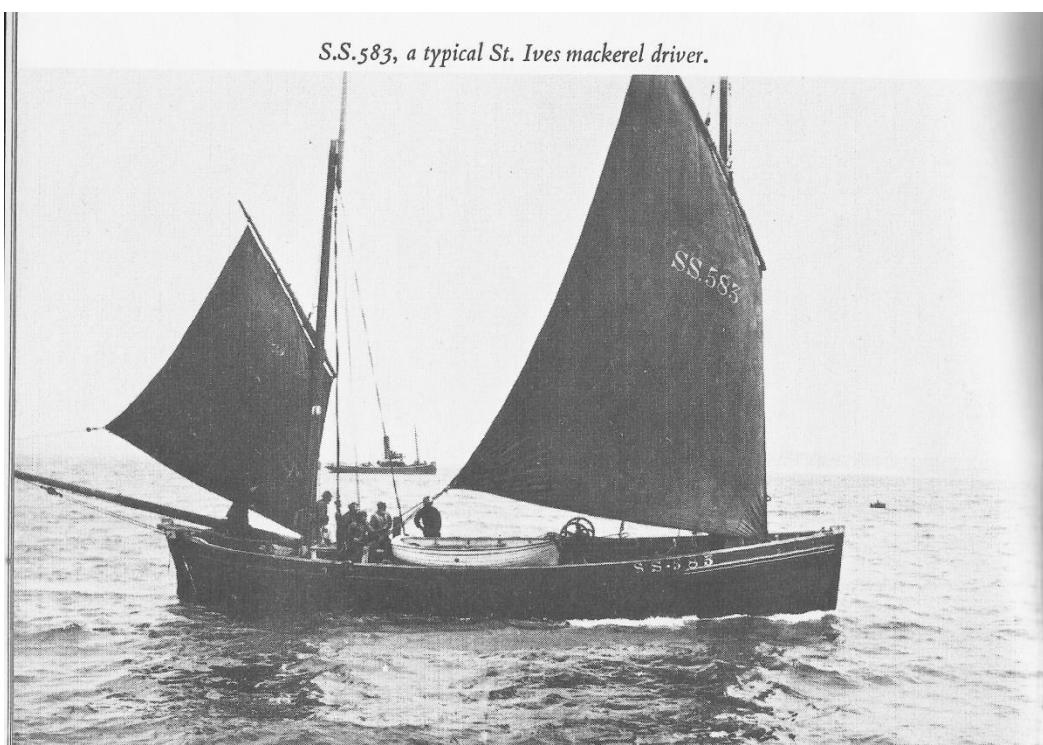


WILD VIOLET.

By Nige Dale.

A STORY OF THE BUILD OF A MODEL WEST CORNISH LUGGER.



The picture has been taken from the book, Boatbuilding in West Cornwall. By, A.S.Oliver.

The name, Wild Violet, has no significance to the model or the prototype, but it was one that came to mind, whilst the model was under construction.

PART 1, THE SEEDS OF FUTURE TOIL.

My wife, and I, were holidaying in Pembrokeshire, (Milford Haven to be more precise,) where we were to explore

some of the area, and relax. We arrived (as most people do) on the Saturday, and settled in to a terraced cottage close to the harbour. After unpacking, and a cup of tea, we set off for the initial walk round to get a feel of the place. We walked down the hill, and onto the harbour quay, which had been gentrified with café's, and posh shops, surrounding the once bustling fishing harbour, which is now a marina. Both my wife and myself, prefer boats

with little character, old boats, new boats, and those with a story of their own. There were a couple of old commercial fishing boats, but, at the end of one of the quays was a fine looking vessel with sticks, so off we went. The boat was well loved, and had an information board at its berth, see Fig 1.

Fig 1.



As the first day started to fade into evening, we went off for fish and chips, and a pint, (we were on holiday after all) to close the day. We ate a most excellent bag of fish and chips, cooked to order, by two ladies who would not apologise for the wait, but the wait was worth it, and on finishing the fish and chips went to the pub for the pint.

