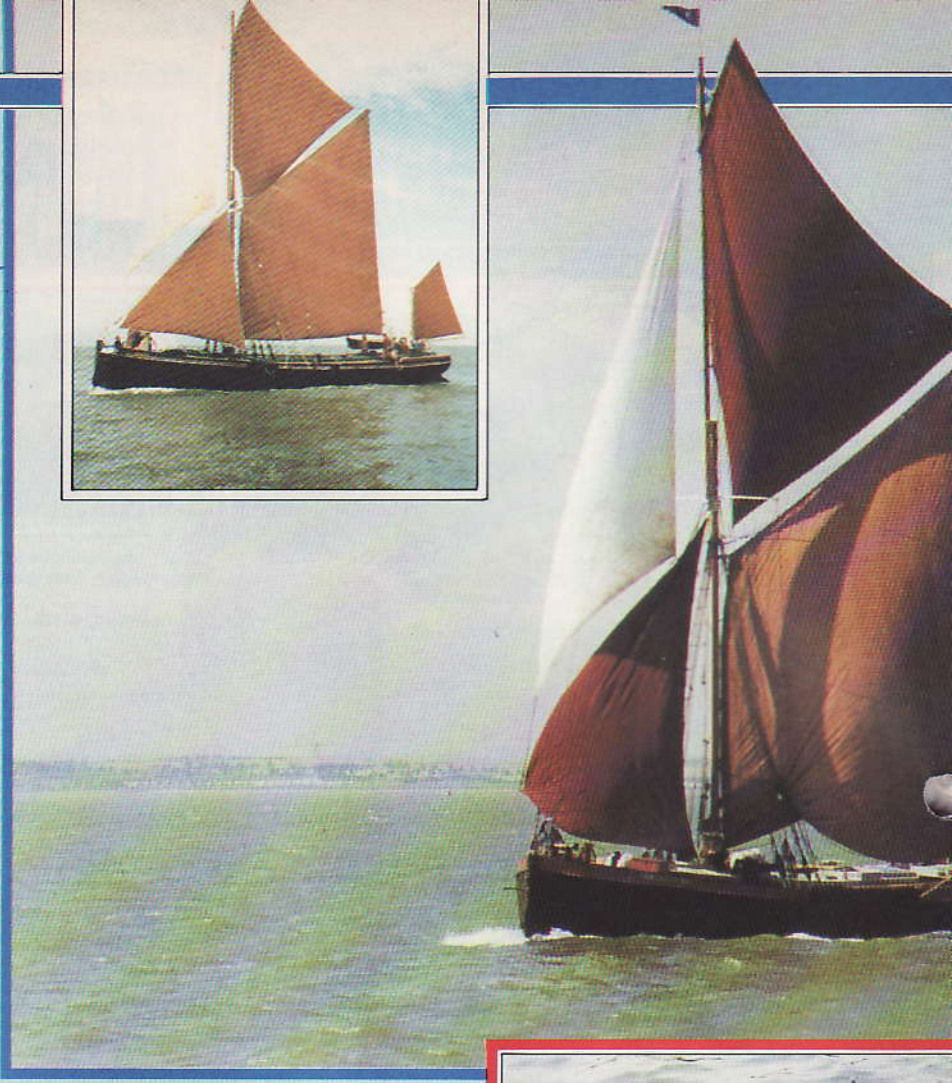
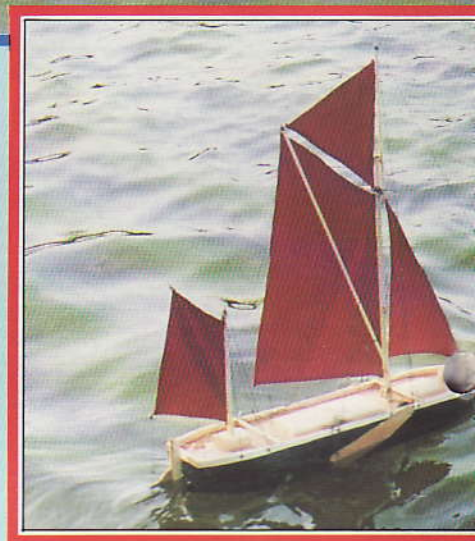
Dave Greenwell of Practical Boat Owner produced this sailing model of a Thames barge to coincide with the Seventh Annual International Wooden Boat Show at The Greenwich Maritime Museum. See the end of the article for details of our own model-making competition.



