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She was powered by a 7 cylinder oil engine built by Ruston & Horsby, to a single fixed pitch propeller operating with a Kort steerable nozzle.

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Latterly Lowgarth was sold to Fendercare and now operates in Nigeria carrying the name Charles Plane.

Kit comes complete with brass propeller and shaft

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Bow piece



This 84 page issue includes the first part of an occasional

series on the construction of a unique quadruple steam turbine powered all metal model of the battleship HMS Dreadnought. The builder, Dr. Marcus Rooks, is endeavouring to build from scratch, and sail, the model in no more than the fourteen months taken for the original full-size version, which is no mean feat.

Glynn Guest demonstrates that it is possible and perfectly practicable to build an r/c model from old newspaper, which must be an excellent example of positive recycling. Phil Button completes his TSS Manxman model and Douglas McGhee describes how he still builds radio controlled models, even though he now only has a very small workspace. Anthony Addams, whilst on his travels, has visited the Barcelona Maritime Museum that is notable for having a original Spanish oared fighting galley on display as well as an Ictineo submarine.

There are the usual regular columns including Range Finder where Dave Wooley is now painting his super-detailed Deans Marine HMS Skirmisher plus Flotsam and Jetsam in which John Parker reminds us of Binnacle Products Ltd and their early post-WW2 wood and cardboard kits.

I hope that there is something for everyone here in these pages with a passion for model boats. .

Paul Freshney - Editor

Compass 360

Model Boats notice board for your news

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Beale Park Model Boat Show 2016

A reminder that this is due to be held again on **28th and 29th May** at Beale Park, Lower Basildon, Reading, Berkshire, RG8 9NW. This event has support from clubs, some traders and the Kent Model Boat Display Team. Further advance information from Barry Chapman, email: BarryChappers@Tiscali.co.uk
Tel: 07747 892761

East Midlands Model Lifeboat Day - 2016

Due to the continuing success of this annual event, King Lear MBC will be hosting this event again on **Sunday 19th June 2016**. All lifeboat enthusiasts are most welcome for this informal and fun event. There is a jetty and slipway for ease of access to the lake so please take your boats for a sail. There are ample parking and picnic facilities at the venue in Watermead Country Park, Leicestershire, LE7 1PD. There is a £2.50 entrance fee payable to an unmanned machine, so having the correct change is required. There are no catering facilities on site so taking your own lunch is recommended. Further information can be obtained from Marie Burdett, tel: 01162 613959 or email: kinglearmbc@ntlworld.com or please check: www.kinglearmmodelboatclub.co.uk

King Lear MBC Open Sail Event

This club will be hosting this event on **Sunday 31st July 2016**. All model boaters are most welcome for this informal and fun event and there is a jetty and slipway for ease of access to the lake so please take your boats along for a sail at Watermead Country Park, Leicestershire, LE7 1PD. There is a £2.50 entrance fee payable to an unmanned machine, so having the correct change is required. There are ample parking and picnic facilities and they hope to have a BBQ and hot drinks available on the day. Further information from Ian Harrison, tel: 01162 677138 or email: kinglearmbc@ntlworld.com or visit the club's website: www.kinglearmmodelboatclub.co.uk

2016 Midlands Model Engineering Exhibition

Planning is well underway for this event, which will be held from **Thursday 13th to Sunday 16th October 2016** at the Warwickshire Exhibition Centre, Leamington Spa. Each year the event attracts over 11000 visitors, is attended by around 50 specialist suppliers and supported by over 40 clubs and societies. In addition to over 1000 superb models on display, there is a full free lecture programme, workshop demonstrations, live steam tracks and outside steamers in action. This is a model engineering show,

but does have some model boat club input and there is much on the trade stands of value to our enthusiasts. For competition, show and ticket details please check: www.midlandsmodelengineering.co.uk or tel: 01926 614101.

Chantry MBC

Their Open Day scheduled (listed in March MB) for 24th July 2016 has been moved forward one week to **17th July 2016**. The location is: Bluewater Shopping Centre, Greenhithe, Dartford, Kent, DA9 9SF, and it starts at 0930hrs. Further information available from the club website: chantrymodelboatclub.co.uk or email: info.chantrymbc@gmail.com
Information supplied by **Martin Oliver**

John Edward's HMS Naiad

Oops! In the **April 2016 issue, Page 56**, a spelling mistake with this, as has been pointed out by two readers. The title line and captions were spelt Naird, but as one of the readers pointed out, it was the first mistake he could recall since 1976, so I suppose we haven't been doing too badly.....

Grimsby and Cleethorpes MBC Open Day

This is being held on **Sunday 22nd May 2016** at Sydney Park Lake, Cleethorpes, N.E. Lincolnshire, from 1000hrs to 1600hrs. There will be a good selection of models on show and on the water, including electric, sail, steam and a steering course, but please note no i.c. engines are allowed on our water. There is parking next to the lake together with disabled facilities at the clubhouse. Refreshments will also be available. For further information please check the club website: www.gcmbc.co.uk, or call Tony Oliver, tel: 07764 196081

Balne Moor MBC

Forthcoming 2016 Open Events: **Sunday 15th May:** Scale Sailing - Separate classes for large and small boats, so size does not matter, £1.50 per boat. **Sunday 29th May:** Tugs and Navy Day. Non-naval boats also

welcome. £1 per boat, all types.

Both events 1030hrs start, and bacon or sausage butties are available until 1230hrs. Hot and cold drinks all day and home made cakes until they're gone. Sat Nav location: DN14 0ER. More information on the club website: <http://balne-moor-model-boat-club.myfreesites.net> or please contact by email: michael.butler1949@talktalk.net

West Midlands Model Lifeboat Rally

This will take place on Sunday 1st May 2016 at Dudley Water Sports Centre. Highbridge Road, DY2 0H (for Sat Nav), refreshments available. This is a fun social day for all lifeboat modellers. For more details please contact John Owen, tel: 01384 233268.

Glasgow Richmond MBC

Their Start of Season Show is being held on **Sunday 1st May 2016**, 1100hrs to 1630hrs, at Richmond Park, Glasgow (opposite Shawfield Stadium). It features 'hands-on-boats' for youngsters, a Bring an' Buy, a raffle, the extensive harbour system, hot and cold refreshments, toilet facilities and car parking. The pond is one mile from junction 1A of the M74. Enquiries to the club secretary Robert Forman, email: glasgow.richmond@gmail.com

'Dremel it Yourself' Club

This precision tool maker has now launched its very own club. Keen hobbyists, from anyone who enjoys crafting, making, restoring and DIY, are invited to join this club. Membership gives hobbyists the chance to get involved in a series of challenges set throughout the year with the opportunity to win numerous Dremel prizes.

Challenges will be set throughout the year and those registered will be notified as soon as each challenge is launched. Projects will be submitted to the panel of judges and all entrants will receive a Dremel DIY badge to display on their social pages or blog apart from perhaps winning a prize. Full terms and conditions can be seen on the Dremel Facebook page. Those wanting

to get involved simply need to register their interest at: <http://bit.ly/DremelClub>
Dremel website:
www.dremel.co.uk

Sadly, it's time to say goodbye.....

Robin Whitmarsh of Kingston Mouldings recently contacted this office and this is what he wrote:

The time has finally come, after more years working in the GRP industry and turning out fibreglass

model boat hulls than I really want to think about, to more or less wind up Kingston Mouldings, and around the end of April 2016 I'll be cleaning off my brushes etc. for the last time. The main reason is that Anne and I want to be free to go out and to go away on holiday more often, while we're both still fit and well enough to enjoy it.

The actual finishing date will be governed by when I run out of packing materials, but everyone will be getting what they've paid for, it may be before the end of the

month, or it may be slightly after, but what I'm calling a halt to is the mail order side, no more sending my hulls to customers in the UK and around the World.

All is not completely lost though and I realise that this isn't going to help most of you, but given reasonable notice, I'll still be able to turn out a few hulls for anyone able to collect or arrange for someone else to do it for them, but definitely NO MORE mail order.

In all the time I've been running Kingston Mouldings, I think I can

count the number of awkward or difficult customers on my fingers, most of you have been a pleasure to deal with, and I've made many lifelong friends along the way. So a sincere thank you to all who have supported this business over the years, the only real downside had been that I haven't had much time for my own modelling, and that's something I plan to put right in the years to come together with DIY. Website:

www.kingstonmouldings.co.uk
Thanks again - Robin

Kid's Model Boating?

Anthony Addams reports on a great idea seen in Keswick

Recently on a visit to the Lake District, I was very pleased to see a small raised boating pond complete with a number of model boats made in the style of the lake's pleasure vessels. In an adjacent cabin and under cover, there are five console stations from which kids could operate a radio control system to manoeuvre the model boats. The pond itself includes two islands and quayside jetties. The consoles are set up as if at the helm of a lake cruiser. So for £1 for about 15 minutes, an aspiring youngster can have a lot of fun. Although deserted on my arrival, a short while later, the consoles were fully manned with enthusiastic captains. What a wonderful idea and



ABOVE: Not unique in its concept, but a nice variation on the usual Kid's 'Have a Go' model boat pond.

RIGHT: Even the control panels have a nautical theme.



perhaps something some clubs might consider as a temporary setting for shows (if they have not already), the notable thing being that the models here looked like real boats and the small pond was rather more interesting than the plain plastic affair one sometimes sees in public areas, and I do recollect seeing such an attraction also for youngsters at one of the River Mersey Ferry Terminals.

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Model Boats
June 2016 issue
is on sale on the
13th May 2016

**FREE
 PLAN**

Le Capricieux



Next month in **model Boats**

This issue will include a full-size complimentary Free Plan for Le Capricieux, a semi-scale warship model based on the French Super-Destroyers of the 1930's Le Fantasque class. This 1:144 scale 85cm long model is designed by Glynn Guest and largely constructed from balsawood sheet and stripwood. In addition there will be a Kit Review of Sea Rover from the Vintage Model Boat Company.

See more about what's in **Model Boats** magazine month-to-month in forthcoming issues and see some of the articles you may have missed from past issues and subscription offers on our website: www.modelboats.co.uk

We have a great range of subscription packages that you can choose from, including **our new Print + Digital package** which give subscribers 13 issues a year with 6 free plans, 13 digital editions to download and keep PLUS access to an Online Archive dating all the way back to January 2007.



Sea Rover

Don't forget! The June 2016 issue will be published on **13th May 2016** price £4.90 – don't miss it! Order your copy now! Or better still why not make it your first copy in a year's subscription to **Model Boats** magazine? See our subscription offer on **Page 34** in this issue...

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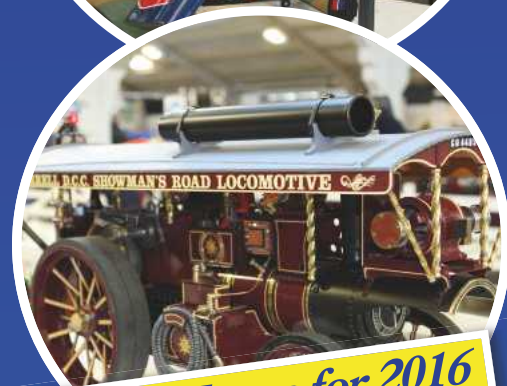
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Dr. Marcus Rooks with the completed hull skeleton, whilst standing by part of his garden railway.

HMS Dreadnought The Skeleton!



Dr. Marcus Rooks' new project

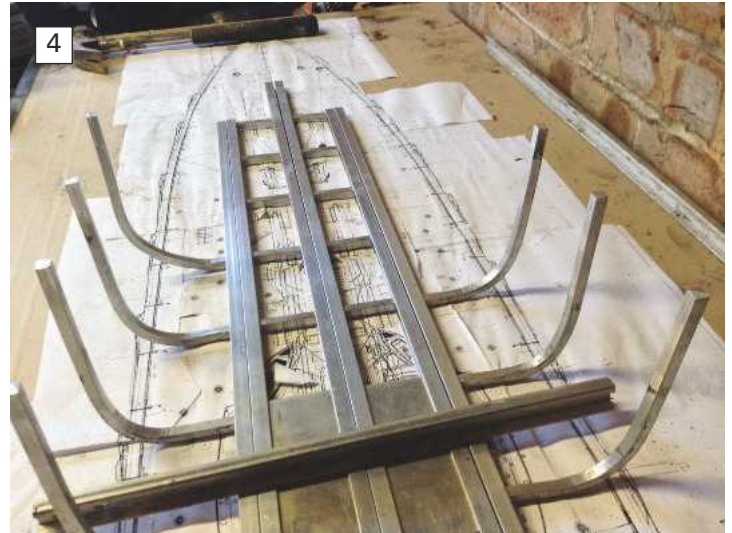
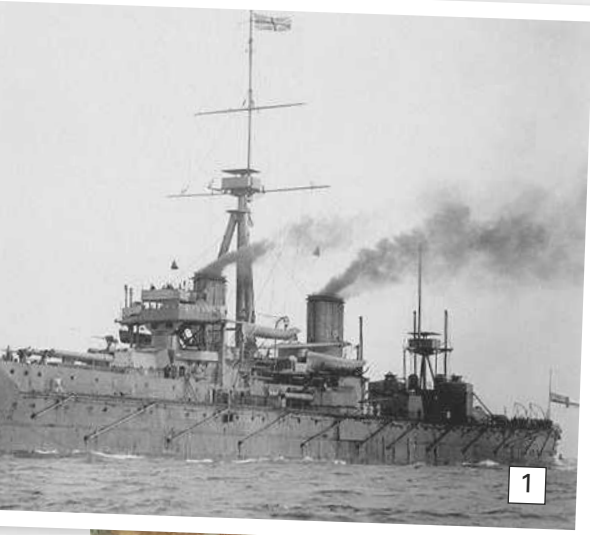
Over the last few years I have written about various aspects of model construction in this magazine, ranging from the serious such as HMS Snowberry to the whimsical such as the M & M boat. As often as possible I have tried to introduce a different aspect of model engineering into each model's construction, such as machining gun barrels or making special bespoke rudders and tubes for instance. Model ships, although usually looking very realistic, are in fact far from it. The hulls are frequently made from wood, GRP or plastic, these being materials that are not always

pro-typical, although there are exceptions. Electric propulsion which is the usual means of powering a scale model boat is also not 100% realistic, but again there are some exceptions. A steam plant is obviously appropriate for many models of full-size vessels, but a simple oscillator or slide valve engine is also not really correct, as for certainly much of the earlier part of the 20th Century, most large ships were steam turbine driven. The simple fact is my modelling roots have always been within the realms of model engineering and so my ambition has been to combine this with a nautical theme and with retirement on the horizon, that time was rapidly now approaching.

