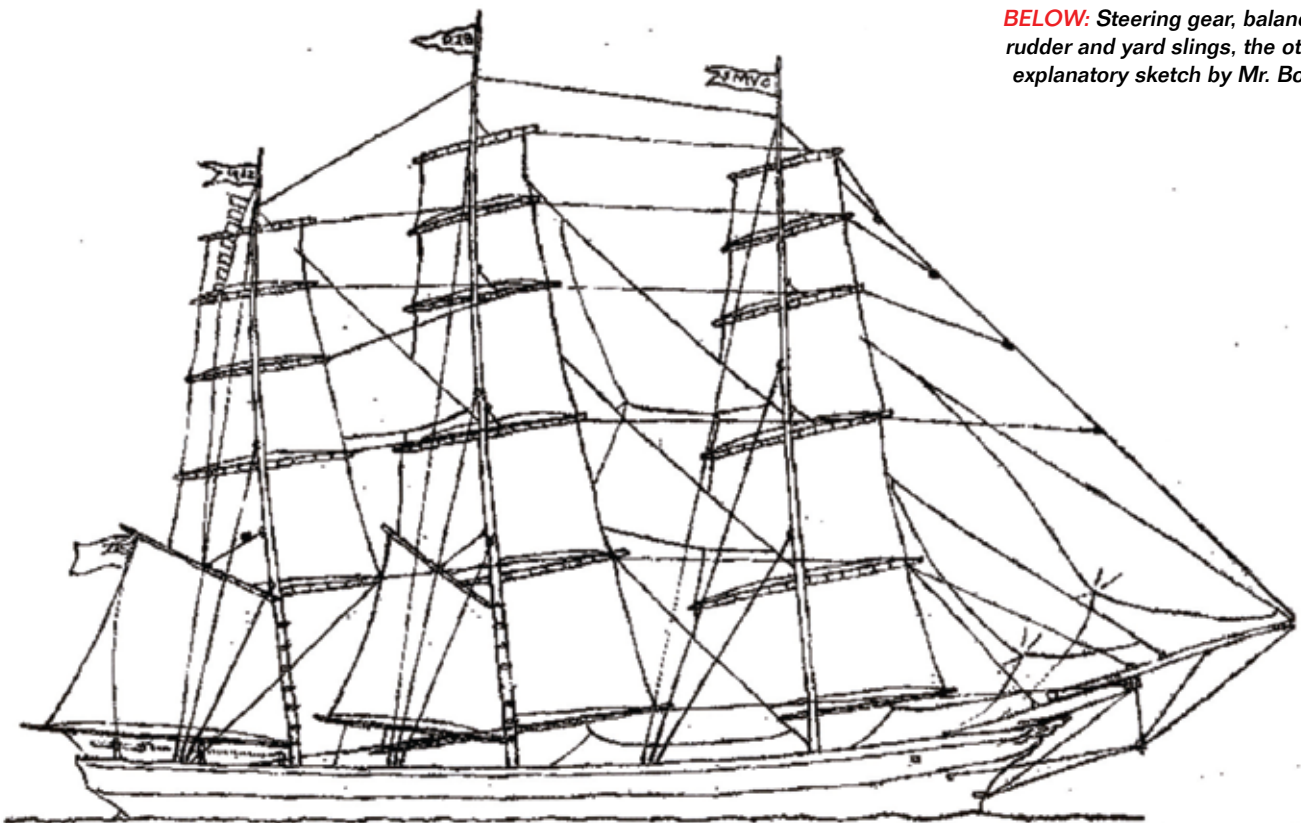
The trip back, 'up' the pond, would entail sailing close to the wind, requiring the yards to be pulled back on to the backstays. This time, they would need holding there, so as not to be 'caught aback' (inadvertently take the wind from the front of the sails), so the bowlines were adjusted again, to get the yards to the correct angle, the rudder was set up as we shall see in a moment, and away she went again.

redoubtable Mr. Boyle. 90 odd pounds weight of four masted barque, hurtling towards me across a stormy 'sea', would have presented a daunting challenge to stop, and turn around. But, there again, they were all made of sterner stuff then!

As to the setting of all those masts and yards in order to sail properly, well, it was not as complicated as we might have thought,

"The yards on the masts being strapped together, fore to main etc... they all move round together and, if there be a wind abeam, you can sail for hours without ever once fastening a brace down to the poop, or a bowline down to the bowsprit, the wind itself

BELOW: Steering gear, balanced rudder and yard slings, the other explanatory sketch by Mr. Boyle



It will be apparent, if I've managed to explain myself well enough, that the braces, from the aftermost masts' yards, to the channels on the poop, have played no part so far. In Mr. Boyles' words,

"You seldom use your real braces, on the after side of the aftermost masts' yards... your fore bowline is the maid of all work on the model windjammer. You may be able to sail for days using no other bowline, and no braces whatsoever."

