

AMATEUR BOAT BUILDERS' ASSOCIATION

MARCH/APRIL '05

ABBA COMMITTEE

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Contact any of these four people for clarification of association activities.

FROM THE DESIGN POINT OF VIEW

Our first Technical Meeting of 2005 was held on Feb 1st, with Geoff Leggatt talking to us on Hull Geometry, Displacement and Trim. This was to be the first of three talks on the subject, not necessarily concurrently, by Geoff who is a naval architect by training and practice.

Geoff had a full set of notes to give each of us and they showed as an example a rather curious craft. In the absence of diagrams on this computer, the design is best described as half an oil drum (split down the middle) with a German coal-scuttle helmet grafted on one end. The really worrying thing is that it was written up on one page of the notes as the "ABBA Dinghy". I'm afraid that if we attempt to market it, bankruptcy is just around the corner.

All jokes aside, the ABBA Dinghy was drawn up on the Macsurf computer program developed by Perth-based Formation Designs and it was ideal for explaining the definitions and terminology of naval architecture, which was the sole content of this first talk, under the title of "Hullform Geometry". Mind you, some of these terms can change between

Australia, the U.K. and the U.S. but in general Geoff found that the Australian terms were sufficient to confuse us. (he pointed out for example, that the convention for numbering hull sections is different in all three countries)

An interesting minor point made early by Geoff was that "moulded beam" is defined as the maximum width of the boat to the outside of the skin for wooden and fibreglass construction, but to the inside of the skin for metal. Presumably metal skins are so relatively thin they don't matter, allowing a short cut.

Geoff had broken up the definitions necessary to Hullform Geometry into four categories; Lines Plan related, Geometrical, Dimensional and Directional.

For the Lines Plan he covered such items as the X, Y, Z Coordinate system and Table of Offsets through to Centreline, Waterlines, etc, etc. I was interested to note that he said that Diagonals, which are sections through the hull neither horizontal nor vertical, are not used much. I'm pretty sure that back in the days of round-bilged vessels designed before

computers, they were regarded as essential. Probably they were, amongst other things, a third check on the fairness of lines - these days the computer gets it right anyway. The computer also does those specky 3-views allowing us to visualise the finished shape. I'm not sure, but I don't think they were possible in the old days. Not without a lot of work, anyway.

Geoff then went on to Geometrical Descriptors including such terms as Camber, Tumble home and Sheer, not to mention more obscure terms such as Half Angle of Entrance and Rise of Keel. Then it was on to Dimensional Descriptors including Forward

and Aft Perpendiculars, Freeboard, Waterline Beam, Length on Waterline, Draft and the curious one, "Air Draft". The final section, Directional Descriptors, was divided into two parts, Static and Dynamic. Under Static there was only Heel and Trim but under Dynamic there were six; Roll, Pitch, Yaw (all fairly understood) and the more enigmatic Surge, Sway and Heave. These were all defined in the notes, both by word and diagram, and there the talk ended, having laid solid foundations for the following lectures, which won't necessarily be concurrently presented. Many thanks, Geoff, it was a very informative start.

Toolbox Visit to Wooden Boat Works

Geoff Leggatt

On Saturday, February 12th we visited the workshops of the Wooden Boat Works, located in Slip Street Fremantle. Due to the ill-health being experienced by Graham Lahiff another of the boat builders, Morris Field, kindly agreed to guide us around the facilities.

Morris started the tour by giving us a brief history of the Wooden Boat Works. The facility originally started out as a boat building site known as the Marine Heritage Boat Workshop in 1991. In 1993/94 they began teaching year 10 & 11 school leavers boat building in a twenty week training course. Later they began training otherwise out of school and unemployed youth in a sixteen week LEAP project boat building course. This course became the pre-requisite for those wanting to begin a boat building apprenticeship with other yards. The Wooden Boat Works currently offers a certificate 2 in Boat Building. It also offers a site for those wanting to undertake a small boat building project where tuition, assistance, and shipwrighting labour are available if and when required. You can choose to undertake the complete construction of your project by yourself or employ the services of the onsite shipwrights to undertake specific tasks or the entire construction for you.

The shed in which the workshop is located is extremely spacious with headroom in excess of 25 feet. In the order of ten vessels are under various stages of construction or restoration, with a number of other completed vessels on display. The facility also houses a number of discarded rowing shells, spars, oars, and various other items of marine timber construction. An in-house small metal working shop and foundry is capable of casting small items in aluminium. Items such as plane bodies are typical casting assignments given to students.