Messing about with BOATS



Staysail barges under way. The bowsprit barge is essentially the same in all respects except obviously for the additional spar.

TO celebrate the seventh annual Wooden Boat Show held in the grounds of Greenwich Maritime Museum, which this year is being sponsored by **Practical Boat Owner**, it has been decided to hold a model boatbuilding competition. Entries will be exhibited and judged at the show.

The historical connection between the Maritime Museum and the Thames, made a Thames sailing barge an obvious subject. It has the advantage of being a very simple shape with bluff bows, straight sides and a shapely transom upon which her stout rudder is hung. But the most striking feature of these magnificent craft that plied their trade between the heart of our capital and coastal ports and rivers from the Humber in the north to Exeter down in the west country, was their distinctive rigs comprising a vast sprit-rigged mainsail above which was invariably set a large tops'l together with a collection of headsails set before the mast on a proud bowsprit and a jaunty mizzen following up the stern.

Their history stretches back over two hundred years with over two thousand registered at the turn of the century. And, although they were all unmistakable as Thames sailing barges, there were many variations which not only make them interesting to the modelmaker but also provide a measure of licence so that if we are not absolutely correct in every detail, we should not offend barge enthusiasts.

Sail or scale?

There are, in fact, two types of model: scale and working. The problem is that it's extremely difficult to make a true scale model that will sail properly. By taking the lines and dimensions of a full-size barge – or for that matter any sailing boat – and simply reducing it by a constant scale, the resulting model will have her hull reduced by a cube factor while the sail and the keel will have reduced the square. The result may appear correct and in scale with the original, but the actual proportions between sail area and hull size – especially in the beam and sail area – will be wrong as far as sailing goes. She would probably be unstable and under-powered.

The answer is to juggle the figures, apply a creative eye and, if you are really serious about making her sail properly, add a model yacht type weighted keel. Out of the water she may look a little incongruous but the keel will be hidden when the model is in its proper element. The details that follow are for a sailing model, drawn