Model engineering has never been a cheap hobby as the equipment needed such as lathes, mills and hand tools etc. is bad enough, but the cost of some items has become prohibitive and building for example a five inch gauge railway locomotive can cost several thousand pounds. Modelling a ship therefore seems to be a more affordable option which is perhaps why our hobby exists, but the basic skills needed to make a ship or locomotive model are not that much different. Platework may be required for the hull and sound model engineering skills needed to make a steam engine and boiler for some models. With regard to the

HMS Dreadnought

This is the start of an occasional series of articles covering the construction of a model of the 1906 steam turbine powered British battleship HMS Dreadnought. The second part will not necessarily follow in the next issue, but will follow soon in these pages. Marcus is endeavouring to show that it is possible to build a largely aluminium hulled working model that uses miniature steam turbines, and that such a project need not be too daunting. At the end of this First Part, Marcus reveals how he has sourced suitable turbines for his model without emptying his bank account at the same time - Editor.



latter, boiler-making has now become an expensive business in the model locomotive world and many home-builders have opted for a professionally built boiler that conforms to the various current safety regulations.

As far as I am aware it has been quite a long time since a metal 'only' based model boat has been described and in fact I believe that it was Oliver Smith way back in the 1960's when he described the construction of M.V. Cranbourne in our sister publication of Model Engineer, but I am quite happy to be contradicted on this.

The challenge

The task I set myself, was to construct a large model ship that was as near to being anatomically correct as it could be and that meant a metal hull and steam turbine propulsion, but there are still some features that I would not be able to copy one hundred percent. Most full-size ocean-going ships are made from steel which in our small size would be difficult, so mainly aluminium, brass and copper is being used in this project.

The model engineer Lillian 'Curly' Lawrence (known as LBSC), was one of Britain's most prolific and well known model or scale-steam-locomotive designers. On more than one occasion he stated that, 'You can't scale nature' and in our world that will be especially so when considering boiler layout. Full-size ships had up to 20 or so boilers providing the steam and HMS Dreadnought had 18 of them. In our case, not so many will be used, nor will a single large one, but quite possibly two smaller types. Out of necessity the various pressure gauges etc. will have to be over-scale, but are vital for correct and safe functioning.

Coal and then oil fuel firing was used in warships of the early-20th Century era, but these are not really universally practical for our scale models, so gas-firing which is more convenient will be used, although it shouldn't be too difficult to use liquid fuel as an alternative. Having outlined a few of the thoughts on the subject, the major decision still had to be made and that was: 'What ship'?

I have always preferred warships to merchant vessels, so at least that was one decision taken and the miniature (but not so miniature really) model should be about five to six feet long as anything larger would become too unwieldy and expensive to build. Eventually HMS Dreadnought as of 1906 was chosen, she being perhaps one of the most famous of the Royal Navy's warships and if built to a scale of 1:100 would be about 63ins (158cm) long. Also, as she possessed a 12 inch main battery, the barrels would scale down to a bit more than 1/8 inch diameter allowing for the mass of the barrel itself. There is a lot of information out there available about this warship and since a 1:350 plastic version had already been built, this was a veritable 'mine' of information. HMS Dreadnought's basic construction was quite simple, there being no huge superstructure units, numerous aeroplanes and a secondary armament that might complicate construction. In fact there were no aeroplanes, flight still being in its infancy, this being a new revolutionary fast steam turbine driven battleship, nothing more and nothing less. A vessel though, that made all others largely obsolete overnight.

All major warships after HMS Dreadnought were now propelled by steam turbines and hopefully this will be replicated in this model. At worst, if not successful one could fall back on established reciprocating steam technology or even worse still,

Photo 1: HMS Dreadnought soon after commissioning in 1906.

Photo 2: Early progress with the main central keel unit section and the full length middle piece with additional strips either side.

Photo 3: This shows the shaped stem piece which is bolted into the main keel unit.

Photo 4: Further progress showing the placement of frames in the keel unit.

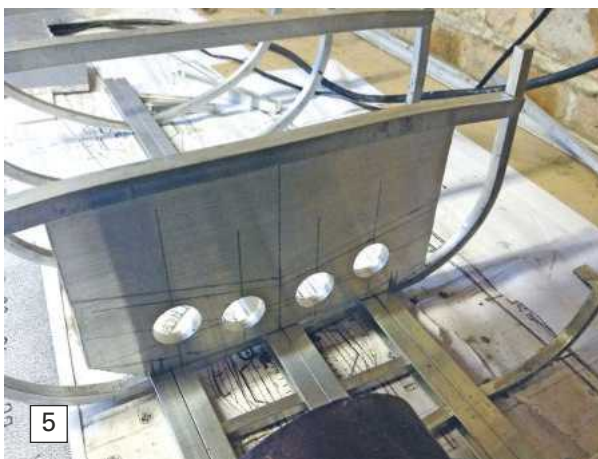


Photo 5: Looking aft and this is the pre-drilled plate for mounting the four miniature steam turbines.

Photo 6: A typical bolted and riveted complete frame for the forwards and aft sections of the model.

Photo 7: An upside down view of the centre section of the hull's framework clearly showing the turbine 'holes', propshaft tube holes and how the ribs are bolted into the channels of the main keel unit.

Photo 8: Looking down from the starboard side at the centre section with the supports for the boilers in the middle of the picture.

electric propulsion and the degree of difficulty of building this model? Although it is within the field of model boat engineering, any competent modeller with suitable facilities should be able to make a good stab at this type of project.

Initial planning

The reasons for building HMS Dreadnought had now been determined, and the real work could begin on producing suitable plans and sourcing the various parts, whilst amassing as much information about her as possible. The Internet is a great help, but always cross-check the sources of data, a properly written, researched and presented book being a definitive source of information. Where the Internet does score, is that drawings and photos abound, provided you Google the right questions.

Two books are essential reading if you intend to make HMS Dreadnought and the first is: 'The Battleship Dreadnought (Anatomy of the Ship)' by John Roberts, which is one of a series of books detailing various warships. The information within it is staggering for its comprehensive detail. There are chapters on the ship's mode of construction, numerous drawings and photographs that enable the builder to contemplate virtually any detail of the ship, but a word of caution here. Although the numerous drawings are scaled, I am not convinced that they have been reproduced to perfect scale as some of the dimensions just do not seem to fit just right, so use them as a guide and double check dimensions if in doubt.

The second book is: 'The Battleship HMS Dreadnought - Super Drawings in 3D', by Stephan

Draminski. This contains an unbelievable number of 3D renderings of the ship from virtually any angle, plus other extremely useful conventional drawings. Some of these are to 1:100 scale and so were ideal for the proposed model, but the 1:350 drawings were also used as the basis for the model after being suitably enlarged.

There are also a couple of 1:350 scale plastic kit models available, the Zvezda version being to hand. Such a kit is handy for checking detail parts and more important, the measurements, it being a reasonable assumption that the international plastic kit manufacturer should have got it largely right. Although possessing a 1:350 Dreadnought completed kit, another was purchased as one could measure and copy the individual parts easily whilst still on their sprues. The other benefit of having such a model in front of you, is that it is a 3D representation, so it is easy to see how deckhouses, fittings, turrets and ship's boats etc. all relate to one another.

Workshop modifications

Before commencing the project, some alterations to the domestic workshop to accommodate HMS Dreadnought's construction were required, not least a length of unused kitchen worktop assembled at the end of the normal workbench to support its construction. A full-sized plan view of the battleship was pasted on to this, so that it would be possible to build directly over it. Some new equipment was needed, principally a Linishing machine, which would be invaluable when contouring the metal parts.

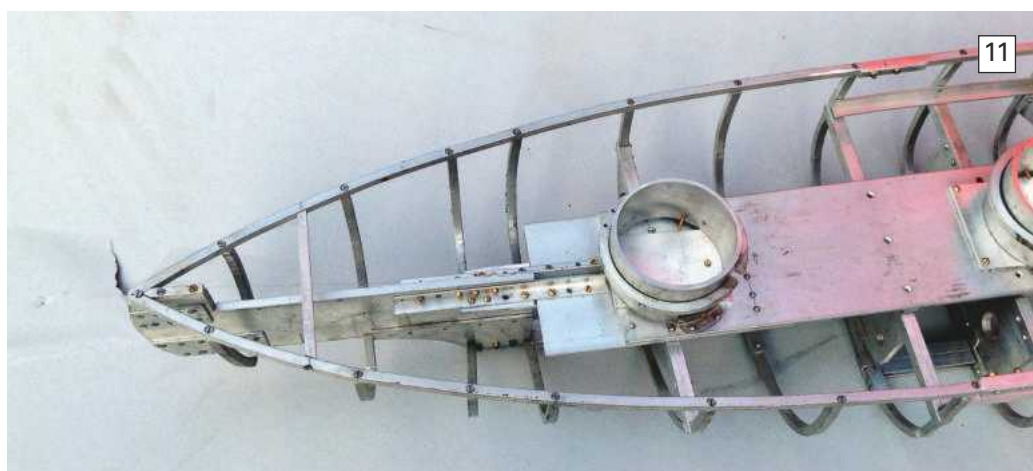
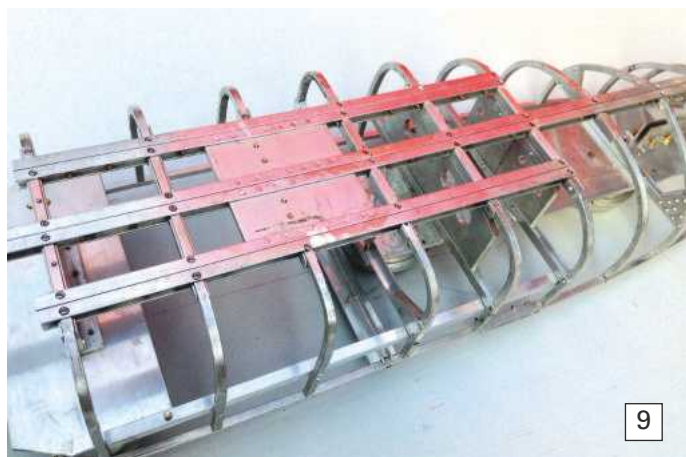


Photo 9: An inverted view of the centre section.

Photo 10: A close-up of the stern of HMS Dreadnought. You can see the strengthening plates and how a combination of bolts, screw and rivets have been used depending on the specific requirements of each area of construction.

Photo 11: A more general view of the aft part of the framework showing the 12 inch turret barbets.

Getting started

HMS Dreadnought in 1906 used a limited number of steel sections in her construction, remembering that the full-size warship was launched barely a year after her construction commenced at Portsmouth Naval Dockyard. To keep it simple, the sections within the model were rationalised to:

1. Keel (central and lateral) of 3/8 x 3/8 x 1/16 inch (10 x 10 x 1.5mm) aluminium channel.
2. Framing of 1/4 x 1/4 inch (6 x 6mm) aluminium section.
3. Hull side plates of 1/29 inch (0.9mm) aluminium sheet.
4. Framing supports etc. of 3/8 x 3/8 inch (10 x 10mm) aluminium angle.
5. Bulkheads etc. of 1/8 inch (3mm) and 1/4 inch (6mm) aluminium plate.
6. Barbets of 3 1/4 inch (82.5mm) diameter aluminium tube.

Fasteners of 3/32 inch (2.4mm) aluminium rivets, 6BA and 10BA brass, and steel countersunk screws were used as well as specialised aluminium flux and solder when this method was later needed during construction. This aluminium solder was of the soft type and please do not make the mistake of using aluminium brazing rods if you are going down the same route of a metal hulled model. Controllable heat (a blow torch) will be needed to enable bending the aluminium sections. These are the basic minimum items needed, but as always, you can never have enough materials to hand.

The outline of HMS Dreadnought's hull framework construction is much the same as a

description of the anatomy of the human body since the basic hull framework can be considered to be the skeleton; the muscles are the heavy guns; the internal organs are such things as boilers and turbines, and the skin is the outer covering of the hull and superstructure. Each instalment of the construction will be classified under one of these headings, although there may be some of overlap.

The hull skeleton

In locomotive building the starting point are the main chassis frames as everything is attached to them and for HMS Dreadnought, it is the keel. The full-size vessel had a keel with several outer longitudinal sections and this model version is much the same with a central keel piece unit with two additional longitudinal keels alongside it. The basic hull can be considered to comprise three parts.

The first is the central section that corresponds to the flat double bottom section.