The vessels we initially viewed were completed construction projects on display. The first of these (Photo. 1) was a Herrishoff designed rowing dinghy. Morris explained the difficulty the builder of this vessel had in fairing the hull. This was due to the fact that he had tried to build the vessel from a small scale lines plan printed in a magazine article rather than purchasing the large scale lines plan from the designer as was intended.

The next vessel viewed was named "Cousin Jack", again a small rowing dinghy (Photo 2). Morris pointed out the use of half lapped knees in the construction, explaining that these were a good joint provided that the exposed glue line is protected from the damaging UV rays of sun light when not in use.



Photo 1: Morris explains the difficulties experienced by the builder of this dinghy in constructing from lines published in a magazine.



Photo 2: Cousin Jack –Built from Rudder drawings of 1949.



Photo 3: Replica of vessel originally built by Vic Mews. This vessel was constructed by Morris himself.

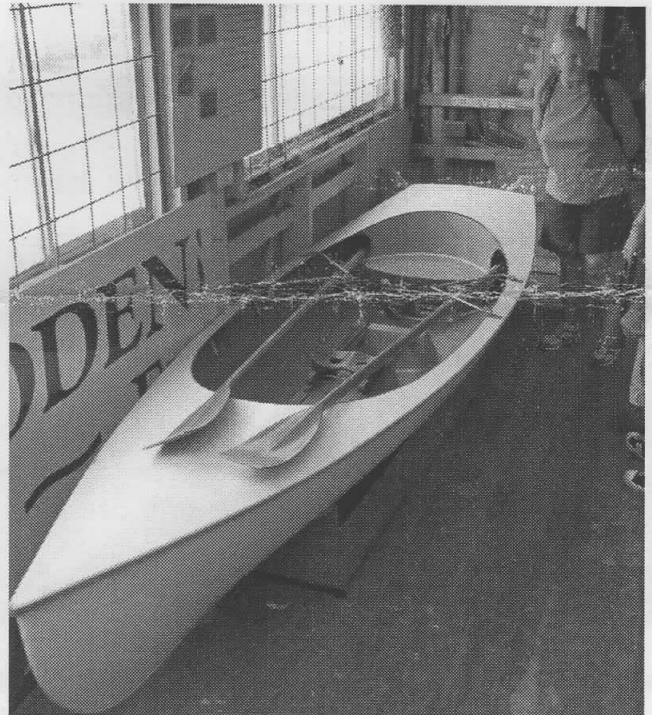


Photo 4: Kit rowing boat with coxswain seat and sliding rowers seat.



Photo 5: Mike Igglesden steadies the bow as Morris discusses the construction of this sister ship to Cousin Jack.



Photo 6: A timber sailing dinghy which was showing signs of epoxy glue degradation, having been exposed to the elements for a prolonged period of time



Photo 7: A current student project. This modified version of the vessel built by Morris is destined to be auctioned for charity upon completion.

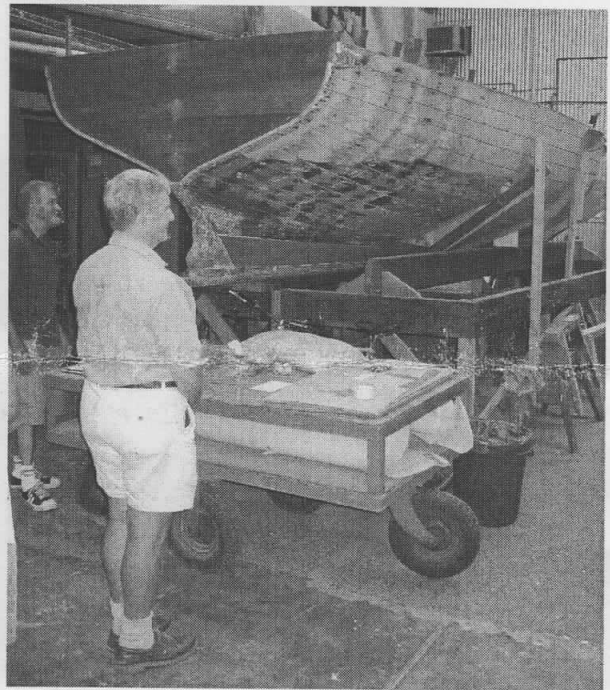


Photo 8: Peter Leggatt surveys Vagabond, a carvel planked sailing vessel used as a project boat.

Morris then showed us his own completed project (Photo. 3). This was a replica of a small rowing dinghy originally built by Vic Mews. Morris had retro fitted a centreline seat which fitted between the bow and midship seats to allow him more leg room when rowing.

A very simple and neat kit rowing boat was viewed next (Photo. 4). This was fitted with outriggers, a sliding rowers seat, and an aft coxswain's seat.

