

The X One Design Class Association
xonedesign.org.uk



Class Captain

Heathlands Farm
Honey Hill
Wokingham
Berks
RG40 3BG

Tel: 01189 773992

Email:
mark.hall@hallhunter.co.uk

The 'Not the new XOD'

Because of the interest shown in this project- both negative and positive- I have invited Adrian Jardine to write a report upon it, which members will find on the Association's website.

Most of you know that Xoanon was launched in July 2009 and has been sailed in Itchenor, Yarmouth as well as Lymington. Adrian has prepared a factual report on progress over the last twelve months from concept to finished boat. This note is intended only to set the context for that report.

Whichever way you regard the exercise, I am sure we can all agree that it has been a remarkable effort from this group of members. The quality of boatbuilding is extremely high and the finished product looks splendid.

Xoanon certainly looks similar in many aspects to an X and appears to perform like one too. But whether she should be allowed to be treated as an X in the same way as a boat that has been built according to the traditional methods that are enshrined in our rules and history is another matter entirely. No doubt, at some stage in the future, the membership will have to consider and decide the issue. One of the benefits of this project and the experience that many members will have had of the finished article will be to inform that debate as and when it happens.

As many of you are aware the Class Committee has agreed to support a working party to look forward over a number of years under the umbrella of the 'WAY AHEAD'.

Part, but only part of that work will be to see if the class needs to determine any change in the construction methods that we are traditionally using. The work that has been done by the Xoanon team will be a most useful testbed to inform our discussions. Some, all or

none of the methods used may be proposed. Indeed the need for any new method of boat construction will be one question to be answered. There has been no new boat construction since 1994 other than 196 by an amateur and 195 by a wealthy member, despite the interest coming up to the centenary. New boats would seem healthy and should be encouraged. Of course, they have to be in class.

The Class Association OBJECTIVES are clearly set out on page three of the Handbook and the working party remit includes their adherence.

You may be interested to know what role I, as Class Captain, and my successor are likely to take in these discussions. The short answer is that we intend to remain neutral but to facilitate and encourage informed, good-natured, constructive and de-personalised debate. It seems to me that is the proper role of the Class Captain in his or her capacity as chairman of the Class Committee particularly bearing in mind the strongly opposed views of which we are entirely aware. Indeed, consistent with such diversity of opinion, I can tell you that the Class Committee itself is divided at present over the new build project. That reflects the range of opinion within the class membership as a whole. So those who promote or oppose the new project can be confident that they shall be listened to and will have a voice. All should remember that without a 75% majority there will be no fundamental change to our class.

At the risk of repeating myself, I stress that it is crucial that we all take a pragmatic and balanced view of this project. Whether we are for or against it should not mean we need to retreat into opposing camps or see other's opinions as irrational, interfering, heretical or otherwise. Whichever way the argument develops, our main concern over the next two years should be the enjoyment and celebration of our precious class. We must all consider the class's future with care even if we wish to promote that future in different ways. Whether we see the new project as an unacceptable rejection of the class's traditional roots and values (on the one hand) or as a practical and economic way of securing its future by embracing new techniques and materials (on the other hand), we should be careful to recognise the importance of harmony within our membership to the health and prosperity of the X ONE DESIGN.

Mark Hall

October 2009

Xoanon – X N1 – What is she all about?

Why was she built?:- With the class centenary approaching a number of keen class members had begun considering the welfare of the XOD over its second 100 years. Was anything missing? Did anything need a closer look? One thing stood out, why were no new boats being built, and could anything be done?

We felt that the Class should always be prepared to consider other options than the existing construction methods, especially if an alternative would preserve the one design concept and provide significant savings of costs. That is not to say we did not recognise that there are also good arguments for maintaining the traditional build method under existing rules. However, we are sure that if the options are ever to be considered properly by the Class it would be better to be done on an informed basis. So we thought it would be invaluable, and interesting, to have a demonstration of how an alternative construction method could be built, and to see how it would work and look in practice.

What was done?:- A small team was collected together which included some who had built their own boats, timber experts and class technical officers. They visited boat yards, timber merchants and naval architects to seek opinions and advice. They gathered information on the full range of boat building methods including GRP options available today. It was on this basis that 'Strip Planking' and essentially a wood construction was chosen as the most appropriate for the XOD class.