In the pub, we discussed the day, and made some loose plans for the next couple of days. The pub was nothing out of the ordinary historically, but in current terms was a retro, or a proper pub. No food, but staff who knew the trade, and locals who looked you up and down and said "ow do", comfortable, friendly. Spot on.

As the evening progressed, Pat (the wife) said, "fancy us finding your next project on the first day." "What?" says I, "you know the nice boat at the end of the

quay" says Pat. Quickly trying to find (superficially) some valid reason by acting dumb, in not finding a perfect example of a boat from which to build a model, I said, "which boat are you talking about?", "The one with two masts, and yellow hull", replied Pat. I managed a short silence which I hoped would purport consideration and; "I'll take some photographs, and have a look at it when we get back; do you want a packed of crisps with the next drink?"

The remainder of the holiday was a good relaxing time. Boat wise, the examples of working vessels was large and varied. Tenby has a Lugger rigged vessel not too dissimilar to the Coble, and Milford Haven has a good museum of local history with models, that are merchant, and military which were built by local chaps, some within dioramas. All supported with comprehensive documentation and life size artefacts.

On returning to work, and the patterns of life that are related to that practise they call normality. I had to find time to do research. The web is useful, if someone else is interested in your topic, has a web site, and you know the right questions to ask.

Eventually I found The Lugger Society, in Mounts Bay, Cornwall. There was a fellow there who suggested a book, Boats and Boatbuilding in West Cornwall, by A.S.Oliver, as a good book with a lot of information, and drawings that may be of help. A copy of the book was located, purchased and despatched.

The book is excellent, full of good information and drawings, collated by a person determined not to let the history of the West Cornish boats fade into legend. This basic book is probably the

most informative book for the topic of its size, I was, and still am, impressed and pleased with the purchase. Next step was to choose a boat to build, so I chose a West Cornish Lugger, "The Ebenezer"(by the drawing title).

Fig 2.



PHOTOGRAPHS OF THE VESSEL THAT STARTED ALL THIS, "OUR BOYS" AN EAST CORNISH LUGGER.

Fig 3.



Part 2. The Build.

Scaling from a printed or drawn item is relatively easy, but time consuming if done the old way. But, who's in a rush. The drawings were scaled up to a 1:16, or $\frac{3}{4}$ " to the foot. Once the scaling was

complete, shadows were developed on which to build the model.

Once the shadows were drawn, including a thickness to be used as the rib, a position for the deck line was also included. Next was the development of the keel, and the dead woods. Extra dead woods the full length of the keel were added, leaving gaps in these extra dead woods to receive the constructed ribs/shadows of the model. Once the checking of the drawings for errors was completed, the transfer of the drawings onto tracing paper was undertaken for eventual transfer on to the wood for the construction of the ribs.

The shadows were fixed to a building board, the keel and dead woods installed, and the hull planking finally completed. To cut a long planking short, I planked the ribs, and removed to hull from the board.

Fig 4.



The West Cornish Lugger is similar in shape to the Fifies, the Manx Nickies and the Zulu. The Cornish Luggers and the Zulus are a Carvel built hull, where the Fifies, and Nickies are a Clinker built hull. Some European Luggers are very similar, as they were probably built in Cornwall, due to the prestige of the vessel. For those who would be interested in

researching for more information, it is most rewarding, the subject is immense.

I removed the ears of the shadows from the hull, and started to put in the bits that hold the sticks, hull accesses, adding a box to the stern (as in the East Cornish Lugger), to gain access to the steering servo. The West Cornish Lugger has a large sky light, so that will be another access.

The long slot towards the bow is where the fore mast goes and is referred to as a "Scuttle" it is angled away from the centre line of the vessel. This is to assist in the stepping of the fore mast, and not to clash with the main mast when the fore mast is being stepped or un-stepped. The fore mast is very often un-stepped for the fishing process of drifting.