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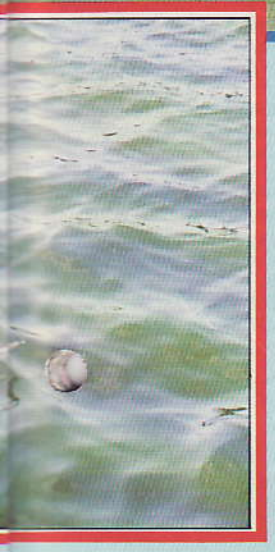
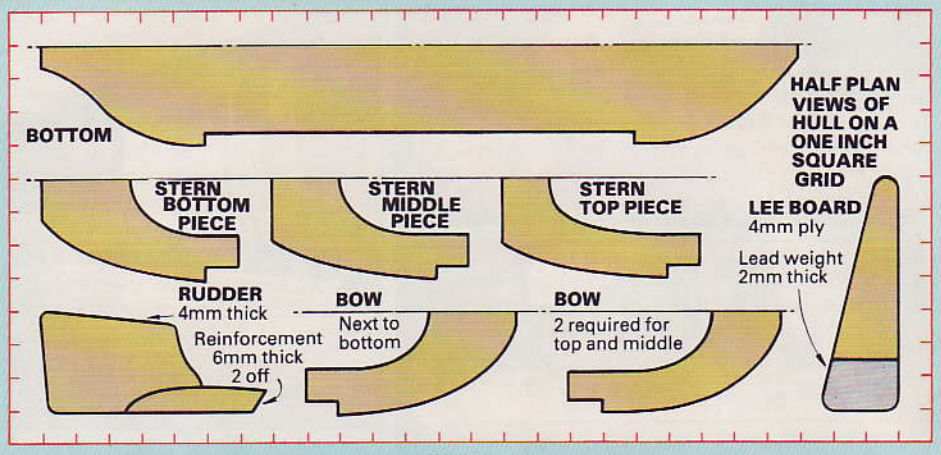
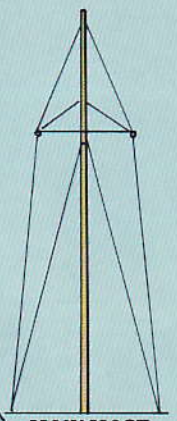
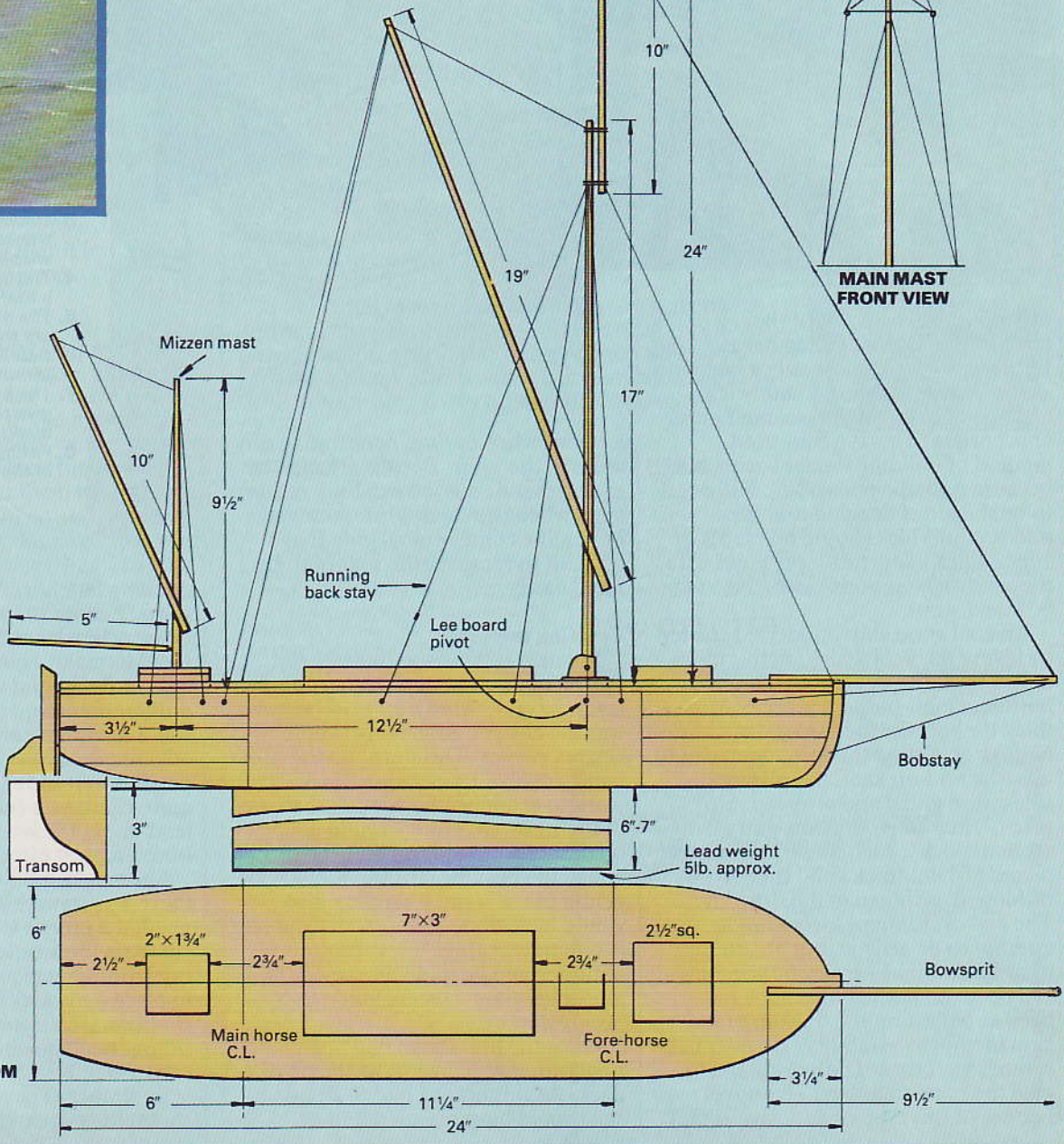
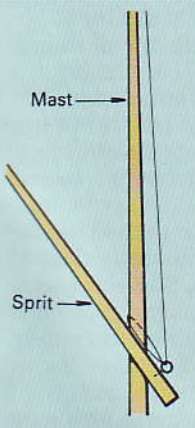


The sections for building up the hull.