Major considerations to be included:- Most existing class member's opinions seem very similar, that any new boat must conform closely to the existing class drawings, and perform in a very similar way, both in handling and boat speed. In addition she should be more economical to build and require both less annual and long term maintenance, whilst also being able to allow a selection of boat builders to build new boats accurately, with smaller tolerances. Few think that any more than a handful of new boats would be built in any one year, a fact clearly shown in the class history.

How was the decision to build made? - The team's first hurdle was how could we achieve building a new X on a very limited budget. The recession had started and sponsors willing to give cash had dried up. What was available? Well, a surprising number of retired sailors willing to lend a hand, donate equipment and be prepared to take a cash share in the project. In addition when we approached the MD of West Epoxy Systems he immediately replied that his company would supply all the resins and glass that we required and that they wished to be very involved with the project, including any technical help we might require.

Build team selection:- Having found ten retired volunteers all willing to give time to the project, the next hurdle was to find a Naval Architect, prepared to digitise the class drawings from the class plans and rules. Into the breach stepped David Alan-Williams, an XOD sailor of many years experience, who, with some help from class measurer John Wilson, put together computer drawings which included details enabling accurate building frames to be taken from full scale drawings at 16 stations instead of the 6 used under the present rules. At around the same time Steve Etheridge came forward to offer

the second half of his boatbuilding shed to us, which we most gratefully accepted. Having Steve around to answer our day by day problems was a godsend. David Oddie was meanwhile advising us on timber selection, as we were all keen that the project should be as environmentally friendly as possible.

Before we could start:- We had to raise some cash in order to purchase the timber and other components required to build the hull and deck, which we estimated would come to about £10,000. Hence we decided that we would need to sell 40 shares of £250 to gather this sum, most of which was collected within 4 weeks, enabling us to plan the build programme to start on the 5th January 2009 immediately after the end of the Xmas/New Year break.

Lofting:- The two first tasks to get off the mark were laying out and levelling the main building base jig and transferring the shapes from the full scale drawings to the MDF ready to be cut out and place in position on the base frame. This was painstaking detailed work for the final end product depended entirely on the accuracy of every frame and its position. However lofting from full scale drawings is very much quicker than traditional floor transfers. We aimed to achieve tolerances within a maximum +/- 2mm as against the class rule of +/- 9.5mm. For most of the team this was their first venture into 'hands-on' boatbuilding.

The latest Strip Plank system:- When strip planking was first used many years ago all planks were square edge glued, this progressed on to concave and convex edged planks to the present day where a tongue and groove method is employed. Edge slippage when each plank is bent and twisted around the shape of a hull has been virtually eliminated. In fact we found the system very simple but it took a few days to find the best application method and resin to microfibre mix for getting glue into the groove and reasonable progress could be made.

Varnished topsides:- Early on we had decided that the topsides both inside and out should be varnished, so that all could see she was of wood construction, but we did not appreciate quite how much extra time and work that would be involved. Normally one would screw each plank into the building frames as the plank is bent and these are then removed after the resin has cured. This would have left marks in every plank and hence we had to use clamps, for which we needed to add holding points on every frame. It was only much later during the build that we found that straps around the hull might well have been easier from the start.

Planking choices:- David Oddie had given us a list of timbers that were available and their costs and weights. We chose Douglas Fir because its weight was similar to Mahogany, it was widely stocked, a good colour, the least expensive, and was forecast to be one of the few timbers likely to remain dominantly available for the foreseeable future. We decided to use 16mm [5/8"] x 35mm because we considered this would allow us to twist and bend the timbers sufficiently and give us approximately the same weight distribution as existing boats, as well as being the current rule thickness.

Hardwood choice:- Most of the world's hardwoods are or soon will be endangered species, and they take many years to mature. After a thorough investigation we selected Iroko for all the hardwood required because it can be worked reasonably easily, takes resins and is still stocked widely. We had the keel and dead wood work done professionally for us by Terry, Steve Etheridge's shipwright, because we felt we did not have sufficient skills within our amateur team. The keel and deadwood were laminated in strips approximately 2" in depth and glued together with an epoxy/microfibre mix to an outline shape ready for final fairing.