Fig 5.



As each facet evolved, the more interesting this project was becoming, one thing I learnt from building the Coble, was that you need to pay attention to the sail control. It has simple title but comprises of, the sail clew line, the set of the sail to the mast, the height of the peak, location of the tack, the servo, etc. All this so she shows her skirts proudly to the wind, and not looking like an old ladies washing line on a Monday.

PART 3. SERVO CONTROL.

Housings were made for the rudder servo, and the sail servo, with a battery hold for good measure.

Fig 6.



When starting to review at the operations of the control from the servos, you realise just how much space these items take, and the various interrelationships that need to be considered. Putting in control servos when there is no deck is easy, but it isn't if you neglect to consider access when the deck is fitted. To replicate the restrictions of the hull accesses of the finished model, the access frameworks were fitted, through which all servo installation in the model would be done.

Control lines from the servos will need guide conduits to convey the control lines from the relevant servo to the sails or rudder. For these guide conduits, brass tube will be used.

Fig 7.



Fig 7, illustrates the introduction of the frameworks for the accesses to the hull voids, where Fig 8, shows a brass tubes install for control line guides

Fig 8.



Through the square(ish) opening are the two tube ends for the rudder control, with the main sail control tube, running through this void to the servo location. It is a bit tight in there, but, space is required for possible floatation ballast.

Also within Fig 8, are the trial locations for the deck bolts, (for this I used brass eyes) the positions of which I took from "Our Boys" The East Cornish Lugger.

Fig 9, indicates the introduction of a gunwale, which was completed along with the strakes. On the stern post are brass eyes,(temporary fittings,) to replicate the

gudgeons so that the rudder blank could be shipped, and thus determine the steerage control.

Fig 9.



In the photograph Fig 9, of the stern, the brass tubes are visible as they exit the hull, the first left is for the mizzen clew line, and the middle and right, are for the rudder control. These tube ends will not be so prevalent when the hull is painted. The three brass eyes (temporary gudgeons) are seen clearly on the stern, and when the rudder control is confirmed these will be replaced with more appropriate parts. The gunwale and strakes give the illusion of progress being made. Well that's the blunt end, now see the sharp end.

Fig 10.



Fig 10, shows the bow section of the model. The mast blanks were installed as to the drawings from the book, and onto these were lifted the sail yards, cut paper patterns of the sails with dimensions taken from the book drawings, and shipped the rudder blank. The bumkin blank was also installed to ensure it did not conflict with the rudder action.

Fig 11.



The observant will notice quite a lot of work has been undertaken from the taking of the above picture to the previous two, but also notice that I have not truly finished anything. It is good to check all that you have done before moving on to the finishing stages, and also consider areas where you could have done better with the last boat you built. For example, taking a second set of paper patterns of the sails to send to Frank Parsons, of Nylet, so you can make trial sails from the first set of patterns, to check the sail set and operation.

The summer of 2012 was, (to say the least of it) wet, so during a period of persistently wet, (which differs from, generally wet, occasional wet, possibly wet, or rain) I made a set of kites (sails) for the Lugger from the other pillow case of the pair, from which I made the prototypes for the Coble; "Yes pink". This was a good exercise, as I needed to understand the rig, and clew control, but

also, to what extent I could follow the original design from the book, and still manage to sail the boat upon completion.

PART 4, THE TRIAL SAILS.

Fig 12.



The assembly of rough/ or unfinished parts was a good exercise, as it indicated flaws in the concepts that was being used for the foresail sail clew line control, and how the sails were set to the mast. This assembly encouraged further additions and checks that helped with the end product.

Fig 12, indicates the yard with the lift strop to the foresail, approximately one quarter of the yard length from the heel, and from the throat of the sail. This is the normal position for the Cornish Lugger, however, I will probably strop the yard to the mast, at one third yard length, from the yard heel, and sail throat. This will enable me to have the sail peak higher, (to catch more wind) and to move the

foot of the sail away from the rough bits on the deck. Another discovery was that my intended position for the shrouds was wrong, and I would have to use the true Cornish position for the shrouds, which is from the head of the mast.