The second and third sections are the forward unit, which comprises part of the central keel and the stem, and the rear portion which comprises the stern and also part of the central keel unit.

The model's keel was laid down on 1st November 2015 and bearing in mind the short building timescale of the full-sized HMS Dreadnought, could the model be completed in the same time one wondered?

Central keel unit

This was made by bolting 3/8 inch (10mm) channel section back to back as shown and the keels spaced using 1/4 inch (6mm) square aluminium section,

“The outline of HMS Dreadnought's hull framework construction is much the same as a description of the anatomy of the human body since the basic hull framework can be considered to be the skeleton”

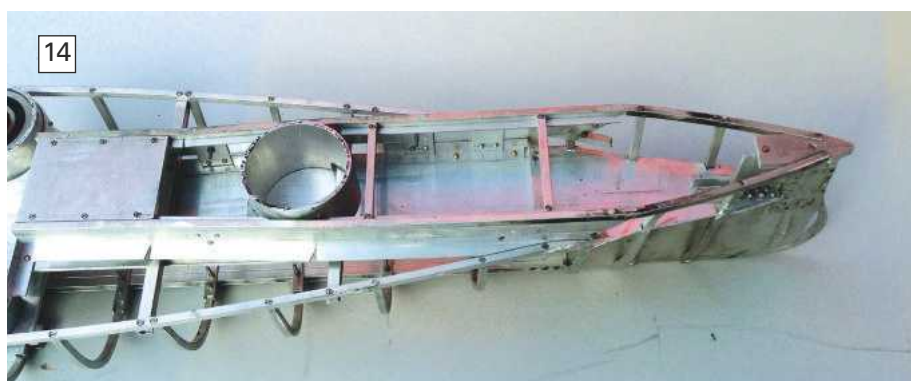
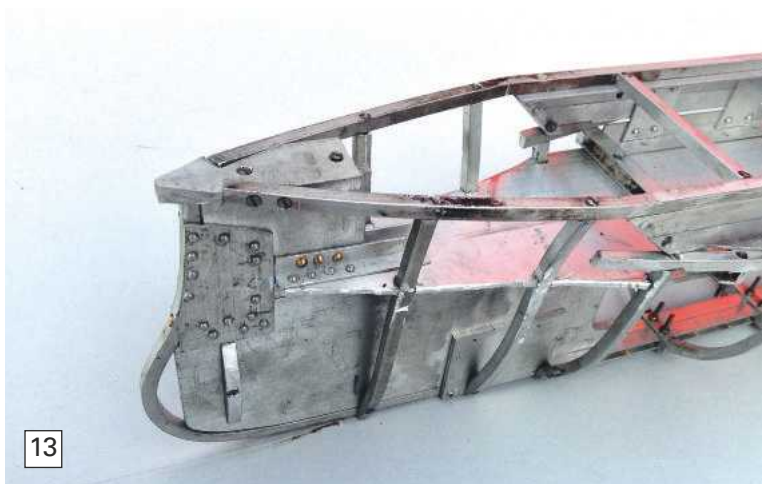


Photo 12: Looking aft from amidships. There is no soldering involved in any of this construction.

Photo 13: The bow section is quite complex as this picture reveals.

Photo 14: A general view of the forward section.

these fitting very snugly inside the channel section. Once in place, these parts were clamped and riveted together as appropriate.

Hull frames (ribs)

Bending these was an important process, relying heavily on the cross-section drawings and an important point is to give yourself sufficient excess on each length of aluminium to be able to hold them, which can then be cut to length once the bending process is complete.

Do not attempt to bend aluminium in its hardened state as it will be very difficult to get smooth bends, so first it has to be annealed, the process of softening a metal. There have been reams written on this subject, but simply put the process allows the faults in the metal to achieve a more stable situation. Some metals such as copper, have to be annealed by heating and then quenching, but aluminium has to be heated and allowed to cool slowly, or better still bent whilst still hot.

A commercial propane/butane mix blow torch was adequate for the process. Do not overheat, but do make sure that the metal is well and thoroughly heated. At a quick glance the hull's curves required are quite simple, but in fact comprise a number of subtly integrated curves. Wood formers can be used, but in practice once the metal has been annealed it can be bent by hand and in the wood protected jaws of a bench mounted vice.

By laying the part-formed ribs on the cross section drawings you should be able to get an accurate representation. You will find that aluminium becomes work-hardened and therefore difficult to bend further, but by simply re-annealing, all will be well. As time went by, it became clear that although these were supposedly scale drawings, they were better used as a guide rather than a definitive

statement of the actual shapes and some of the frames needed to be adjusted using common sense and the human eye when being attached to the keel.

Be methodical when fitting frames as they can all look very similar to one another and not being a methodical person, at various times the wrong one was installed and occasionally even upside down, plus some disappeared without trace, goodness knows where.

This was quite tedious work and it was necessary to use a gauge to ensure that each side of the hull was of equal height. The various parts were screwed or riveted together and some thought had to be given to whether in the future something might need to be removed, in which case bolts and screws were preferred to rivets.

The stem and stern

These were complex structures on the full-size warship and were made from steel castings and contour plates. On the model, heavy duty 1/4 inch (6mm) plates shaped accordingly were attached to the keel and considerably strengthened using reinforcing patch plates.

Barbettes

The five main armament twin 12 inch turret barbettes are from pre-cut lengths of tubing. A small compromise on size had to be made as they true-scale to 3 3/8 inches (85mm) diameter, a size not readily obtainable. So, if in doubt always go slightly smaller rather than larger, but those used are okay and the size difference is not noticeable. They are attached to the rear, middle and front decks, which are of 1/8 inch (3mm) aluminium plate. The fully traversing turrets are planned to be supported on ball bearing tracks, in many ways just like the originals.

Problems?

As work progressed, one started to think like an Edwardian engineer and questions such as: 'Would this part be strong enough' or 'Would this part twist in service' came to mind, so yes the hull framework was modified to take such considerations into account.

Another problem with building a large model such as this from scratch, revealed that there was hardly a right angle to be seen. An awful lot depended on the Mark One Human Eye when gauging positions



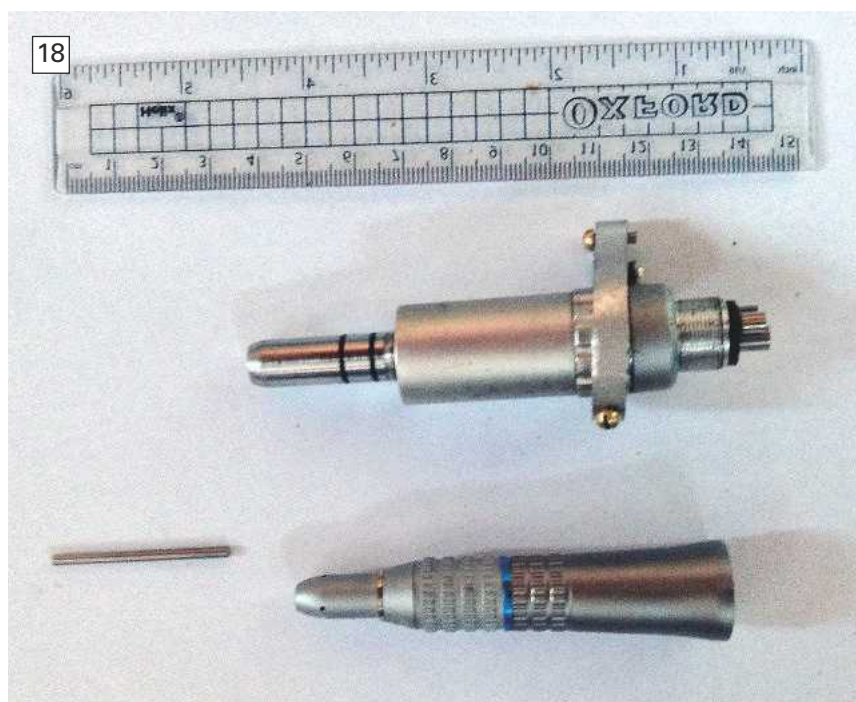
Photo 15: A general view of the entire hull framework, aka The Skeleton. It is all surprisingly rigid and does not flex.

Photo 16: An upside down view of the hull's skeleton.

Photo 17: An overall view of a dental air motor, partly adapted for HMS Dreadnought. This is all very much an experimental project, but these motors are easily available from about £20 each, an unbelievable price bearing in mind the high quality engineering involved. These are NOT the high-pitched motors that are often associated with a trip to the dentist, but bench tests have been most encouraging as to the power output of these units which are 6 inches (15cm) long.



Photo 18: The turbine unit comprises a basic air driven motor and a slip-on straight section rod which will connect to the propshaft. The collar around the motor is part of the fore and aft speed control and is not a standard fitting. A special coupling will be needed to connect to the air (but in this case steam) supply and is also readily available.



and size and in the end it has now become clear that this will be a decent enough accurate representation of HMS Dreadnought, but with a certain amount of modeller's licence.

Conclusion

On 20th December 2015 the stage shown in the photographs had been reached with the completed skeleton of the hull. The various aspects of its construction are illustrated by captioned pictures rather than a laborious step by step description. Logically, the next step would seem to be covering the hull, but gaining access to it is much easier without the shell plating in place, so the next part of the project will be to fit out the interior; namely the water tanks, boilers, four engines and steering gear etc.

To wet your appetite, the last two pictures in the sequence are of one of the dental air driven motors that will be a proposed miniature steam turbine. Bench testing has been most promising and the power developed from it would appear to be more than enough to drive a model's propeller and at barely £20 for one of these units, but four being needed for HMS Dreadnought and assuming everything does work as is now encouragingly expected, they will be an economical way of driving the model in a pro-typical way. Finally, if anyone hasn't realised it just yet, I am of course a retired dentist, so the idea of using these was easy enough to reach.

To be continued.....

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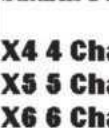
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TSS Manxman

Phil Button's steam turbine steamer model

In Part One, I described the purchase of a part-built hull from eBay and how it was fitted out to represent the 1955 Isle of Man Steam Packet Company ship Manxman and Part Two last month continued with the design, build and installation of the first live steam plant, the installation of the radio control equipment and the initial sea trials.

Part Three now continues the saga with the trials and tribulations of trying to get the model to do what was wanted and covers some of the lessons learned along the way. My philosophy is, if at first you don't succeed, keep on trying and the end results should be well worth the effort.

What to do next?

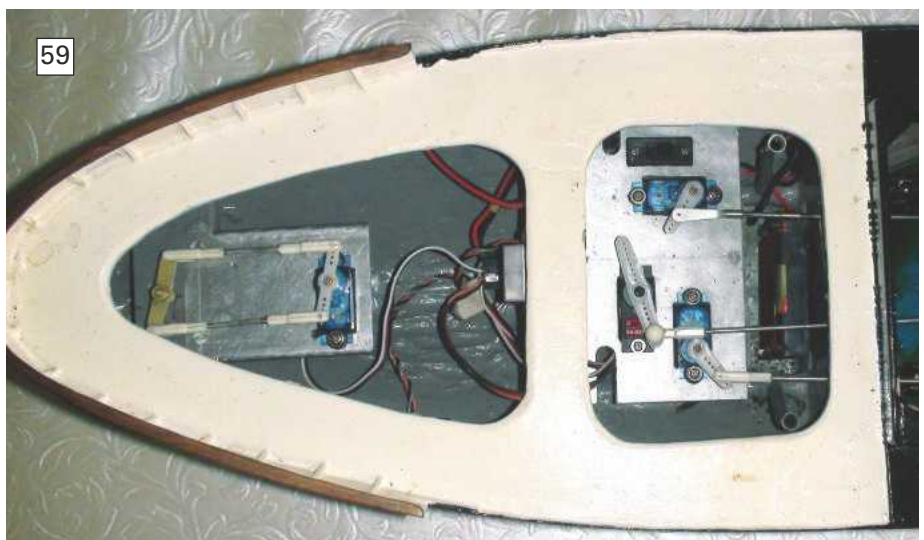
At the initial sea trials (please see Part Two last month), the weight of internal equipment caused the model ship to sit very low in the water and I could not continue with the model like that as it looked like TSS Manxman was on the verge of sinking.

Obviously the model needed to lose weight somewhere and as a diet was out of the question, how could this be reduced? The conclusions arrived at were:

- 1) Change the radio control servos from standard type to micro-servos and revise the radio battery from AA cells to AAA size. This would produce only a minor weight saving, but 'every little bit helps'.
- 2) Build a new smaller and lighter boiler and reuse the existing boiler from within another model, the steam tug MSC Archer as it later turned out. (Please see MB February and March 2011)

The change of radio control servos was simple enough to do as I already had a stock of suitable nine gram micro servos and it only required a new servo plate in the radio control compartment, **Photo 59** showing that revised installation.

Changing the Rx batteries was also not much of a challenge, but to change the boiler meant building a new unit from scratch and fitting it into the hull, but a design was to hand in the computer for a vertical, centre flue boiler that looked like it might be suitable for use in TSS Manxman. This boiler design was originally used to power the steam engine fitted in the model of the paddle tug John H. Amos, based on the Graupner Glasgow kit and featured in the Model Boats October and November 2013 issues.



