



# AMATEUR BOAT BUILDERS' ASSOCIATION

July/August 2010



Member, Mick O'Shea, with his beautiful steam launch, *Emmamadeline*

## THE GREAT LEVIATHAN

This title doesn't describe the attendance at May's evening meeting on the 26<sup>th</sup>, for which we had a rather small turnout, but rather the ship which eventually became the subject of the meeting. Originally we were to have viewed three steam launch DVDs, courtesy of librarian Mike Rogers, (although I think they came from his own collection). Chris Davis had put in a lot of time before hand to make sure we could play movies through computer and project onto a screen and we seemed to be all set to go. However, Mike's DVDs just would not play. The best they would do was show a still title page. Chris worked on the problem for at least twenty minutes with no joy, but fortunately

he'd brought along a film he'd used originally in his initial setting up – it was from the ABC series on great engineering projects and this instalment featured Isambard Kingdom Brunel (IKB) and his building of the monster ship, "Great Eastern".

The Great Ship, as she was originally called, was conceived by IKB as a steam vessel capable of steaming right round the world without refuelling, thus avoiding shipping coal out to various ports around the world for refuelling at places like Singapore and Hong Kong where the political climate might not always be favourable. Existing ships could only go a few thousand miles on their bunkers and the bigger the ship the

further it could steam. Applying the cube law Brunel came up with a size which could circuit the globe. The fact that the new size was over 600 feet long, twice the length and eight times the displacement of anything afloat, didn't really faze him. He'd already built the Great Western and the Great Britain and to him this was the next logical step.

In 1852 the Eastern Steam Navigation Company (ESN) was formed to attract finance and the ship builder, John Scott Russell (JSR), whose yard was at Millwall on the Isle of Dogs beside the Thames, was drawn into the partnership. JSR was to be the naval architect and IKB the structural engineer. She was to be unique in having both paddles and a propeller, with separate engines for each. Although the film didn't mention it, the Great Ship was too big for the one yard alone and more land was leased next door to accommodate her bow. She was built parallel to the river and eventually launched sideways. Her four-story tall engines produced 8 000hp and she carried 15 000 tons of coal to feed them. And she carried 4 000 passengers, about ten times the usual number.

The most impressive feature of the film, I felt, was the realistic re-creation of the scenes. Most of these seemed to be based on original photographs, then computer animated to fit in with modern actors. It was just as if the whole thing was filmed beside the Thames in the 1850s. Even the famous "and I alone am hanged in chains" scene was there. Designing took place through 1853 but in that year there was a major fire in the yard and JSR was not insured but they managed to get it up and running again, despite the loss of plans and models. Eventually building started in 1854, the hull being double-skinned in 7/8" steel with 3' between shells and requiring three million rivets. The workforce consisted of no less than 12 000 men and boys. Then friction started to build up between Brunel and Russell, IKB accusing JSR of not supplying correct metal weight and of actually stealing. IKB suggested to the ESN that they with-hold funds and JSR approached bankruptcy. The bank stepped in and closed the yard but then re-opened it, while Russell was demoted to Brunel's assistant as work continued.

Finally the ship, then called the Leviathan, was almost ready for launch in early October 1857 (but still needing fitting out, of course) when the yard's mortgagees moved in and closed it again, demanding an immediate launch although IKB wasn't quite ready. So launching commenced on Nov 3. The ESN had sold 3 000 spectator tickets, to Brunel's horror. He'd been planning on total silence to ease his signals to all the various winch and hydraulic ram operators, but he didn't get it. The intent was to lower the ship sideways about 240' down the ways to reach the Thames at low water and for high tide to float her off. On the first day, however, she was reluctant to launch, despite the seaward cables to barges anchored out in mid-stream and the landward hydraulic rams. The actual launch distance was a mere four feet on that day. They persevered through out the foggy London winter with more and bigger hydraulics but it was not until 31 January that she finally reached the low water mark and was floated. She was eventually renamed the Great Eastern, the popular public name for her anyway.

IKB then took a holiday in Egypt while JSR finished the interior. In Sept 1859 the engines turned for the first time but in that same month Brunel died, partly from overwork, (a stroke) and partly from an incurable kidney disease, so she sailed without him. Even the maiden voyage had serious problems when an explosion occurred off Hastings, killing five crew. Although she remained the world's largest vessel for 50 years, she was not a commercial success, the pound signs never adding up the right way for a voyage to the far east. She was, however, a success as a cable-layer, her vast holds being ideal to carry the stock for the first trans-Atlantic cable. However, after only 30 years she was scrapped but remained the largest ship ever built for 50 years.

We are very much in Chris's debt for the success of this evening since we hadn't attempted to show a movie this way before, and since he had the foresight to have a suitable replacement disc on hand when Mike's played up. I'd still like to see these some time, however. They looked as if they'd be very interesting.

## STEAM IN THE VALLEY

Sounds like a traction engine story, doesn't it? But this was actually our second visit to Mick O'Shea's Helena Valley workshop where he's building an Elliott Bay Steam Launch, complete with triple expansion steam engine. In fact, Mick is really a steam buff. I think he bought the engine castings first, then decided he'd better have the launch to go with it. The launch is a replica of about a 1900 fantail or counter-sterned open boat to be finished with a canvas awning over the three quarter or so length cockpit. "Emmamadeline" arrived as a fully made up hull shell, 26' long, a fibreglass/end grain balsa/fibreglass sandwich, ready decked. She also had her stern gear, prop, rudder, etc, supplied but not fitted. A very neat job. The engine was a kit of castings, from the cylinder block and bedplate down to pump housings and so on. I think the kit also included raw materials as well.