Fig 12A.



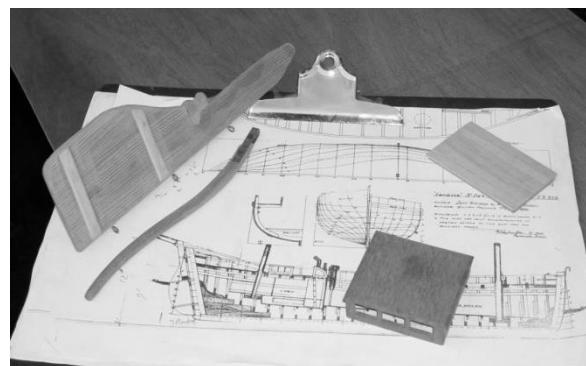
On the deck in Fig 12A, are rough/dummy parts, these are bits of scrap wood, roughly fashioned to reflect the items which will be on the deck. The items are; Cargo hold, water tank pipe, chimney, bilge pump, companionway, and sky light. By using these dummy parts it became apparent that the clew line to the foresail will be in conflict with a lot of the deck structures, so re stropping the yard, to affect a higher peak will lift the clew from the deck, which will allow the fitment of a horse for the sail control.

The East Cornish Lugger (photo page 4) has a horse for the foresail, which is positioned before the mizzen mast, just off the deck (painted white), I was hoping to use something similar, but had to come up with something else. What was developed was a horse that would emulate a hand rail, which will straddle the skylight and (hopefully) keep the clew line away from the deck adornment. This will not be finally determined, until the Nylet sails are fitted, connected to the

servos, and operations verified, but that is a long way off.

PART 5. OTHER THINGS GOING ON.

Fig 14.



Other things covers a lot of items within any scratch build, Fig 14, shows two items on the left which are, the rudder, and the tiller. The rudder will be painted, as will be the majority of the hull (in Cornish fashion), normally the tiller would also be painted, but on this model it will be varnished.

The item top right is the rope box lid, which is under the tiller, and also the access to the rudder servo, it will be finished with a walnut stain, and varnished. The item in the lower middle will be the skylight and varnished when finished.

One of the things that was concerning me was the caulking of the deck, you hear all sorts of ideas, recommendations and “this worked for me”, but rarely get any clear understanding of what can be practical for your build so some trials were conducted to see what would be practicable.

The best trial involved a chisel point permanent marker, (a Pental N60 to be

precise) a length of maple planking, as to be used in the decking, scrap ply to glue it to, and varnish.

The successful trial. (a possible future anorak note)

- Step 1. Cut the maple plank into short lengths.
- Step 2. Run marker pen down outside edge of planking.
- Step 3. Leave overnight.
- Step 4. Glue to plywood, and allow to dry.
- Step 5. Varnish.

The result was, it seemed to work; the trial will be repeated before the final laying of the deck.

Fig 15.

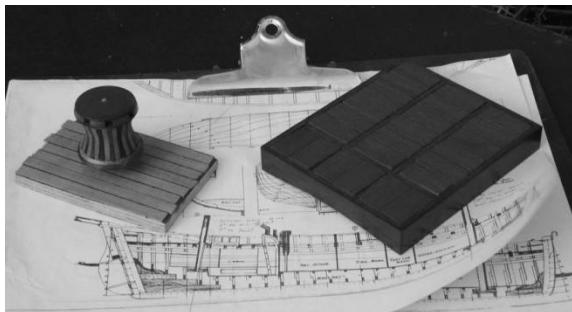


Fig 15, shows the cargo hold cover (bilge pump yet to be fitted), and a capstan sitting on a section of decking, which happened to be the result of the successful deck trial.

PART 6. BLACK PAINT & DECK.