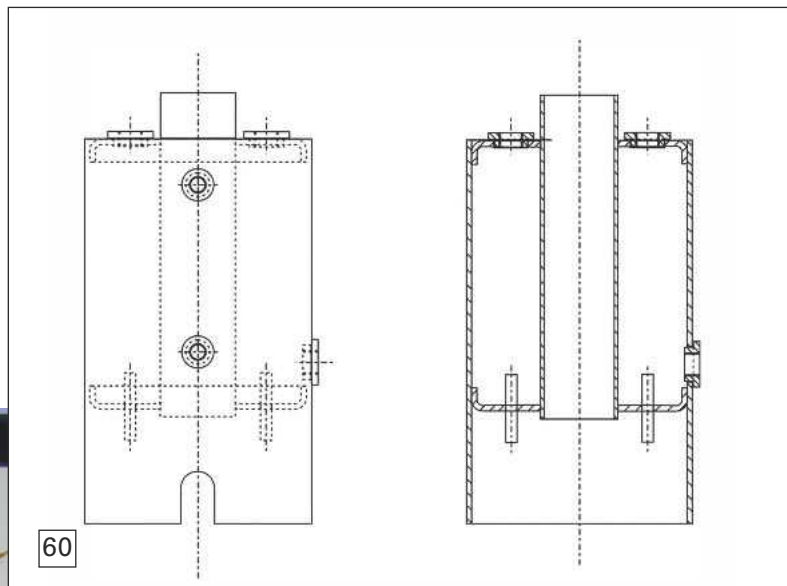
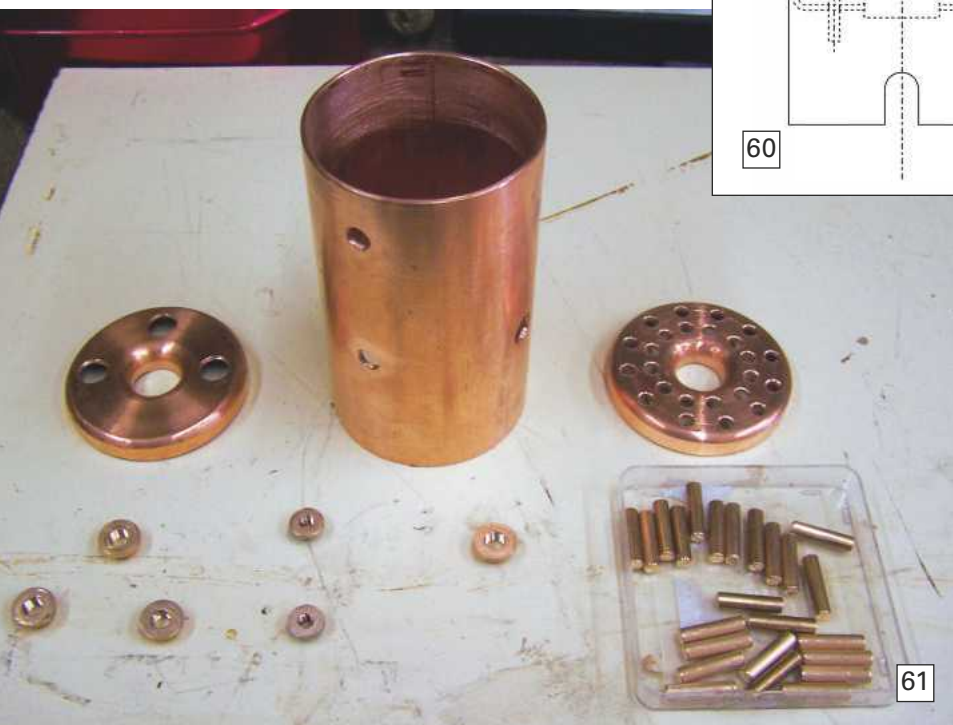


Photo 60 shows the side elevation and a section of the proposed boiler design. A ring of spikes through the bottom of the boiler increases the heating surface as they project into both the firebox and the water. As a result of these spikes, this type of boiler is often called a 'hedgehog boiler'.

A check on the heating surface for this boiler showed that it was rather small to supply two engines, so the design was modified by putting six water tubes across the central flue and adding an extra row of hedgehog spikes at the bottom. This resulted in near enough the right heating surface and the stress calculations on the materials to be used gave a good margin of safety for the steam pressure envisaged.

Boiler construction and testing followed similar lines to those for the first boiler, and please see Part Two in last month's issue for a description of that work. The completed unit was installed in the model on a new baseplate made to fit the existing boiler mountings with a new ceramic gas burner to match, but fortunately a design that worked and existed was to hand (also from John H. Amos), so no real problem there.

Photo 61 shows the parts for the boiler shell.

Photo 62 shows the completed flue tube with its water tubes.

Photo 63 shows the completed boiler under hydraulic test.

Photo 64 shows the finished boiler installed in the model.

After passing the bench steam test with flying colours, it was off again to Sheringham for more on the water tests.

On the water (again)

In a cold November a second maiden voyage took place with the new boiler. This voyage also took place in almost ideal conditions, a very light breeze and virtually no swell on the lake.

So, here we go again: Fill the boiler, fill the lubricator, install a new gas canister and get ready to go. Checks with the model in the water with a full boiler showed that she floated a little lower than the scale waterline, but a great deal better than with the first boiler. Leaning the model over to around 30 degrees from vertical and letting it go gave a rough check of stability, not as good as when sitting lower in the water, but acceptable. During later sailings it has become apparent that this revised Mk. 2





Manxman can heel frighteningly in anything but a very light breeze, but probably not as bad as it looks to me and bystanders, but nonetheless slightly worrying.

Anyway, next to turn on the gas and light the burner at the boiler flue and away goes the burner, all very nice and quiet with no 'bang' as previously. Whilst waiting for steam pressure, the engines were oiled and a check of all the radio control functions performed.

Having completed the warming-up of the engines and carried out the safety valve test (you should do this every time a steam powered model is sailed), it was placed in the water. As with the maiden voyage (in Part Two), the machinery behaved perfectly and the model did all that was asked of it, although rather slowly as the new boiler quite literally 'ran out of steam' and therefore my heating surface calculations must have been a little off the mark.

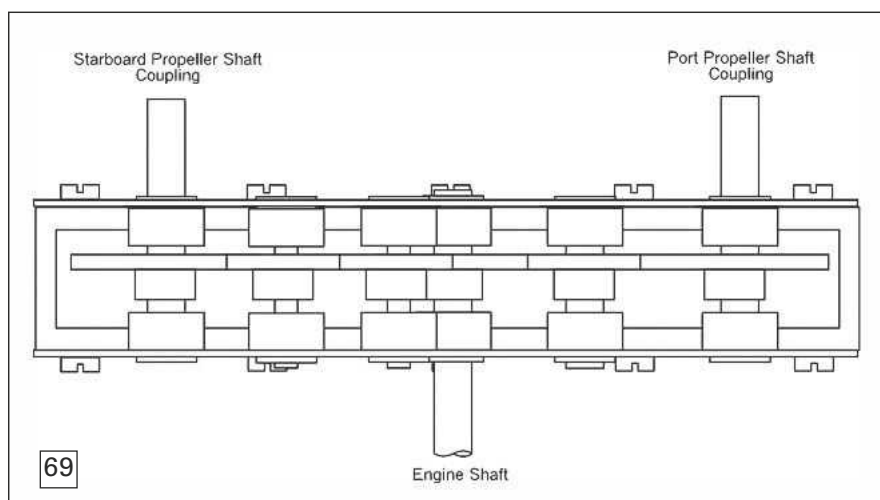
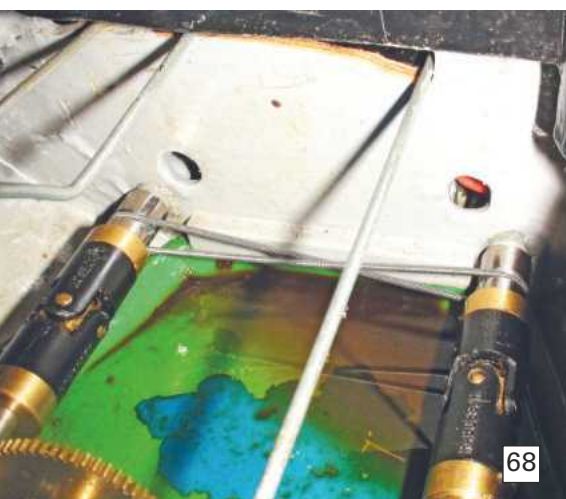
The problem from the earlier sea trials with the exhaust steam emerging as a single jet had been cured by routing the exhaust tubing into a perforated ring at the top of the boiler uptake so that steam emerges all around the top of the funnel as in **Photo 65** and Photos **66** and **67** show Manxman on the water on this day, performing with the new boiler installation.

Another hiccup revealed itself whilst on the water in that it was possible for one or other of the two engines to stop and then decide not to restart. Running on one engine was perfectly possible and did not result in a great loss of performance, but made steering 'interesting' to say the least. The question though, was why?

The problem appeared to be caused by unequal steam distribution to the two engines from the common control valve and that might prove difficult to correct, so an 'off the wall' solution that seemed to work was put into play.

That solution was to fit a small vee-groove pulley on each propshaft, with a standard Mamod type metal drive belt linking the two pulleys. Since the propellers were handed and the propeller shafts were contra-rotating, a twist also had to be put in the drive belt. This drive belt ensured that both engines ran together, each doing its share of propulsion. **Photo 68** shows that drive belt





installation, but the tension required in the drive belt resulted in some unwanted friction in the driveline.

Lack of puff?

It was still necessary to 'put on the thinking cap' to find a way round the shortage of puff from the boiler. The easiest solution, other than to build yet another boiler, was to reduce the power plant from two engines to one as the performance of the model when it had inadvertently gone into single engine operation was not significantly different from that when on two units, but this would involve building a gearbox to provide the drive to the two propeller shafts. So, yes you have guessed it and back to the PC and a design for a gearbox was created to allow for a central drive shaft from the engine with two contra-rotating output shafts to drive the propellers.

Some brass gearwheels from Hobby's Ltd were used that were already in stock and it was possible to fit it all in between the engine's output shaft and the 3 inch spaced centres of the propshafts. With these gears, a reduction of 1.25 to 1 was forced upon the design, from the engine to the propellers, and whether this was a good idea would be discovered once on the water in due course.

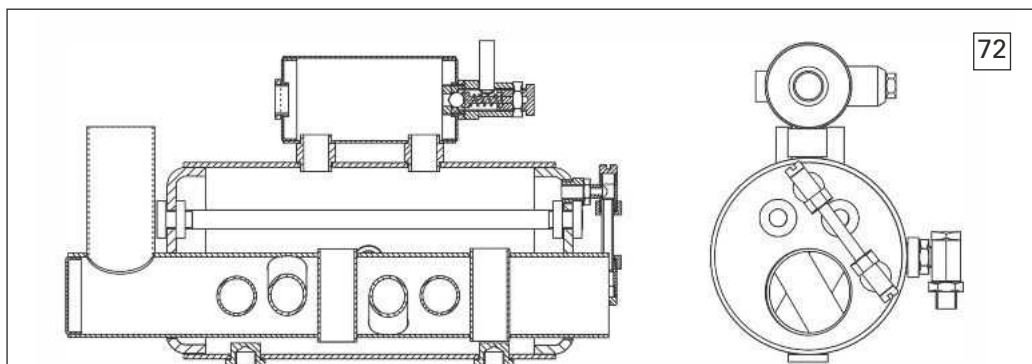
Photo 69 shows a plan view drawing of the gearbox and yes, it does have six gears in all, three of which are idlers. All the gearbox shafts run in miniature ball bearing races as are usually used in model cars and helicopters to reduce friction.

A single engine was re-positioned on the

existing engine plate and new mountings drilled for the gearbox, this meaning that twin engines could be re-installed at a later date should the new single engine installation prove unsuccessful - that's confidence for you! Lining up the engine and gearbox and shimming the bases of the two units to get a free-running installation proved a real challenge, but it was eventually successfully completed, **Photo 70**. Then came the disaster as the gearbox output shafts were beautifully parallel with the propeller shafts in both planes but the centre distance had somehow now resulted in being 3mm too far apart. So yes, the moral is; 'measure twice, cut once', as somehow I had got it wrong somewhere.

As the gearbox was complete, meaning it could not be easily modified, and I did not feel like making another, a drive shaft coupling that would accept a degree of misalignment was needed. In the past, the Robbe 'Navy Cardan' 1449 double universal couplings have proved useful in such circumstances and therefore two were purchased, the manufacturer claiming that they can accept up to 2mm of misalignment. They were installed, **Photo 71**, and worked perfectly with the engine running on a temporary rig using air from a small air compressor, even though they look a little odd with the kinks in the drivelines. The pivot holes in the couplings did have to be loosened with a fine file to ensure that they were as free moving as possible though as when supplied they proved to be very stiff.

After remaking the servo connection to the



repositioned engine control valve and piping it to the engine, a bench steam test was carried out to assess the performance of the new arrangements. All seemed to be well, but there was still the nagging doubt about stability with the vertical boiler and yes, the decision to 'bite the bullet' was made to build a new horizontal boiler of similar dimensions to the vertical version to try to reduce the height of the C of G of the model.

That boiler build and testing took place in the workshop on the 'warmer' days over the Winter of 2012 and 2013 and followed the same well-trodden path as for the earlier boilers. **Photo 72** shows a cross section and end elevation of the new boiler and **Photo 73** is of the completed unit with its burner installed in the hull of Manxman.

New burner

It never ends does it? Initially, a new (at least for me) design of burner was tried, along the lines described by Martin Ranson in the July 2008 issue of Model Boats. This burner design used modified plumbing fittings for the burner body and two layers of fine stainless steel mesh as the burner element, **Photo 74** showing it as built. Although this burner worked, there was not sufficient heat from it to produce enough steam from the boiler and it tended to push flames out of the ventilation holes around the burner body, so it was modified by installing a piece of ceramic plaque in place of the mesh.