LINE TO ADJUST SPRIT FROM EYE ROUND MAST, BACK THROUGH EYE AND UP

Messing about with BOATS

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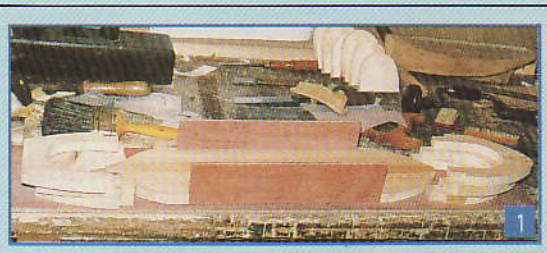
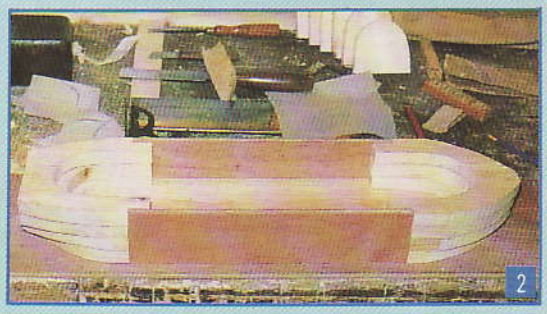




1. *The main components of the hull before assembly.*
2. *The assembled pieces before the addition of the deck.*
3. *Underside view with the transom lines marked out for shaping.*
4. *The hatch covers fitted, and a trial hang for the rudder.*
5. *The mainmast and bowsprit are tried for size.*
6. *Detail of the mast and leeboard fittings.*
7. *The heavy keel necessary to give the vessel sailing qualities.*
8. *Fitting the topmast and part of the standing rigging.*

up to capture the spirit of the traditional Thames sailing barge. Because the hull is basically a box with shaped ends, the simple sandwich method of construction seemed most appropriate. This is a well tried method of building model yachts but because only the ends of the hull need to be shaped, I decided that the mid-section sides should be pieces of 10mm thick waterproof plywood with the sandwich sections restricted to the bow and stern.

Like all good ship builders, I started by laying the keel which, in this case, meant marking out and making the bottom panel. I used a piece of ¾in. thick timber (finished size), by 23 by 6in. After cutting the ½in. deep slot to take the add-on keel, the plywood sides were glued and screwed into place. Then came the bow and stern section blocks, each made up of three pieces of ¾in. thick solid timber fashioned as shown in the drawing. The elaborate shapes were not an attempt to be artistic, but an attempt to reduce weight – every ounce that can be saved in the hull can be put back as ballast on the bottom of the keel to improve stability. I used quick-setting, waterproof polyurethane to glue the parts together. The novel feature of this type of adhesive is that it foams when curing, penetrating any voids in the joint. Because the excess squeezes out, the job can look rather a mess when the clamps are removed, but unlike conventional glue that's difficult to remove, the foam can be lifted easily.

Creating the shape

My next task was to liberate the shapes of the bow and stern from the layers of contoured timber. The bow was the easier end, having simple convex curves. The stern, on the other hand, involved a measure of concave work to establish the wineglass shape of the transom. Here I found a moderately curved, outside bevel gouge the best tool for the job but the gentle use of a small sanding disc would have done just as well. The aim is symmetry rather than absolute accuracy and keeping an eye on the glue lines gives a useful guide as to progress.

Once the hull shape had been finalised, it was time to fit the plywood deck. At this point I had to decide if she should have a sealed hull or opening hatches. As time was running short, I chose the sealed option with dummy hatch covers. This meant that I had to make a completely water-tight hull-to-deck joint and to see the polyurethane squeezing out all round was a reassuring sight. But the big advantage of having a removable hatch is that should the model not trim quite right, you can put a few lumps of lead inside the bottom where it would have greatest effect.

She was beginning to take shape but there was something missing – she needed a proper stem. So a slot was cut in the bow to let in a piece of ⅜in. thick timber which was glued securely in place and carved to give the traditional straight-stem barge silhouette. The next job was fitting the rails which I cut from a piece of 3 by ½in. timber. They stretch almost right round the edge of the deck with just a

small gap to take the bowsprit which sits just to one side of the stem. Because of the cross graining towards the bows, I glued the rail strips in place and weighted them down whilst the glue cured. Rudder and leeboards were next. The design of these is very traditional aboard Thames sailing barges, and are the areas where the scale effect plays its biggest role. Aboard a full-size barge, the leeboards are massive, but when scaled down are mere tokens. So that they would work realistically on my model, I let in pieces of lead sheet into the bottom 1½in. Although they add little or nothing to her sailing ability, she would not be 'proper' without them. The thing that really enables her to sail to windward is the model-yacht type keel. I made mine a simple rectangle 7in. deep with around 5lb of lead strip fitted to the bottom edge. This keel is held in place by two small brass plates that can be removed so that the keel can be removed for storage.

The rudder is also an important part of the working model, but, instead of finishing flush with the bottom, as is the case on the full-size boat, the scaled-down rudder has to extend below the bottom so that it has a good flow of water to act upon.