The timber for the pin rails for the belaying pins were made out of ash, which was baked for hardness. This was done on the top of a solid fuel fire. I wanted the pin rails hardened so not to split or break, it should work, but time will tell. The pin rails were stained, but, the stain

had difficulty in getting an even cover, this was attributed to the dryness and hardness of the wood. Finally, the margins were stained, that will surround the decking. The progress is indicated within Fig 16.

Fig 16.



Fig 16, shows the deck margin, pin rail, and the first of many belaying pins. There will be cleats to be made, varnished and fitted onto the masts. The box shaped item in the middle of the picture is the Scuttle, or where the fore mast goes.

Fig 17.



Fig 17, showing the planking cut to length as would be received by the boat yard. Each plank was then marked along

one edge to replicate the caulking, leaving the ends free of the marker as the capillary action of the timber grain, caused the ink to bleed.

Fig 18.



Fig 18, & 19, The hull painted, and the decking in place, the vessel is starting to look the part. On the pictures I have seen of decks of Luggers and the vessel "Our Boys" there is no joggling to the margins (the bit round the outside) of the deck, this made life a little easier, all varnished and finished

Fig 19.



The making of the belaying pins involved turning in a lathe, $\frac{1}{4}$ " dowel. The deck rings were made of eye bolts from Nylet, and from picture frame ring & bolt fixing, the type that goes on the back of a picture frame. So you end up with

contrasting colours of the deck, chrome eye bolt, and the copper split rings.

Fig 20.



Fig 20, shows the finished hull, deck, complete with belaying pins and fair leads, doesn't look bad, it has the wife's acceptance, so we're half way there. Now it starts getting fiddley, with the rigging of the Lugger, this means blocks, or purchases.

PART 7. THE STANDING RIGGING.

First it is a good idea to work out how many of each type of block you will require for the running rigging and others, so work out the shrouds, lifts, lines, etc, this I haven't done in the past, and found that I had to make more.

This is how the blocks were made by first making the shell blanks in a strip. (The shells are the bits of wood that hold the sheave.(wheel)). This is the first step.

Fig 21

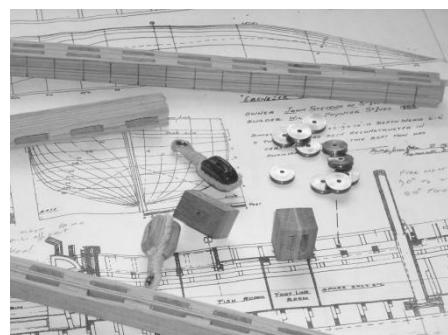


Fig 21, shows the manufactured strips of the shell blanks. (The brass sheaves are 10mm in diameter, this will give a reference of size.)

Before the shell blanks are cut into the individual forms, drill the holes for the pin that the sheave runs on, it is easier to handle a strip rather than individual bits. Using a sheave as a guide, ensure the sheave has free movement within the throat of the shell blank, this is the second step. Step three, is to part off each shell, shape the shell to its finished form and insert the score in the shell to receive the strop.

Fig22.



Fig 22, illustrates the blocks at the end of step three, and ready to be finished. But first a coat of stain to offer aging and colour variance within the rigging.

Fig 23.

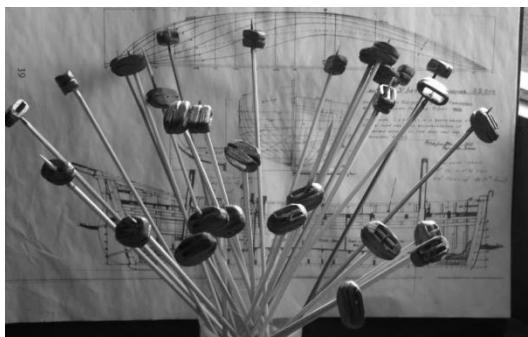


Fig 23, shows the stained blocks drying, and a good use for bamboo Bar B Que sticks, where the tapered end is very useful. The next step in the assembly of

the blocks is to fit all the sheaves into the shells, this is done with a short length of Stainless Steel TIG Welding Wire, then it is ready for the strop.