Morris explained to us that neither previous boat building experience nor wood working experience were required to complete a boat building project at the facility. He illustrated this with the next vessel we viewed (Photo. 5) which was being completed by a lady with no prior wood working experience. The progress shown in the photo represents 14 months progress at a leisurely pace of one to two days per week. This vessel is a sister ship to "Cousin Jack" shown in Photo 2.

The timber sailing dinghy pictured in Photo 6, was used by Morris to illustrate the effects of prolonged UV exposure to epoxy glued joints. This vessel had been left uncovered in the sun and rain resulting in a break down of the glued joints of the half lapped knees and possible rot in the forward sections of the bilge where fresh water had collected.

One of the student projects was the next vessel to be discussed (Photo. 7). This vessel was a variant on the vessel constructed by Morris. A number of modifications had been made to the design including an increase in freeboard. Morris pointed out the moulds over which the clinker ply strips had been laid during hull construction, and the numerous modifications which had been made to these moulds by various shipwrights. Morris explained that all the student projects were sold at charitable auctions upon completion. The construction of this particular project generally appeared to be sound although one of the ribs had partially split during the steaming and laminating process. Morris explained that both steaming timber and

boiling timber had the same effect on the laminating properties as it is the heat which increases the flexibility of the timber not the water. The boiling process does have a tendency to bleach the timber to a greater extent than steaming. The large planks of the Duyfken's hull were bent over an open outdoor fire.

Another of the vessels used as a student project is the old carvel planked timber sailing yacht "Vagabond" (Photo. 8)

The next vessel inspected was "Delta" a timber yacht owned by Brian Axel (Photo. 9). This vessel has been in the Wooden Boat Works facility for over four years. During this time a number of items had been restored and rebuilt with many hours having been spent on her. What was to have initially been a relatively short restoration period has escalated as more and more items needing repair or replacement have been discovered during the restoration process.

Several walls of the shed are adorned with various mould sections from past vessels as shown in Photo 10. One of the signs posted within the facility which humoured a number of members read "Boat building is like making love... No matter how you pace yourself, there's always a hell of a rush at the end."

If any of us were inclined to feel that a timber dinghy was too small a project to take on, Morris showed us a project outside the building which would take some real staying power (Photo 11). This was the old fishing vessel which we had previously viewed at Chris Bowmans boat building facility. The guys restoring this vessel had sizeable timber working machinery housed in a converted shipping container which included a circular saw with a blade more likely to take off an arm than a finger as you feed the timber through. Adjacent to the vessel, lay half a forest of Tuart logs from which the planks and ribs were being cut.

Thanks very much to Morris for a very enjoyable and informative tour.

ADMINISTRATION NOTES

CHANGE OF VENUE AND MEETING DAY: This is important! We are going to try a new venue, notably the **Committee Room at S of P Y C**, and on the last **WEDNESDAY** of the month. The room is just inside the door on the south side, nearest the car park. This has been arranged by Alan Coy, at a rate slightly cheaper than RPYC, but it includes free access to a TV and video player. We should be able to drive in and park OK. Wednesdays are twilight racing and we are invited to turn up early and avail ourselves of the evening meal on sale – sounds like a good idea.

MARCH MEETING: This will be Wed, 30 March, and we will be addressed by Alf Smallwood of Adhesive Technologies. Alf spoke to us last about three years ago but the membership has changed a fair bit and so has AT's range of products so he will be a very welcome guest, especially for wooden boat builders.

APRIL TOOLBOX: We will be back at SoPYC on Saturday, 9 April at 2pm to view an already launched, homebuilt launch. This a 32' Hartley, ply on oregon, with twin Perkins diesels, completed about ten years ago by Neville Foster. She's called *Lorna May* and is to be found in pen C30 – bearing right, it's the second jetty from the beach. It'll be too crowded to park inside the gates on a Saturday, so expect to use the street outside. See you there.



Photo 9: Delta, having had various stages of restoration undertaken over last four and a half years.

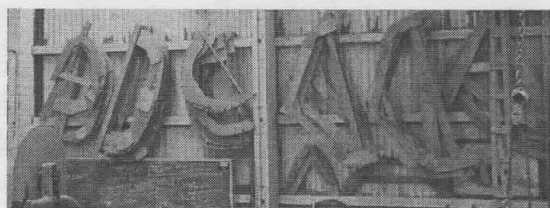


Photo 10: some of the many timber patterns Hanging on the walls of the Wooden Boat Works shed



Photo 11: Old fishing vessel being reconstructed from a forest of Tuart trees