This revised burner still did not work very well, but was improved enormously by drilling out the 1.5mm holes in the ceramic to 2mm, adding extra holes and then increasing the air holes in the mixing tube from 2 x 6mm diameter to 4 x 6mm and then to 8 x 6mm, **Photos 75 and 76** showing the final version.

To start with, a No. 8 gas jet was fitted, but this proved rather too much for the boiler, with the engine screaming around at full regulator with the safety valve blowing merrily, and so it was replaced by a No. 5 jet during bench testing to calm things down a bit.



Gas tank

Even though most of the machinery installation had now been rebuilt, there were still nagging doubts about the stability of the model. The original gas installation comprised a DIY type gas canister with its heavy brass control valve high up in the hull (Photo 47 in Part Two of this article last month), so that would have to be replaced with a smaller, purpose built gas tank that could be fitted low down in the hull.

Once again, inspiration came from the article by Martin Ranson in the July 2008 issue of Model Boats as he described a design for a homemade gas tank and provided outline drawings. A design was sketched, once again on the domestic PC, and stress calculations made, using a hydraulic test pressure of 333.5psi (based on the MPBA rules for a 70/30 butane/propane gas mix). Some suitable valves were already in stock, but I departed from Martin's design in not having a separate filling valve. The tank is refilled by



disconnecting the outlet gas line and filling via the gas control valve and it works fine. **Photos 77 and 78** show the parts for the tank prior to silver soldering and the finished tank as fitted to the burner. The gas tank is fixed to the end of the burner by a copper plate that acts as a 'heat shunt' to keep the tank warm for the ready evaporation of the gas. Note that the gas tank and burner assembly is easily removable from the hull for refilling with gas as it is supported on the firebox end of the boiler and by two plywood crutches, **Photo 79**.

Bench testing proved that the new combination of gas tank, boiler, single engine and gearbox worked extremely well, giving a no load speed around 1400rpm at the propellers with full regulator and the safety valve on the point of blowing-off. The design calculations for the propellers fitted also suggested around 1000rpm for a scale maximum speed. The new gas tank gave approximately 12 minutes running time, which corresponded nicely

to the usage of water from the boiler. The Spektrum DX6i transmitter has a timer feature, which is now set to 10 minutes to remind me to bring the model back before to the pondside before running out of water.

On the water - yet again

On a very cold Sunday in February yet another trial voyage was attempted with the totally rebuilt machinery. This voyage was at Woodbridge Boating Lake and took place in almost ideal conditions, a very light breeze and virtually no swell on the lake.

A check of stability gave much better results than with the vertical boiler and DIY gas canister, with the model now floating marginally higher in the water.

The same starting procedure as before was performed, with the addition of filling the gas tank from a portable cylinder and installing the tank and



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burner assembly in the ship. However, on trying to light the burner at the flue uptake, all that happened was a long tongue of yellow flame at the flue and very little heat. This has occurred before, and is a result of the initial gas flow from the tank containing liquid. This liquid seems to flush any small particles of dirt from the gas pipe and causes the jet to block and yes, no 'jet pricker' to hand. When would good fortune shine on this project?

Back to Sheringham in early-March and this time, after all the preliminaries, the boiler produced steam as it should, the single engine and gearbox behaved as they should and a most enjoyable and virtually trouble-free sailing session resulted with Manxman on its best behaviour, **Photos 80 and 81.**

Manxman still sits slightly low in the water, but now steams gracefully at around scale speed with the exhaust steam now filling the whole of the top of the funnel. Just one minor niggle in that the cylinder glands of the engine need re-packing,

resulting in a lot of steam coming out of the aft superstructure, but easily rectified when I get around to it. As with all of my fleet of live steamers, Manxman has a mind of her own and does not always do what one wants. The model has given much frustration when refusing to steam, usually when there is an audience, but also has good days. With all the trips to the lake, rebuilding and refitting, this project has kept me occupied, and out of the pub, for around four years in total and has finally turned out to be a most satisfying model, being fun to operate and always attracting attention at the lake.

Postscript

Yes, there has to be one - sorry.....

The Manxman model has a mind of its own and does not always do what is expected, this culminating in near-disaster during a trip to Woodbridge to visit their model boat club and help put on a show for the public attending the annual Woodbridge Regatta.

The gas tank had been refilled, the pre-sailing ritual performed and Manxman set off across the lake when I noticed that more than the normal amount of what I thought was exhaust steam was emerging from the funnel. When this changed from white to a more greyish colour and a whiff of smoke was smelt on the breeze, it was realised that the model was actually on fire. It was brought back to the pondside in much haste and the wooden superstructure removed to reveal a leaking gas line connector throwing a short flame on to the interior of the superstructure, the leaking gas having been ignited by the burner. The only real damage though was to my pride and some scorched woodwork and paint on the inside of the superstructure, **Photo 82** showing the effects of that fire. The reason for the fire was that the main gas pipe connection from the gas tank after refilling had not been properly tightened which just goes to show how easily things can go wrong when you do not concentrate fully on the job in hand.

Enjoy your hobby! - Phil Button



82

RFA Argus at Liverpool.



Dave Wooley with his *Worldwide Review of Warships and Warship Modelling*

Welcome once again to our regular sortie into the world of fighting ships and this month we complete our Photo File for RFA Argus, continue with the Deans Marine HMS Skirmisher project and have the usual brain teaser Mystery Picture, answer in June MB.

RFA Argus Photo File - Part Two

Last month, Part One concluded on top of the bridge and it is from here that we can continue with a detailed view of the foremast. Mounted at its top is a Type 994 surface and air search radar and it's worth noting the sequence of lights housed in boxes on the port side of the mast, **Photo 1**. Located at the ends of the middle yardarms are cone shaped UHF aerials often referred to as 'Candle Sticks' which have been a feature on RN warships and auxiliaries for many years, **Photo 2**. Remaining in the same general location, but now facing aft, over the flight deck there is a small lattice platform supporting a Type 1007 navigation radar, **Photo 3**. The view from this location looking down on to the flight deck provides modellers with a clear view of the deck markings and those along its edges. The flight deck measures 113.52 x 28m with this area being created by upending the former hatch covers of when the ship was the RoRo M.V. Contender Bezant vessel, and filling them with concrete and adding steel frames for extra strength, ballast and stability purposes. What has been very evident in flying operations is the unpredictable airflow created in particular by the island structure and exhaust uptake to starboard of the flight deck. The initial concept was that RFA Argus would be a helicopter training ship with the capability of also transporting Harrier VTOL aircraft, although however her role is currently as a casualty reception ship with one large lift and now a (covered) ramp from the flight

Photo 1. The foremast.

Photo 2. The foremast arrangements showing the air search radar and UHF arrays ringed in red.



deck to below and the hospital within. This ramp is rather like the sloping zigzag ramps you often see in airport terminals, and it enables casualty trolleys to be easily and quickly taken below (or vice-versa) without having to wait for a lift. The ramp is a relatively recent innovation as its location was occupied by the starboard conventional up and down lift as shown here in **Photo 4**. Having said that, the vessel's design is so flexible that she can also be used as a logistics ship capable of transporting large amounts of equipment both on the flight deck and within the hangar. For heavy lift purposes there is a crane with a 25 ton capability located to port, adjacent to the main



Photo 3. The stub lattice mast supporting the aft Type 1007 navigation radar.

Photo 4. The flight deck markings and positions of the port and forward starboard lifts, the latter having been now replaced with a ramp to improve medical trolley access to the onboard 100 bed hospital facility.

Photo 5. Looking down on the heavy lift crane.

Photo 6. The cab of the 25 ton lift crane.

Photo 7. The long jib extends over to starboard.



superstructure with a jib that spans the flight deck. For model making purposes, it's an advantage being in a position to view this crane closely as in **Photos 5 and 6**. The heavy lift crane and the general arrangement of the rear of the main superstructure can also be seen in **Photo 7**, the FLYCO position being clearly visible to port at its top, left of centre.

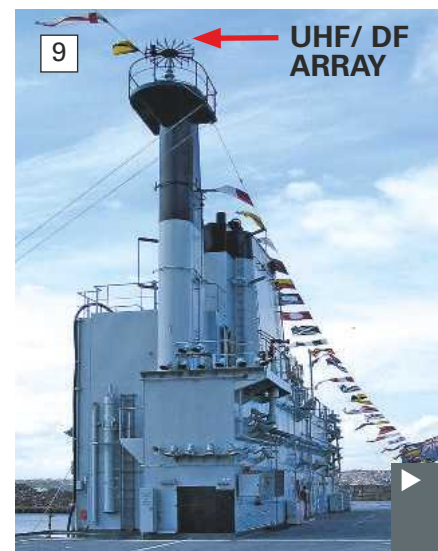
One of the great advantages of going aboard a ship is being able to photograph structures that would from a distance be difficult to see, and also appreciate how they relate to others within the same area, **Photo 8**, in which you can clearly see the support frames for the numerous platforms.

The flight deck island structure

We are now looking at the starboard island deck structure on the flight deck which houses the main engines exhaust uptakes. Directly in line of sight fixed to the outboard end of it, is the jackstay for replenishment at sea operations and mounted on top of the main mast is a radiating dipole UHF and DF array, **Photo 9**. Moving along this island structure, we have a detailed view of its various fittings with for example, mounted on an extended platform adjacent to the mast is one of two foam

Photo 8. The hangar and air conditioning venting pipework is trunked to the top of the main superstructure.

Photo 9. At the head of this mast is a circle of short dipoles for the UHF & DF array.



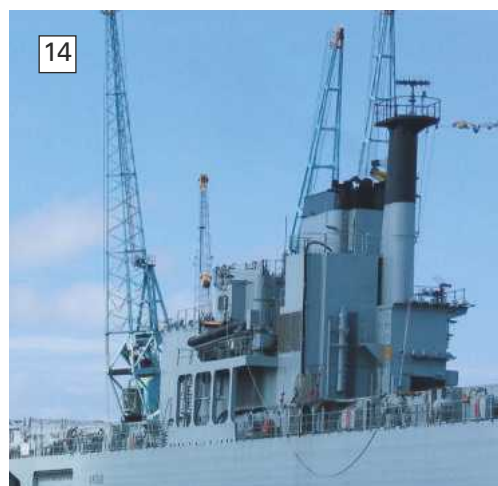


Photo 10. The island superstructure is quite large and causes airflow problems over the flight deck.

Photo 11. A considerable array of deck illuminating lights inboard of the island structure.

Photo 12. Lots of useful detail here, including the watertight door configuration.

Photo 13. The raised housing with netting is intended for a 30mm 90 calibre Oerlikon gun, if needed.

Photo 14. A starboard side view of the island, which inevitably generates unpredictable airflow over the flight deck.

Photo 15. Around the flight deck is a walkway.

monitors, the other being located further aft, **Photo 10**. Looking a little closer we have an array of deck illuminating floodlights, various watertight doors and lockers, **Photos 11 and 12**. RFA Argus is fitted for, but not with, hard points for two 30mm 90 calibre guns, one of which is within the netted area just aft of the uptake in **Photo 13**. Moving outboard of this quite substantial island structure there is a Halmatic 22 RIB with its crane, all on a dedicated platform, **Photo 14**.

Deck services and stern

On each side of, and just below, the flight deck are walkways, **Photo 15**, with an assortment of equipment including emergency life rafts, lockers and pumps with their hoses for various services such as fresh water, aviation fuel and fire fighting, and all colour coded, **Photos 16 and 17**.



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Photo 16. Part of the pipework for aviation fuel delivery.

Photo 17. I have no idea what this pulley is for!

Photo 18. The structural arrangement beneath the stern flight deck overhang.



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Photo 19. RFA Argus leaving the River Mersey on an earlier occasion.

Photo 20. This model by Barrie Freeman is 100% scratch built from his own drawings.

Photo 21. The 1:96 scale model of RFA Argus by Barrie Freeman looks good on the water and shows the proportions of the vessel.



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The two final pictures of this Photo Tour are of the stern and how the transom is arranged with an extensive overhang to the flight deck, **Photo 18**. When RFA Argus departed the River Mersey on an earlier occasion I was able to take a picture, **Photo 19**, which shows the openings beneath the flight deck, but the rust streaks give the game away that is an older picture from the sequence shown earlier. It is understood that RFA Argus will continue in service for some years and she is not due for replacement until after 2020, at the earliest.

1:96 scale RFA Argus built by Barrie Freeman.

This super model has its hull made from 2mm marine plywood, as is much of the superstructure and the flight deck island, **Photo 20**. Included special features are working rotors on the Sea King helicopters and sound effects for both these and the FAA Harriers, with one of each being made to lift clear of the flight deck. This fine model was built some years ago when the Royal Navy still operated Harriers, but is still a very good and well-crafted model of this unique Royal Fleet Auxiliary vessel, **Photo 21**.



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Photo 22. Masking the wood planked deck edge with Tamiya low tack tape in preparation for general masking of the entire planked area.

Photo 23. Standard conventional DIY masking tape was applied over the Tamiya low tack tape together with newspaper covering.

Photo 24. The Tamiya tape has been carefully applied over the wood planking on the bridge, its roof and searchlight platform.