I assume that he would use them as an extra means of securing his rigging, if necessary, but he is not clear on this. As to the steering, well he did have a strategy for that. When he was sending his ships downwind, or with a moderate beam wind, he would attach elastic lines to the forward tiller bar (see above). That gave him light control of the rudder. If he was beating, back into the wind, he would attach a spring, to give tighter control, and less movement to the rudder. In effect, he would force her to her course. He states that he could see that other approaches to self-steering could be applied to his boats, but does not say that he followed up any of them.

In brief then, that is his method. He used it to sail his boats in competition with 10 raters (large model yachts), and other windjammers, though I don't have much in the way of detail on this, although it is apparent that he was a very competitive man. I would have loved to see his windjammers, and others, engaged in this type of racing with yachts, it must have been quite a sight!

THE MAN, AND HIS MODELS

The series of articles, on which this piece is based, was neither an autobiography nor a history of his models, so what he gives away about both is limited. He mentions his pride and joy, the three masted full rigger, Eileen O'Boyle, as being first carved around 1905. He says that she sailed as a two masted schooner from 1912 to 1930, when he converted her to square rig. There then followed her halcyon days, winning races and creating club records in Scarborough, until she was badly damaged, in 1931. He re-built her in 1932, giving her a new keel and false keel, which added six pounds to her weight. He added the steering gear seen in the sketch, which he says improved her ability to sail to windward, but he then says, I think rather sadly,

This... "has somewhat interfered with her perfect balance on the reach. She needs finding again, that is all. I do not care to sail her regularly now, for fear of damaging her. It is not pleasant to have 10 raters crashing across your main deck."

There are at least two other models seen in the article, the Naomi de Lacey and the Cicely Fairfax, a five masted, and a four masted barque respectively. Of the Naomi de Lacey we know nothing, of the Cicely Fairfax not much more, only that she weighed in at about 92 lb (42 kg) and was 60 inches along the waterline, and 89 inches overall.

In the pictures, you'll see the Eileen O'Boyle, pictured in a garden. You'll also see a second full rigger, both in the garden, and on the water, with a different looking hull, and sail arrangement. I don't know if this is a different vessel to Eileen O'Boyle, or the same ship, much modified. On balance, I'd say it was a different ship, as the pictures look concurrent. Ron Cowl sent me some very small pictures, which show a full rigger with yet another sail layout, whether this was a third one, or not, I do not know.

Of Mr. Boyle himself, there is not much to tell. He says that he built the Eileen O'Boyle around 1905, when he was a schoolboy, so I assume he was born between 1890 and '95. His articles were written, therefore, when he was about 40/45-years-old. Ron Cowl, of the York Ship, and Ship Model Society, knew him personally, in the early 1950s, and remembers seeing several large square-rigger models in his house, including a four masted barque being stored on a board over the bath! He was the inspiration for Ron's own square-rigger modelling career, and Ron remembers him as being a dapper little man, very smart, with a grey beard. Ron lost touch with him in the mid 1950s.

The next I've heard of him, or of one of his boats, was in New Zealand, around 1990. Details are very vague, and I'm actually not

sure whether it was him, or the Eileen O'Boyle that was 'found'. At all events, the owner of the boat was not able to answer any queries at the time, and there the matter rests to this day.

AFTERWORD

Mr. Boyle was one of a kind, as far as I can see. He was capable of seeing the beauty in ships, and the art in the creation of a model. On the subject of catching that beauty he said,

"What you want is that something which goes to the heart, that serenity and loveliness, that balance and harmony, that bird-like grace. You will be a handy fellow if you can capture it once, on one ship. You will be a genius if you can get it twice..."

He was also capable of trenchant views,

"...avoid the wretched little stump bowsprit... the depressing row of masts, all on a dead level... of the later, multi-masted barques"

"...that abomination in sailing ship models, the removable deep fin keel."

Speaking as a builder of models, made from plans, using plank on frame techniques, of later, multi-masted barques, all using removable deep fin keels for their stability, I think he is a breath of fresh air, and I'd love to be able to swap boats with him for an afternoon.



ABOVE: Mr. Boyle would not have approved! One of the authors' square-riggers, made in plank on frame, to a plan, with masts of equal height and a removable fin keel. Still, I hope he would have forgiven my heresy, and enjoyed sailing her for an afternoon!

ACKNOWLEDGEMENTS AND REFERENCES

<http://pages.swcp.com/usvmyg/squarerig/sq1.htm> – Use this link to see the original articles

www.cocatrez.net/Water/RC_SquareRiggers/RC_SquareRiggers.html – Use this link to go to the website of Jan Cocatre-Zilgien, to see many of the world's square-rigger models. Scroll to the bottom of the first page, to see a link to Mr. Boyles' articles

Earl Boebert, of the US Vintage Model Yacht Group – Thanks for permission to use the articles in the first place

Ron Cowl, of the York Ship, and Ship Model Society – Thanks for the extra, and much better quality pictures, and your personal recollections of Mr. Boyle

Mark Steele, from New Zealand – Thanks for your information from New Zealand

Jan Cocatre-Zilgien – Thanks for your efforts in cataloguing model square-riggers, and including Mr. Boyles' work, in your list **MMI**