The rig

Most Thames sailing barges have three masts and two sprits – although at a glance they appear to have just two masts. The one in the middle of the craft, the main mast, in fact carries the top mast from which the tops'l is set. The small one at the back is the mizzen. Both main mast and mizzen have a sprit which is the large spar that holds up the top corner (the head) of the sail. Masts and spars can be made from dowelling but I prefer to shape these from the square. It means that the foot of the mast can be left square to fit into the tabernacle. Although on the real thing, the standing rigging (ropes that hold the mast up) is attached to a variety of fittings, on a sailing model, only the most dedicated try to slavishly reproduce these fixing points. I used small screw eyes for almost everything. They are perfectly satisfactory provided they are not subjected to a direct upwards pull. It's surprisingly difficult to get a line to reproduce the appearance of rigging wire. I failed to track down any carpet thread and ended up using whipping cord made by Marlow Ropes and available from yacht chandlers.

For the sails, I used a light cotton material bought at our local fabric shop. It's possible to use a modern sail cloth but not very appropriate for this model. I have not included the actual dimensions of the sails I made, because anyone making their own model would be unlikely to reproduce exactly the size of spars I used. They are best measured direct – I made paper templates to start with.

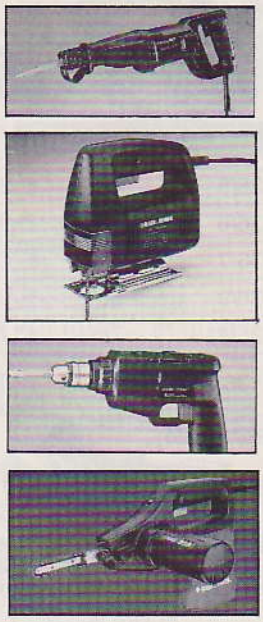
Making her sail

The two main areas where adjustments can be made are in the shape of the keel and by altering the combination of sails which, with the Thames barge, gives quite a few options. Also, you can alter the tension on the rudder set-up. I left my keel a full rectangle in the belief that I would probably have to trim some off either the front to stop her bearing up into wind too quickly, or off the back to have the opposite effect. As it turned out, it was just about right. By balancing the reaction of the rudder against that of the headsails (those ahead of the mast), I could send her off on a voyage with the knowledge that she would eventually get back to the side of the model boating pond. Who could ask for anything more!

PRACTICAL WOODWORKING

MODEL SAILING BARGE COMPETITION

Win all four of these fabulous prizes from the Black and Decker range by entering our Model Thames Sailing Barge Competition



HAVING read Dave Greenwell's article on making a model Thames sailing barge why not have a bit of fun and enter the competition with your own model. All entries will be on display at the Seventh Annual International Wooden Boat Show at the Greenwich Maritime Museum, Greenwich, London SE10 9NF from the 3rd to 6th June 1993.

Black and Decker have generously agreed to sponsor the competition, and the best three entries in the opinions of the judges will each receive a Black and Decker Cutsaw, a cordless drill, Power file, and a jigsaw (in total worth £275).

IMPORTANT

PLEASE ensure that your entry is properly packed for its journey as we can accept no responsibility for any damage incurred in transit. You will find it preferable to make your model with masts which can be lowered (as in the real thing) since this will make the problem of safe transit so much easier. Models delivered to the competition department address will be repacked and returned to their owners in due course.

Send your entry to: *Alan Wells International, Competition House, Farndon Road, Market Harborough, Leicester LE16 9NR. Tel. 0858410510.*

RULES

THE competition is open to UK readers only and no competitor may win more than one prize. Standard rules apply and the decisions of the Editor and the judges will be final.

RESULTS

THE results of the competition will be published in *Practical Woodworking* at a later date.

CRITERIA

THERE is no need to slavishly copy Dave's model, these sailing barges varied a good deal in size and shape and to some extent in rigging also, but your model should be recognisably a Thames sailing barge and be made predominantly from wood and approximately to the dimensions shown.

HOW TO ENTER

SIMPLY fill in the coupon on this page and send your model to the address shown to reach there no later than 28th May 1993. Readers wishing to make other arrangements for delivery of the models themselves should phone 071 261 6602.

ENTRY COUPON

PRACTICAL WOODWORKING THAMES SAILING BARGE COMPETITION

This entry form must accompany any model submitted as an entry in the competition.

Name

Address

Postcode

Daytime telephone number if any