HMS Skirmisher - Part Nineteen

This month we are discussing the preparation and airbrushing of the hull and its fittings. The rationale when building such a model, indeed any model, is quite simple in that it is easier to build and integrate, but not fix, many of the individual parts prior to applying any paint. This is because there is less chance of overspray when painting an individual part of the model and mistakes can be easily corrected BEFORE gluing the offending item in place, and of course the whole painting exercise is so much easier. This may seem to be obvious to the experienced model builder, but may not be so to the newer recruits to our hobby.

Another important consideration is cleanliness. You cannot expect a decent paint finish if the hull has grease, finger marks and modelling detritus over it, so these surfaces all need to be scrupulously clean.

Masking?

The first priority in preparation for airbrush painting is to make sure the item is clean, either by careful

washing or sanding depending on the materials used, and then effective masking of the planked surface of the deck when preparing the hull (of HMS Skirmisher), as together with the Spurnwater (the gap between the deck edge and the planking), the entire hull (certainly above the waterline) and deck edges all need to be painted as one. There is also a raised strip of styrene set back from the deck edge representing the angled plate into which the deck planking sits, and this needs to be painted as well.

The first task was to mask the deck using Tamiya low tack masking tape as in **Photo 22** where you can see a strip of tape over the planking. Tamiya masking tape is amongst the best you can buy, not leaving a residue when removed and enabling a sharp paint edge. This tape is also very flexible and ideal for compound curves.

The next step is to use newspaper and ordinary decorator's masking tape to carefully cover the rest of the wooden deck, but with this tape only making contact with the Tamiya tape and not the deck as in **Photo 23**. Time spent getting the masking all neatly in place makes airbrush painting so much easier and in fact the painting process is then the easy part of it all.



23



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Photo 25. None of the main deck housings will be secured in place or permanently fitted together until they are painted.

Photo 26. All of the smaller fittings are being prepared for airbrushing using a turntable.

Photo 27. Each 12pdr gun is held in place by conventional masking tape, but adhesive side upwards.

Masking the bridge area

The bridge and its supporting structure is relatively small when compared to the deck and masking is limited to its first platform, the roof and searchlight platform, and for this task, Tamiya tape was used throughout. The net result being that the only area requiring paint was the bridge housing itself (inside and out) and the outer edge around the planked surfaces. It's also worth noting that the planking on the bridge itself extends inside the wheelhouse. Masking all these surfaces can be tricky, but time spent getting it just right pays dividends later and **Photo 24** shows the tape over all these planked surfaces.

Deck housings and fittings

The deck housings require no masking, so these were laid out ready for airbrush painting, but kept together on the same painting tray and where possible lifted slightly clear of it. When airbrushing there is a tendency for the paint to form a slight build-up at the bottom edge of an item, so not having it sitting flush on a base circumvents that problem, **Photo 25**.

To hold smaller fittings in place, I make use of a revolving tray as often used by cake makers, with wide masking tape placed on it, adhesive side upwards. For those fittings which can't be secured on the masking tape, small pieces of modelling clay work just as well, **Photo 26**. Fittings such as the 12pdr and 3pdr guns can be laid out using much the same process, **Photo 27**. So as you can see, since the basic colour of virtually everything on HMS Skirmisher was going to be grey, everything to be painted in that colour was prepared at the same time.

Paint preparation

Regardless of whether the choice of delivery of paint is via an airbrush or conventional 'hair' brush, it needs to be properly prepared to achieve the best results and getting the right consistency is an essential part of the process. The hull and much of the superstructure has been painted in a mix (blend) of Tamiya acrylic Matt Black and Matt White. For some of the fittings a variation was used which involved 'Mister Hobby' and 'Humbrol' paints, but more on that next month.

The colour as of 1905 is based on Royal Navy Dark Grey, which according to Alan Raven was adopted on a fleet-wide basis, but to retain a degree of individuality it was allowed that ships from different ports could select their own shade of grey.

Mixing paints is not an exact science, even when an official colour and code are known, but one single lesson well learnt, is to always mix more than enough in a single batch to complete the entire job,

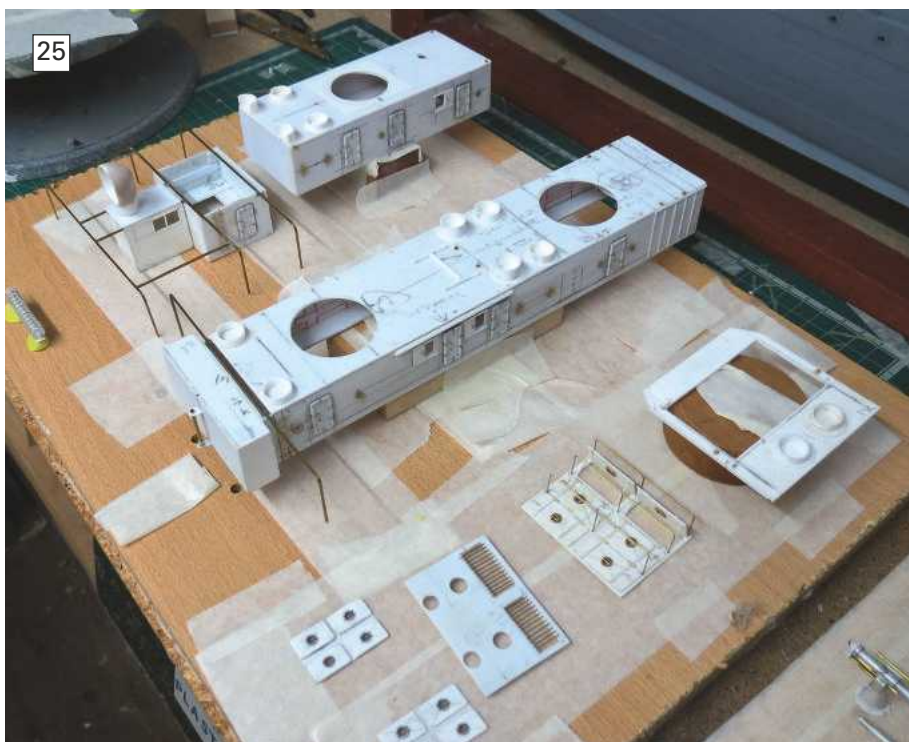


Photo 28. Tamiya thinners is especially made for their acrylic paints.

Photo 29. A syringe is useful for measuring the right quantity of thinners to add to the mixed paint.

Photo 30. The Iwata side feed trigger airbrush proved to be an excellent tool for spraying the hull. It is a refined double-action airbrush, but the trigger and large detachable pot have the feel and capability of a much larger professional spray gun.

Photo 31. With acrylic paints, drying time between coats is quite short and yes, there is some minor remedial work underway.

as trying to later recreate that exact blend can be difficult, nigh impossible.

For Tamiya paints, their dedicated thinners in a 250ml bottle is reasonably cost effective and works well, **Photo 28**. Once satisfied with the colour blend, the thinners can be added. A calibrated syringe is handy for injecting into the paint mix the 25% thinners by volume, a thinned solution which seems to work well with my airbrushes, **Photo 29**.

Paint application

There are many different types of airbrush available, but for this job a dual action trigger operated 'car touch-up' type of airbrush using the larger of the two metal paint pots provided was selected. This tool has all the advantages of a spray gun, but retains the precision of a top quality airbrush and is ideal for painting large areas such as a hull. Painting

of this type requires space around the object being painted and a well ventilated clean environment that equally does not have a 50mph wind gusting through it. Some modellers use their garage, others the shed and some even erect a temporary walled gazebo on their patio and spray only when it is warm and dry, invariably in the British summer. The choice is yours, but painting a large item such as a 48 inch long hull does need careful planning.

With a dual action and a variable nozzle, the distance from the airbrush to the model should be around 6 inches (150mm). Acrylic paints begin to harden soon after contact making it easier to apply additional coats within a short timespan, but the technique is not quite the same as with enamels, so practice first on something else and which is not too important. **Photos 30 and 31** hopefully show the process and you can also see where some areas did not quite make the grade and have been smoothed



28



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31

and filled ready for another paint application. With this sort of project, one has to accept that initial coats of paint might be redundant as blemishes become apparent and some modellers prefer to use 'canned' aerosol primers before the final colour coats are applied. The choice is that of the builder and no single method is ideal in every circumstance or for everyone.

Cleaning airbrush tools

One of the most understated tasks is ensuring that the airbrush is clean for its next outing. Unused paint from the airbrush's container, as in

Photo 32, should be transferred back to its original pot for possible future use, and then the tool and its container filled with a mix of water and airbrush cleaner, remembering that water based paints need a different cleaning process from enamels. Discharging this through the airbrush into an airtight cleansing jar fitted with a filter, enables the tool's insides to be thoroughly cleaned without it all going everywhere. The process should be repeated until only clear fluid emanates from the nozzle, **Photo 33**. Iwata airbrushes, as featured here, are precision tools and dismantling them frequently is probably best avoided.

In the forthcoming June issue there will be more on these techniques as we paint the fittings.



Photo 32. Save the paint! Any unused paint should be returned to its original pot before cleaning the airbrush.



Photo 33. A special cleaning jar is handy - no mess no fuss.

Answer to the April 2016 Mystery Picture

The clue was: Matapan?

Well yes and no, because the warship pictured is the Italian heavy cruiser Gorizia, that was NOT at the Battle of Cape Matapan where her three sisters, Zara, Fiume and Pola were all sunk by RN gunfire and hence the clue. This particular naval engagement being where all those three Italian heavy cruisers were sunk by gunfire from three British battleships.

Gorizia was one of the Zara class of 14600 ton full load heavy cruisers equipped with eight 8 inch 53 calibre guns, a secondary battery of sixteen 3.9 inch, and six 40mm anti-aircraft guns. Apart from their distinctive Italian design, a major feature was the compressed air catapult fitted on the forecastle with the deck painted with red and white stripes. Aircraft stowage was forward of and below 'A' turret and was for two RO43 float planes.

These heavy cruisers were 557 feet 2 inches long and 62 feet 10 inches beam with two propshafts driven by geared turbines developing 95000shp and having a top speed of 32 knots. After the losses at Cape Matapan, Gorizia was assigned to the Italian Navy's Third Division with its the prime purpose of intercepting Malta bound convoys and providing an escort to the Axis convoys to North Africa. Gorizia was also involved in the inconclusive engagements at the First Battle of Sirte in December 1941 and the Second Battle of Sirte on 20th March 1942. Following the Italian Armistice on 3rd September 1943, Gorizia was requisitioned by the Germans, but was sunk at her moorings at La Spezia on 26th June 1944 in yet another twist of fate by Italian manned torpedoes, after they joined the Allies.

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Mystery Picture of Regia Marina Gorizia ref:

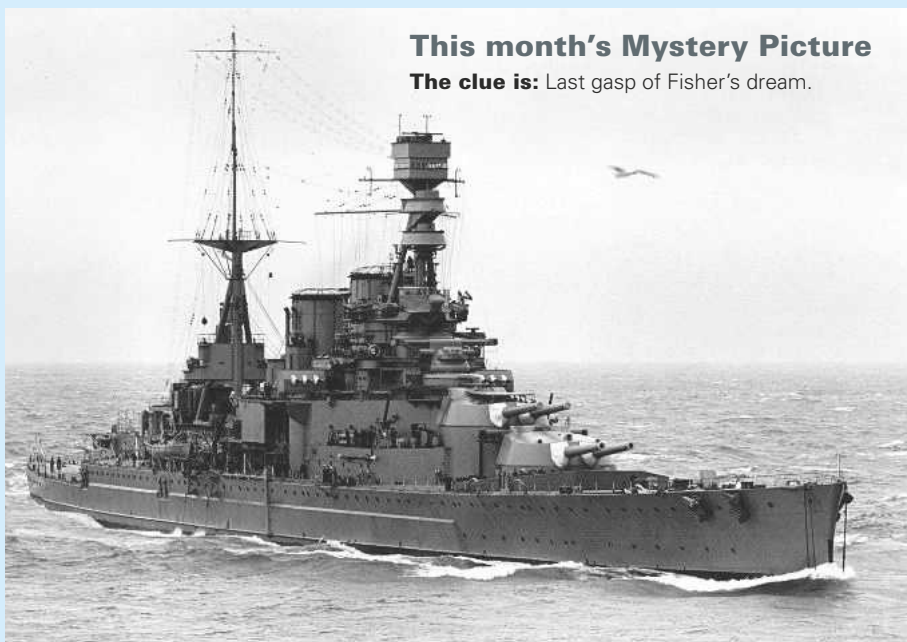
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Mystery Picture: Thanks to Bill Clarke for his help.

My thanks to the **Captain and Ship's Company of RFA Argus** for their time and help during my visit and to the **Royal Navy** for arranging the visit.



This month's Mystery Picture

The clue is: Last gasp of Fisher's dream.

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● Each regular issue has as its foundation, regular columns from a selection of respected internationally known enthusiasts on a range of subjects and the 100 page Winter Special Edition published in late-October of each year always includes at least one extra special plan feature for a new model boat and articles that support the model enthusiast in their endeavours.

● The magazine also has a regular Readers' Models section, because this is the part of the magazine where readers can showcase their models, and this is coupled with Around the Clubs, another popular section where clubs let the readership know what they are doing, when and where.



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Paper-mâché Modelling

By **Glynn Guest**



“Whilst stuffing card and paper (mainly junk mail, so much for the ‘paperless’ idea) into the recycling sack, the idea struck me to try and make more use of this material”

We are often exhorted to recycle and save the planet, and I suppose most of us do our bit by sorting household waste into the appropriate bins, but even though some people keep on claiming we are moving towards a paperless economy, I’m often surprised at the amount of paper and card we discard every week.