At our first visit Mick had fitted the stern gear and started machining the engine castings. With the hull already in shape things looked already close to completion, but they weren't really. There was a long way to go. Mick didn't get as much done as he wanted last year but it seems to me he's still made enormous strides. On the hull he's added fake foredeck planking in huon pine, floorboards and side seats are nearly finished and sat in place. They are boxed in to create lockers as well. And there's a magnificent helm and binnacle towards the stern. The wheel is connected to the rudder by concealed Bowden cables. Seats beside the binnacle will be upholstered in buttoned leather while those

further forward, and a little lower, will be planked timber. Stainless steel trays have been bent up and are in place ready to have boiler and engine installed over them, over the bilge. These will be crucial items for keeping the interior of the boat clean, a real challenge with these engines.



The engine itself was fully assembled and almost complete. It lacked only its three auxiliary pumps (boiler feed, vacuum and condenser cooling) and cylinder insulation and timber cladding. It was set up at waist height on a bench with an electric drive turning it at 190 rpm so one could see all the valves and rods moving. Mick expects to steam it at 165 psi, much higher than Mike Rogers' figure, but this is a triple expansion engine and steam has to get all the way down to the third, low pressure, cylinder. (The steam is used three times over the three cylinders, progressively lowering its pressure. For a full explanation please visit the Marine Steam exhibition at the MM any day except Sunday or Wednesday – advt.)



There was no sign of a condenser or hot well (for cleaning the condensed steam) as yet, but

the boiler was well underway. It's to be a vertical, fire tube affair with a water-jacketed fire box. The outer case and firebox were complete with top and bottom plates welded in, these being drilled for the numerous small fire tubes – about a hundred, I'd say. These were still to be fitted. It wasn't clear whether it would be coal or wood fired, but either would do. I don't think he's planning on gas or oil.



There's no sign of a funnel as yet but Mick is toying with the idea of making it fold aft for towing on the road. The awning, too, has yet to be devised but it will come and really set the whole boat off. Some years ago I had occasion to purchase an old copy of the

American "The Rudder" magazine for January 1900 (from Centaur Books in Menora). Among other things it had pages of advertising for launches like the EBSL, powered by not only steam, but also gasoline, electric and naphtha (don't ask me what naphtha was, it's too frightening to contemplate). Clearly they were all the rage a century ago, both in America and Britain and it's great to see the recreation of a few, as opposed to all the high speed, Tupperware wash draggers one sees around the yacht clubs today. With the Swan, Canning, Murray, Blackwood and Kalgan rivers in our south west alone, there's enough inland water cruising to keep "Emmadeline" and her like occupied for years. And when one's had enough of those, one can hit the road for all the E.S. waterways.

This visit was extremely well attended, about twenty people, I'd say and they came at the right time because Mick and his wife, Jan, played the perfect hosts, putting on a lavish afternoon tea of coffee, tea and scones sufficient to satisfy the most voracious appetites. It made a splendid afternoon and we are in their debt.

## FOR SALE

On 14<sup>th</sup> June I was advised of a rather unique sailing dinghy for sale in Tasmania. It has been won in a raffle by Geoff Wharton who has the Email address [gwharton@mail.optus.com.au](mailto:gwharton@mail.optus.com.au) He has two daughters who he intends to teach to sail but this dinghy is so immaculate he's not prepared to let them loose on it! So this little gem is on the market. She was built by Andrew Denman of Denman Marine in Kettering, Tasmania, and is still in the Island State. Although Geoff didn't say so, I presume she's a traditional, ribbed and riveted clinker (not glued clinker), just like the one in the Denman CD Rom which we added to the library a while ago. The timbers are mostly huon and king billy pine. Andrew was talking about insuring her for \$24,000, which reflects the number of hours which go into such a boat. She's complete with rowing and sailing rigs and has a trailer. Geoff is contactable at the Email address above.

# **ADMINISTRATION NOTES**

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## **OUR ANNUAL GENERAL MEETING**

ABBA's AGM will be held at the commencement of the next Technical Meeting, at 8pm, Wednesday, 28 July, in the Committee Room of South of Perth Yacht Club. Nominations from the floor for office bearers will be welcome although most of the above people will probably continue in their roles if pushed.

## **JULY TECHNICAL MEETING**

This meeting will immediately follow the AGM advertised above. The guest speaker will be Harry Speight and he will explain all the ins and outs of building in strip plank. As many know, this involves laying up a hull with numerous, narrow, bendable planks of very soft timber such as Pawlonia or Western Red Cedar, glueing them together with, originally, epoxy, although I gather less extravagant polyurethanes are available now, and even PVA will do at a pinch. The hull is then 'glassed inside and out to create a sandwich. Harry built his trimaran this way and is in a position to give us all the good oil. Don't forget the evening meal beforehand if you're interested.

## **AUGUST TOOLBOX VISIT**

Please note, this event will be held on the first Saturday in August, the 7<sup>th</sup> of that month, not the usual second. This is because of the availability of our host, Chris Goudet at "Boating Hardware", 6/1 Zeta Cr, O'Connor (just off Carrington St). And since the business trades until 3pm, that's when we'll start the visit. Chris will explain all the intricacies of modern yacht rigging, hopefully using as an example, Harry's trimaran spars. I'm not sure, but I think the mast is carbon, too, so it will be a pretty modern presentation. See you there.



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