When the Coble was built there was all sorts of fun with finishing the blocks, you know what you want, and think you know how to do it. Finally, I learnt that, you make up a grommet strop, then, put in the eye/ thimble using a common whipping. After placing a couple of turns of the whipping, insert the block into the loop of the grommet, and then finish off the whipping, a bit fiddly at first but it soon becomes easier.

Fig 24.

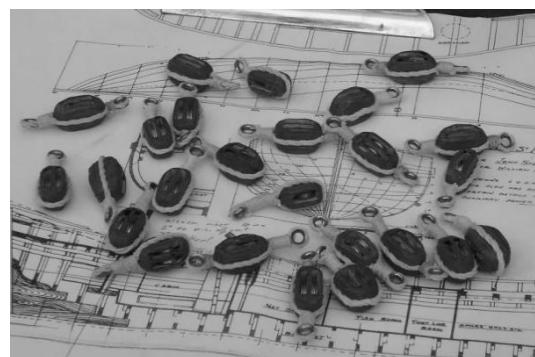


Fig 24, shows the blocks completed with one more stage to go. To finish the blocks assembly as a process, drop into cold water to tighten up the cotton thread, and hang up to dry. Once the blocks are dry, they were varnished to finish.

For the ropes, lines etc, I use a braided rope from English Braids of Malvern, product reference R14, which is 1.4mm in diameter and has a load capability of approximately 42 Kgs. The colour black gives the look of pitched lines and the braided rope is excellent to work with, makes a good grommet, bends and hitches, and allows a needle and thread to pass through easily. The sewing makes forming eye splices easy, and inserting a

thimble even easier, where you just sew into the braid a thimble, and then finish off with a whipping.

The overall effect of using this polyester braid is pleasing to the eye. The braided line runs through the blocks without any snags and can be laid off on a pin in the conventional way you would use on a deck of any ships fid rail.

Fig 25, 26, & 27, illustrate some of the rigging.

Fig 25. The picture shows a deck bolt assembly, a rigged block, and a belayed pin.



Fig 26. Blocks and hauls of the rigging.



Fig 27. This is another view of the Lugger rigging, taken in the stern section.

Fig 27.



Finally for this part is Fig 28, the view is of the bumkin lashed home, rudder, and tiller complete with a tusk's head.



Fig 26.

Part 8. Ballast, and Trim.

To determine the ballast and trim of the vessel I use the principles favoured by Vic Smeed, and Philip Vaughan Williams, that is to place weights in the boat until you obtain the correct, or required waterline. For this process I used 60mm diameter bar, cut to lengths that will give a known weight.

These weights gave an effective method of determining the ballast required and identified the correct position for that ballast to get the best trim.

The centre of gravity is at a point immediately below the midpoint of the pile of weights you have in the boat. This midpoint is the vertical centre line of the ballasting medium of your choice, from which the boat stays upright. Running in a straight line at water line, from stem to stern, is the point from which the boat rolls from side to side, or rolling pivot.

Fig 29.

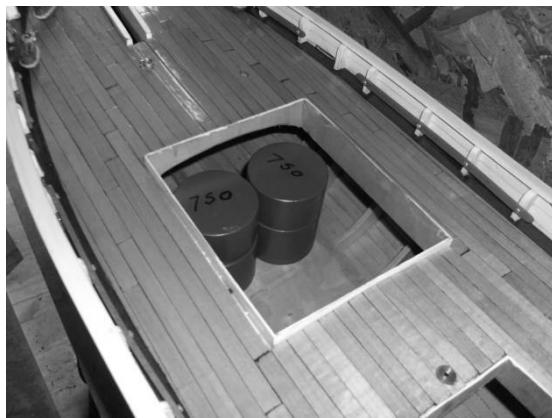


Fig 29, shows the method of identifying the correct ballast load and position for the boat you are making. However, if you have a shallow draft, or little room between the lateral waterline and the bottom of the boat, you will need to consider the following, and make some decisions for the model.