In an attempt to be a good citizen, some of our waste card does get recycled into my hobby. Low quality card has often been used for making templates for marking out shapes on more expensive materials as making a mistake with a card template is usually so much cheaper. This is also a good method whenever two or more identical pieces are required and better quality card can find its way into my models often in the form of hull plating and superstructures.

Whilst stuffing card and paper (mainly junk mail, so much for the ‘paperless’ idea) into the recycling sack, the idea struck me to try and make more use of this material. A quick Internet search came across card boats made to carry people so a model boat ought to be easy?

Origins

Paper-mâché is, I understand, the French for ‘chewed paper’ which is a perfect, but perhaps less acceptable description of the process. Basically, paper is cut or torn into small pieces, soaked in a glue and formed to shape, then allowed to dry. The shape can be formed by pressing the soggy paper on to a male mould, into a female mould or just shaped up freehand and the result can be surprisingly tough and durable.

It is an old process and can be traced back to ancient Egypt and the Middle and Far East. It came to Europe in the 18th Century and became popular for making masks and many other items. Since it gains its strength by the glue locking the cellulose fibres in the paper into a rigid structure, it could be considered an early version of the fibre reinforced composite materials that are widely used today. A variant of the paper-mâché process was used in the Second World War when aircraft drop-tanks were made from plastic impregnated paper. The tanks were for one-way use only, to be dropped over enemy territory when empty, and this method was cheap and just good enough for the job, and as a bonus it did not supply the enemy with any useful material!

Sticky Stuff

The traditional glue used, which I can fondly remember from my school days, was a flour and water paste. It is definitely not water resistant and if left damp, is likely to produce a soft rotten mush, hardly ideal for a model boat hull.

This led me to try out two possible alternatives, wallpaper paste and PVA wood glues. True, neither of them are totally waterproof, although I happily build many of my models with water resistant wood glues, and the paste I was to use contained a fungicide. Since the paper hull would require its surface sealing prior to painting, damage from water should not be a worry.

A few test ‘coupons’ were made by laminating differing numbers of paper layers using both adhesives. This was done on the surface of the

workbench, so when they had dried out after a couple of days, just a little lifting of one edge freed the coupons. I'll confess I was surprised at just how stiff and strong they were, clearly proving that Aristotle was right when he said; 'The whole is greater than the sum of the parts'. As a result it looked like building a paper-mâché hull a couple of millimetres thick ought to be more than strong enough. Also, for convenience, wallpaper paste would be suitable.

The mould

Many years ago I bought a couple of plastic hulls, the idea being to build working models using them. As is quite common, at least in my life, this never happened and they lay stored away gathering dust, but not quite forgotten. Whilst thinking about a suitable mould, these plastic hulls popped back into my mind.

I could only find one hull, and the other is either still lost in my stuff somewhere or maybe it was passed on to another modeller? Either way, the found hull looked ideal, being vacuum moulded in thick plastic and still with the surplus attached around the top edge. This made it rigid enough to use without any further support being necessary. It would also produce a handy size of hull with a length of 30 inches (75cm) and a beam of 4.5 inches (11cm).

Some thought was given to how to avoid the paper-mâché sticking to the mould and making its safe removal a problem. A coating of oil/wax on the mould, in the fashion of GRP mouldings, was discounted as it would have left a troublesome film on the paper surface. A thin plastic film, something like Clingfilm as used in the kitchen was an idea, but it would almost certainly crease when pressed into the mould and leave marks on the paper surface. In the end I reasoned that the paper and paste would probably not stick to the smooth plastic surface of the mould and if it did a little flexing and prodding ought to break it free, but just to make sure, I resolved to make the first layer using just dampened paper (i.e. with no paste).

Messy hands

The paste was mixed following the instructions that came with it. As the hull would be built-up by applying several thin layers with drying time between each, it seemed best to make all the paste in one go and store it in an airtight container rather than mixing up small amounts.

The paper came from one of those car sales items found in supermarkets. It was printed on newsprint which has a nice porous texture which readily soaks up the paste and is easily moulded to shape, and it was free!

The hull was used as a 'female mould' with the paper layers being built up on the inside of the mould, **Photo 1**. Exactly how big the individual pieces of paper should be depends on the contour you are trying to press it into. If it is too big, then creases will form and maybe even gaps will appear between layers which can have a significant weakening effect. Most of the strips used were cut into pieces about 1 inch (25 mm) wide with a length to suit the position it was being applied to. In some



sections of the hull I found that strips could be used in the fashion of a diagonal planked wooden hull, but in tighter spaces smaller pieces had to be used.

The hull was built-up by only applying two to three layers of well soaked paper, but with the excess paste scraped off the surface, then allowing a day or two for it to dry before repeating. The actual interval between layers depends on the conditions under which you are working. If left too long, the paper might pull away from the mould and it will be quite hard to get it back into shape.

I carried on until the paper hull thickness appeared to be around 2mm. The hull was then left to completely dry in my workshop. After a few days I could ease the excess paper around the edge of the hull away from the mould. It was then a case of carefully working the hull free of the hull. I did note some resistance at one stage so I left the hull and tried the following day when it popped free of the mould, **Photo 2**.





Finishing the hull

The paper-mâché hull looked much better than I thought it would. Not up to the standard of a well moulded GRP hull, but good enough for a modeller used to building in wood.

It was tempting to trim off the surplus material from the hull and start to add the internal structure, as you might do with a GRP hull, but I was going to be cautious before reaching for the trimming knife. The hull was refitted into the mould and the deck edge reinforcement strips plus a few crossbeams glued into place first, **Photo 3** being of the bow area, **Photo 4** of the stern and **Photo 5** of the whole thing. Balsawood was used for these items with PVA wood glue as the adhesive. Once the wood was firmly bonded to the hull, the excess paper was cut away above the deck edge strips as in **Photo 6**.

A couple of coats of thinned wood varnish, left over from some domestic job, were applied to the surfaces (inside and outside) of the hull. Light sanding after each coat had dried revealed that what had looked like reasonably smooth outer surface was in fact covered with minor blemishes. A couple of neat coats of varnish, again sanding

after each, reduced the defects a little, but some filler was required. Once again a domestic left-over in the form of a tube of ready-mixed filler was used. Sanding the filler smooth and a couple more coats of varnish resulted in, if not a perfect, but an acceptable finish. **Photo 7** shows the hull exterior whilst undergoing this process, but it is clearly a recognisable hull.

At this point the hull had gained a significant amount of strength from the several coats of varnish that had been applied to both the inner and outer hull surfaces. I had also let the varnish 'pool' a little inside the bow area to add a little extra strength to this potentially vulnerable area.

Internal outfitting

In order to test the hull quickly, it was fitted out with whatever was handy. The propeller and rudder tubes were stuck in the hull using slow setting epoxy which seemed to bond well to the varnished paper-mâché hull, **Photo 8**. A small unmarked electric motor was hot-glued on to the hull bottom using some scrap balsa packing to get the motor and propshaft aligned, **Photo 9**. The connection between the two shafts was made with a length of silicone rubber tube.

The rudder post tube, as already mentioned, was



“The test float on the pond revealed that I had installed a ‘leaking’ propshaft/proptube assembly”

secured into the hull with epoxy adhesive, **Photo 10**, and some clear silicone sealant spread over the bottom of a servo (for the rudder) which was then firmly pressed onto the hull bottom just ahead of the motor and left overnight as in **Photo 11**. The following day the servo was found to be more than secure enough to operate the rudder. The drive battery, esc and receiver sat ahead of the servo being secured in cutouts made in pieces of foam plastic. Not very neat I confess, but practical and quick.

A test float in the garden pond, **Photo 12**, enabled the model to be ballasted down to the desired waterline. The ballast, pieces of metal, was secured to the hull with hot glue and gave the model an operating weight of about three pounds (1.4kg).

The test float on the pond revealed that I had installed a ‘leaking’ propshaft/proptube assembly, so the easy solution was to remove the rudder, slide out the propshaft and squirt some grease into the tube before reassembling it all.

Test sailing

Confession is supposed to be good for the soul, so I will come clean about three things I normally avoid, but actually did with this model.

I’ve already admitted to filling the propshaft tube with grease, but reasoned that it was a low speed motor and there was a generous space between the shaft and inner surfaces of the tube. Both these factors would minimise the viscous drag created by





the grease, plus I was in a hurry.

The second 'crime' committed was sailing a model with no bulkheads inside the hull. Bulkheads have saved a few of my models from sinking by slowing down if not localising the entry of water after accidents, but I wanted to see just how strong this simple hull was with no extra internal structure, plus I was in a hurry, once again.

The third thing was to sail a model, with no deck and without any internal buoyancy material, but I wanted to check both the outer and inner hull surfaces for any water absorption or damage, plus I was in a hurry, yet again!

Luckily the conditions were calm for the first test runs and the model behaved exceptionally well with no handling problems at all, **Photos 13 and 14**. This was pleasing, but not the true purpose of the test runs, which was to see how a paper-mâché hull would cope with the rigors of sailing. Well, cope it did and to be honest I have yet to encounter any problems with this material. The varnish is quite tough and the odd scrape barely marks it. I suspect this material will also withstand more serious damage as it is so well impregnated with the varnish.

Delayed completion?

This bare hull was pushed to the back of my workbench and forgotten about for a couple of years. When I could no longer put off tidying the workshop, this hull was rediscovered and it seemed like a good idea to complete it, using with what else but card? Now the problem was exactly what type of vessel to use as inspiration? After some thought, a merchant vessel based on the Reefers built in the 1950's and 1960's was the most attractive idea.

The deck was covered with card, about 1.5 mm thick, with a cut-out amidships for internal access. Card coaming strips were glued around this opening over which the detachable superstructure block could fit. The superstructure, hatches and funnel were made from simple card shapes.

The external card surfaces were sealed with a three coats of cellulose dope, sanding between each coat. The final paint scheme of a white superstructure and hull above the waterline, black below plus a grey deck, green hatch covers and red/black funnel gives a simple yet attractive look to the model. It needed a name and M.V. Papyrus seemed appropriate and **Photos 15 and 16** are of it on the water in late-2015.

Promising paper?

The model may be a bit rough and ready, but it has served its purpose of testing the idea of a moulded paper-mâché boat hull. I doubt if this method will ever rival more conventional methods of hull construction, but it offers an alternative especially where resources are limited. If you can make use of materials that might otherwise be discarded, then it is very cheap and scores a few points with the ecologically aware crowd. It is always nice to say when sailing the model and asked about its construction, 'Oh, it's just made from waste paper'!

Enjoy your hobby - Glynn



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A Glynn Guest design for a semi-scale MTB

This is a two sheet scale plan for a typical WW2 Vosper MTB. It is to an approximate scale of 1:32 producing a model just over 26 $\frac{1}{4}$ inches (670mm) long and of 7 inches (180mm) beam. It is intended for radio control with a single electric drive motor, or for static display.

The model is simple to build using balsawood and is ideal for beginners to the hobby.

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Typhoon

This anchor handling tug and her sister Tempest, were originally built for Bureau Wijsmuller of Ijmuiden in 1976 by Scheepswerf Van der Giessen of the Netherlands. They were very advanced for the time, being true anchor handling vessels of 47.75 metres overall length powered by Werkspoor 6TM410 4SA main engines of 9350bhp driving twin CP propellers and having a bollard pull of 120 tonnes with a top speed of 14.5 knots.

In 1991 they were both transferred to Smitwijs Scheepsholding BV and later purchased by Dutch based International Transport Contractors (ITC) in 2005. ITC have subsequently sold them to the Indus Shipping and Trading Corporation of Panama who have recently renamed them Indus and Gudri respectively. Typhoon was pictured here at Liverpool in ITC livery when involved in towing sections of the new RN Queen Elizabeth class aircraft carriers from the former Cammell Laird Shipyard at Birkenhead to Rosyth in Scotland for final assembly.

(All information from the public domain)







Back to the Kitchen Table

Douglas McGhee
describes his models

Perhaps this article should be entitled 'Geriatric Wanderings of a Modeller now in his 90th Year' as for a few years now, I have lived in a small flat in a sheltered housing complex and my workspace is now just as small as the corner of my father's bench in his garden shed of the 1930's. These restrictions now determine my kitchen table modelling projects, but my main interest has always been in stand-off scale model boats which allows considerable freedom in their design and construction.

The GRP moulds are about 20 inches long, and do not need to be too robust. One gel coat and a lay-up coat with one inch wide loose weave glass

tape seem to be adequate. To improve the rigidity of the hulls, a stripwood inwale is always bonded into them before removing the hull from the mould.