Strip Planking in practice:- Strip planking is done with the hull upsidedown and one can start in three different ways, at the keel downwards, both ways from approximately the waterline and from the gunwale upwards. We chose the latter because, with our aim of having varnished topsides, we wanted to select as best we could evenly colour matched timbers combined with it giving us our best chance of being able to run all the topside planks parallel at least to the waterline, which we did achieve. Because of the hull curvature, the planking angle has to change somewhere over the hull area and part of the tongue and groove joint is lost. We fitted stringers into the building frame, but now think the stringers should be fitted after the bare hull shell is turned over, because the flat edge width of 63mm gave us much extra work trying to shape them to the hull curvature.

Built in buoyancy:- An early decision we made was that we should include watertight bulkheads creating enough buoyancy to prevent the boat from sinking quickly if filled with water. We selected the bulkhead at the aft end of the cockpit and a forward one midway between the Mast and Sampson post. These two bulkheads were fitted into the building frame and unlike the MDF frames each plank was epoxy glued to it as it was fitted, so that when the hull was rolled off the building jig it was already a reasonably stiff structure. A secondary advantage of particularly the bow tank, is that in the event of half filling the boat, the water cannot all run to the bow and cause a nose dive.

Glassfibre covering:- A substantial number of class members told us that in their opinion we should make every effort to produce a hull that requires as little maintenance as a GRP craft. Xoanon has a complete glass/epoxy covering inside and out which we are sure has not only made her very strong, will help to keep water out of her timbers and will give her an exceptionally long life without continuous maintenance upgrades.

Weight:- Every new built X built since the weight rule was introduced has initially required a substantial amount of lead ballast which is slowly removed as the timbers become saturated. We realise this will not happen in Xoanon so that she will almost certainly have to keep her lead in for ever, so that she will remain only a few pounds over the minimum class weight. Her compensating weights have been placed to conform with the class rules with six equal lead packs fastened permanently in the correct positions inside her hull. Each pack weighs 23.67 kg for a total of 142kg.

Racing Trials:- Racing trials commenced at the beginning of July this year with the aim of getting as many class members as possible to race her. Every helmsman has been asked to submit a short report on how they found her speed and sailing qualities. This

programme is going well and will be continued this year until the end of October at Lymington. She has also been raced at Yarmouth and Itchenor with some very pleasing messages being returned: "Excellent colour", "Looks exactly like an X", "Sails like an X", "Would like to buy one built this way".

Build Costs:- We managed to build and complete Xoanon, working 4 days a week in less than six months, proving that it will be possible for amateur builders to accurately build an X this way. We managed to finish her to a very high standard within our cash budget of £10,000 excluding labour and the material donations. This included particularly West Epoxy Systems and Steve Etheridge's boatshed facility and technical advice. Other X owners gave us items such as the keel, mast, boom, sails and ropes, etc. Steve has estimated that he could produce X's this way for a little over £30,000 without sails, but a varnished hull would cost £2-3,000 more because of the extra time and work involved. The dreaded VAT has also to be included.

Plans and Specification:- The project team and members hold the digitised drawings on computer, including 3D images of the hull. The specification of the hull construction is also held by them and the team are prepared to discuss how a set of rules might be put together that would result in future XOD's, built using this new method, are completed to this one-design specification allowing only a small tolerance. We envisage the class association holding the building rights and a set of building frame templates which builders, both amateur and professional, are able to hire for a limited period. The cost would include visits at specific construction times by class approved measurers to ensure that any deviations from the class rules can be corrected immediately. It is thought that existing rules regarding repair and major overhauls, need some revision but should continue for all boats built under the existing rules.

Looking ahead:- The new build project members hope that before the end of 2010 season every class member has been given the opportunity to race Xoanon either at Lymington or on their Divisional waters. We have built her for the benefit of the class with the hope that building new boats will start again and continue throughout another century. It would be nice to think that this new build could see a few boats starting our new century just like boats 1-5 did in 1911 and for them all to be present in 2111, perhaps Xoanon could start them off with No. 200?

Whether that comes about will, in the end, depend on what the class wants and decides. Only if 75% agree with any change can Xoanon and her successors qualify and race properly as an X. We hope that that discussion will be constructive and that by building a trial horse which we believe embodies the key characteristics of an X (albeit with modern construction methods) we will have helped to make such decision as is eventually taken properly informed.