The influences of top hamper (stuff above deck) in a wind, when putting the ballast in the traditional place, ie the bilge, may not be enough to keep the boat safe on the water, making the boat what they call a bit lively. This is because the ballast load is near the rolling pivot, and acceptable if you are willing to wait for the ideal weather conditions to sail, which could be a long time coming in the UK. Alternatively, utilize another method of ballasting, the fin keel, this you can make removable if you want to exhibit the

vessel at shows, and or, makes it easier for storage.

The fin keel has the effect of moving the ballast further away from the rolling pivot thus slowing the effects of the top hamper in the wind. But a down side to this is, the boat can look a little stiff on the water, but at least it has less chance of lying flat with the upsetting result of damages or loss, it also sails faster, and that can be fun.

I placed 4.5 kilo in the place I considered to be a good guess at the COG. Wrong. Too much, and stern down, take the boat out of water, remove some ballast, and move the load forward. I put the boat back in the water, and reviewed the result. Another adjustment of the ballast, and she was fine on the water.

Fig 30.



Fig 30, shows the Lugger in a garden pond, but the integrity of the hull was not as it should have been, and was letting in water. So the model was removed from the pond returned to the shed for repair.

Fig 31.



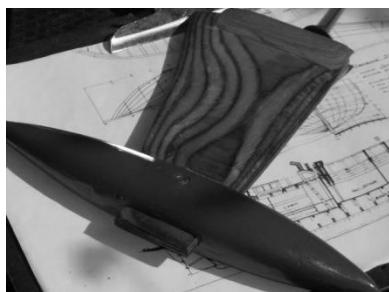
Fig 31, indicates the hull repaired ballasted and being tested to make sure the repair was sound.

Part 9. The Fin Keel & Fit Out.

Making the Fin Keel, is a relatively easy job compared with the rest of the project. You need an idea of the shape and size you want, and the materials. Out of a piece of compressed/ high density plywood, the shape of the blade was made, then drilled through following the centre line, to receive a length of threaded bar.

To fix the threaded bar in place epoxy resin was used. To assist in the fitment of the lead bulb, the existing recess in the bulb was cut through to make a slot, in which to insert the blade. See Fig 32.

Fig 32.



Finally the fitting of side pieces at the top of the blade to align with the keel completed the job. Varnishing and painting finished off the fin keel, the varnish highlighting the layers of the plywood adding extra character.

The sanding of the blade was done with a five inch grinder, and a soft pad of P36 grit. Using the wood layers you can get a good feel for the symmetry of the blade during the process, and also make a bit of a feature with a coat of varnish. The lead bulb was fixed with a nut and bolt, and that was that.

Once the ballast criteria was confirmed and the hull integrity proven, it just remained for the servos, fittings and all that has been made for the boat be put together.

Fig 33.

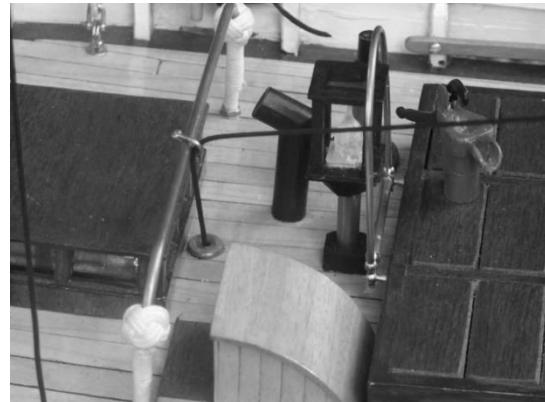


Fig 33, shows the Lantern in operation, along with another LED, fixed inside the hull to shine through the sky light. This picture also shows the Horse set up for the main sail clew line, and a secondary guard fitted, to try and stop the clew line entangling with the deck clutter in a slack moment.

Fig 34.

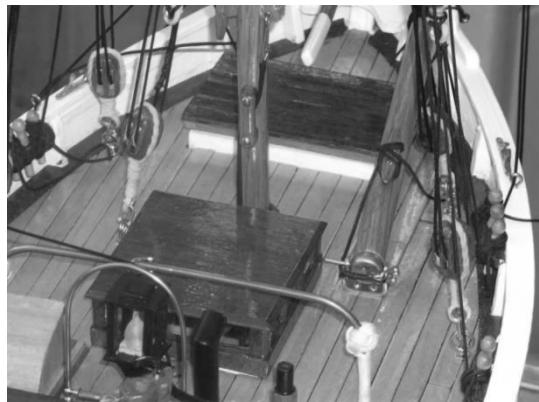


Fig 34, is the same area, but from a different view point, and shows the parts and accessories in place. The running rigging was installed, with decorative rope work to finish some areas. The light in the lantern was a LED from a battery operated tea light, which flickers to offer the illusion of a flame, fitting the tea light silicone dummy flame finished the lamp.

The final item to put into place was the name plate, this I had fashioned at the local cobblers, as I did with the Coble.

Fig 35.



Part 10, Boat to water, wind to sails

This was all completed two days prior to the Club invitation to The Bodenham Arboretum. Knowing it floated from the ballast and hull reseal trials. The operations of the sails in anger hadn't

been done, but the horses seemed to function quite well. So to Bodenham it was to be.

Arriving at Bodenham suitably dressed, wearing the appropriate millinery, ready for a day of relaxation, and good company. Pleasantries of the day were exchanged, it was a fine summer's day, with light cloud, but a bit gusty in the breeze. For the days sailing I took two other boats to fill the public display that we were to offer in payment for sailing on the marvellous lake at Bodenham Arboretum.

Fig 36. Boats at Bodenham



The boats from left to right in Fig 36, are, the play boat, a motor boat that is used as a diversion from sailing (on the left). Then there is the Coble Ravenscar (centre), and finally the Lugger, the vessel for which all this is about. The day was excellent, with the weather in the favour of enjoyment, of the breeze it was blustery, but not too gusty for sailing in general, but attention was needed. Tentatively putting the Lugger in the Big Pond, and hoping for the best as the breeze filled the sails, the model exceeded all expectations.

Full size vessels of this rig can be difficult to handle in blustery conditions,

according to literature read, as the sail area is so great, and as with the prototypes not much to hold the masts, as far as shrouds are concerned. I had fitted four shrouds per mast, as had The Lugger "Our boys" in Milford Haven, and could do no more.

The first outing was exciting as she was really quick in the water, so I took her out to rest my pulse rate. (the Lugger has no floatation ballast, as there isn't enough room inside for the quantity I need) I sailed Coble, and put play boat in, had lunch then retried Wild Violet.

She sails really well, but turning through the wind was hit and miss, as there is no crew to assist in the operation and also she lacks a jib which would help with the control.

Fig 37.



Fig 37, has the Lugger rigged with fine weather sails whilst Fig 38, has her with a storm suit rigged. To reduce the sail areas the fore sail is replaced with the main sail and a jigger is rigged to the main mast. The main mast on a Cornish Lugger is the one nearest the stern.

Fig 38.



This is a delightful model to sail, quick on the water, responsive, and to me she looks just fine.

Note.

The sail plan in the two pictures, Fig 37 & 38 are different. The Lugger carried sails of a similar shape but in diminishing sizes. In Fig 37 the large sail is on the fore and the smaller one on the main mast, however, if the sail plan needs reducing due to higher winds then the smaller sail of the main can be moved to the fore mast and a jigger, or smaller sail raised on the main mast to reduce the sail area.

This model sailed very quick and was at times a handful to control, so a bow sprit and forestay sail was fitted to help lift the bow when being pushed by a strong wind, and to also help with tacking through the wind.