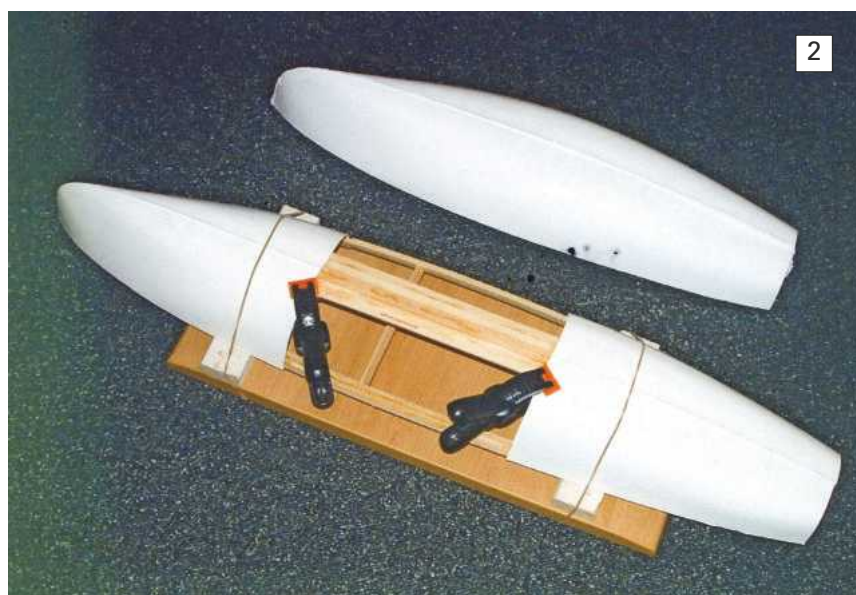
Photo 1 shows two models from the same 19 inch hull mould. The Torpedo Boat Destroyer is actually 32 inches long and the lake steamer is 23 inches long and **Photos 2 and 3** show the 'cut and shut' technique to lengthen the basic 19 inch hull, the stripwood inwale being a useful register to ensure satisfactory alignment of the two half pieces. The first of these last two pictures also shows the assembly being held by elastic bands to a flat board to avoid any twisting. A piece of styrene is then wrapped around the stringers and with GRP resin brushed over them and the spacers, we now have a hull ready for new design projects resulting in **Photo 4**.

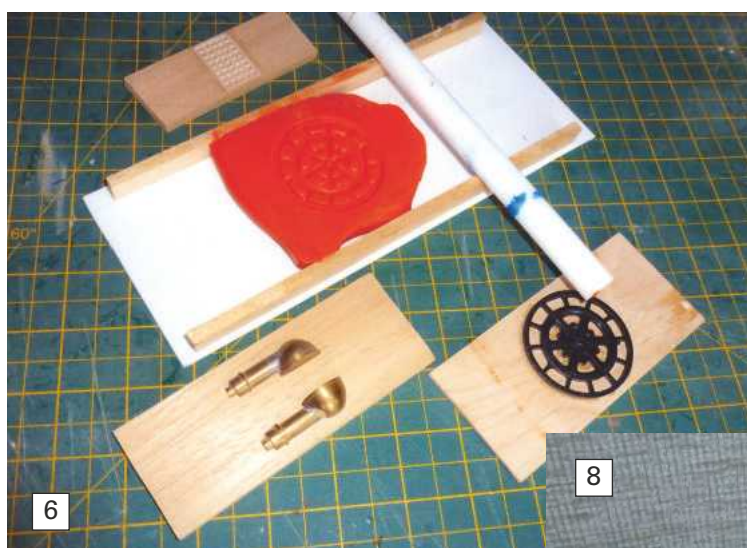
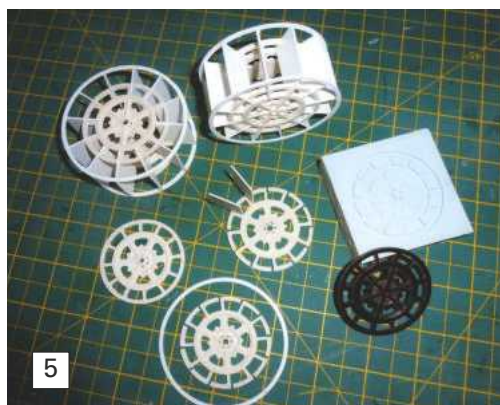
Paddle wheels

A paddle wheel can be a model engineering project on its own, so here is a simple solution which can make the finished wheel look more complicated than it really is. The pattern for the basic framework was the end of a commercial cotton reel, cast in silicone rubber.

Photo 5 shows the pattern, mould and resin casts together with blades cut from 1mm styrene. The resin castings are quite brittle and are better cut with a mini drill and abrasive disc and they can also be rearranged to suit a stern wheeler layout.

Silicone rubber can be quite expensive if only a few casts are required and **Photo 6** shows the same pattern used in plasticine. Roll out the plasticine like pastry to a predetermined thickness and press into it the pattern down to its full depth, a release agent not being needed. I am sure that I





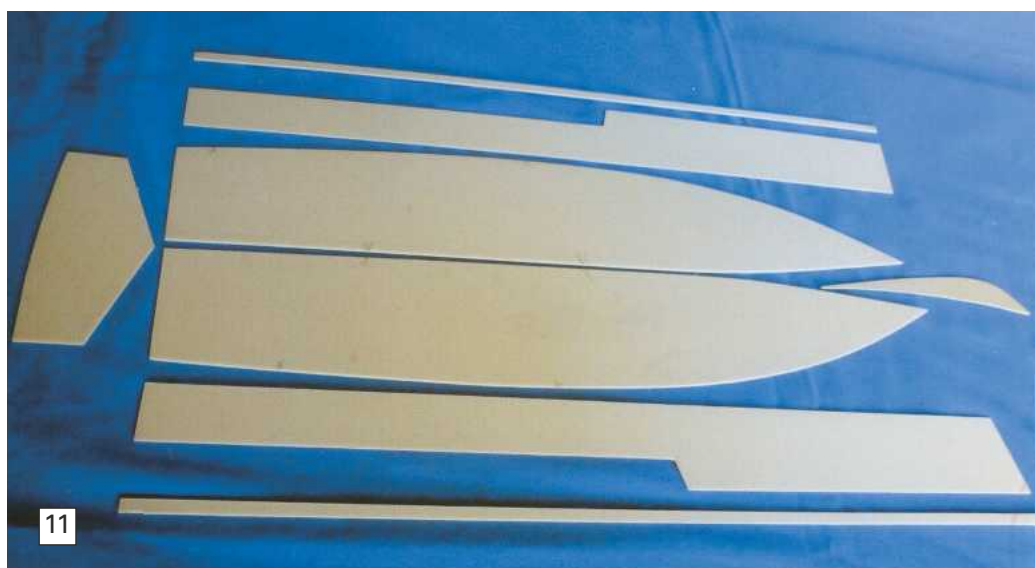
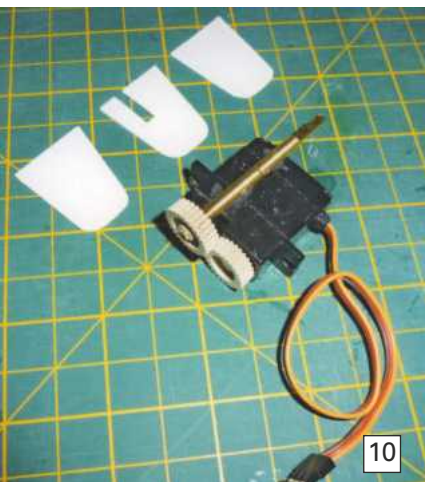
have seen this mould making idea before, perhaps in Model Maker many moons ago?

Model shops are sadly now out of my mobility range, but superglue, epoxy resin, craft knives and even laying-up resin, can all be bought in a shopping mall if you look carefully. In the GRP moulds and resulting hulls I now use dressmakers binding tape (the starched variety) instead of glassfibre tape. Offcuts of bath sealing strip can also provide an endless supply of fairleads as shown in **Photo 7**.

More models

Everything gets smaller with age - the workshop, the models, but without the constraint of a scale plan one can just arrange the size and position of deck openings for internal access to suit the now arthritic fingers, so there are some benefits.

In **Photo 8** the GRP mould is only 18 inches



long and is used for the paddler, and the models shown in **Photo 9**. Internal space in such models is at a premium, even with micro-sized equipment and **Photo 10** shows a compact steering unit fabricated from redundant gears, brass and styrene.

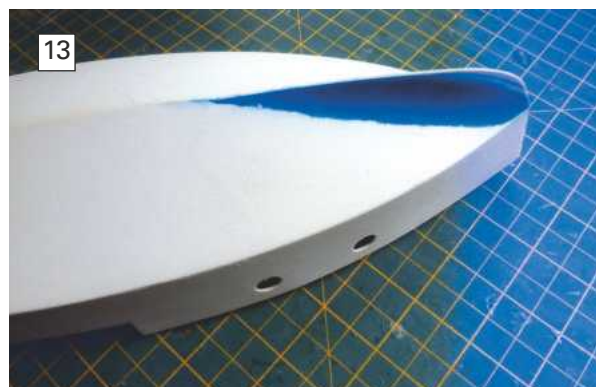
Card or styrene?

Styrene in its various forms is a most attractive material for us model makers with limited space

and equipment and as static card model kits are quite popular, it seemed to me that styrene sheet could also be used for a working model in a similar format.

A packet of conventional A3 card and a roll of sticky tape were enough to investigate shapes that could be assembled to look like reasonable boat hulls, and a few that were not! So **Photo 11** shows the patterns and **Photo 12** has two models developed from them. The incomplete model in this last picture illustrates the simple construction from 1mm styrene and the completed version has simulated diagonal planking and an opening just in front of the transom for a compact micro steering servo, as mentioned earlier.

Superglue is sparingly used to tack the panels together and in this order:





- Glue inwales to deck edge of side panels.
- Tape and glue two bottom panels together.
- Tape and glue transom.
- Tape and glue side panels working equally from transom forward.

If the hull is now without twists or any irregularity, run a bead of epoxy along all the internal joints, but if a fault persists, then set it up on a board. After removing the tape such a hull is remarkably rigid even before the deck beams are fitted and a fore keel, when trimmed and glued in place, improves its appearance. Here it is faired into the bottom panel with filler as shown in **Photo 13**, although it has to be admitted that blue plasticine has been used for contrast, but I am sure you get the general idea.

Photo 14 shows three models, all about 23 inches long, built using this method of styrene modelling.

Conclusion

I hope the foregoing has given readers some ideas to perhaps apply to their own model making activities and as I wrote earlier, the space for this activity is a corner of my small flat in a retirement complex. Of interest perhaps is that the patterns (I don't like the term 'plug') used for creating GRP moulds that are no longer required, can be used as half-models as shown in **Photo 15**, all of which perhaps shows that one doesn't need the equivalent of the Mercedes Formula One factory to make models that can give infinite pleasure. I hope that I can write again in ten year's time for this magazine.....



(Douglas is a remarkable man, he having had articles published in this magazine some years ago, and he has shown here that age and working space need not be a barrier to pursuing this great hobby of ours - Editor)

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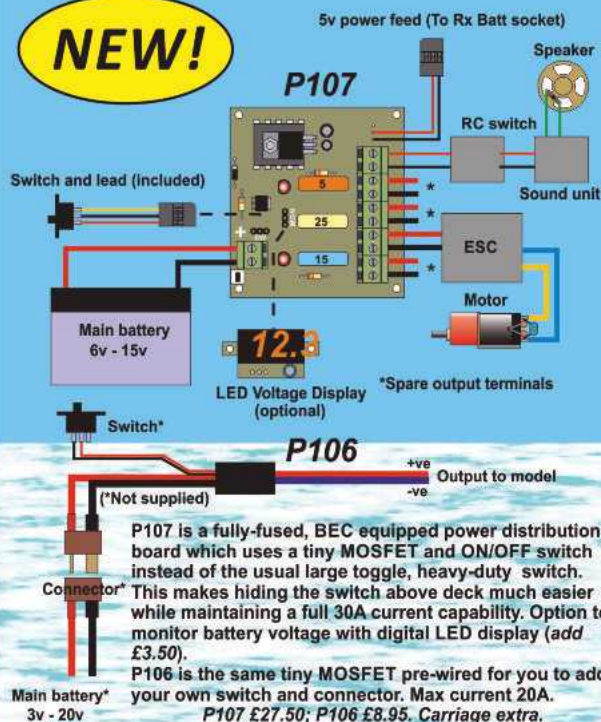
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The Barcelona Mar



Anthony Addams
visits this Spanish
museum

This museum is on the seafront at Barcelona, at the 'water end' of The Ramblas, a major shopping street. It is well worth a visit, whether you are having a short stay in the city or are on a cruise and the ship is in harbour for a day or so. The entry charge was halved at the time of my visit in 2015 during the museum's improvements and alterations.

The Galley Real

That is not an insect at bottom right of **Photo 1**, as that is a person. This gives an idea of the vast size of this enormous galley, a full size replica of the Spanish flagship at the Battle of Lepanto, 1571. Just as the victory at Trafalgar led to British domination of the oceans for 100 years or so, the victory of the Catholic Alliance of eight countries led by Spain against the Ottoman Empire ensured, through the victory at Lepanto, that the Eastern Mediterranean would never again be controlled by the Ottomans.

The Galley Real was commanded at Lepanto by Juan de Austria, an illegitimate son of King Charles 1 of Spain. The battle was fought in the Gulf of Corinth off Western Greece with 206 galleys and 6 galliasses (larger galleys) forming the Holy League fleet, manned by 40000 sailors and oarsmen, together with 28000 soldiers. They faced 222 Ottoman war galleys and 56 galliots, with 37000 oarsmen, mostly enslaved Christians. By 1600hrs on the day of the battle, the Ottomans had lost 210 warships to just 50 Catholic vessels. The battle as depicted in the painting, **Photo 2**, must have been truly terrible.

The replica galley we see here was built in 1971 to commemorate the 400th Anniversary of the battle and is 60m long by 6.2m wide and weighs 237 tons empty, with 36 heavy and six light artillery pieces. Crewed by 290 rowers and 400 sailors and soldiers, this was a formidable ship, lavishly decorated, as can be seen in **Photos 3 and 4**.

This replica occupies the same covered dock in



itime Museum

The Royal Dockyard where the original was built over 400 years earlier, and this is a magnificent building ideally suited to display the ship and for the maritime museum as a whole.

Beneath the bow of the ship is a superb model of the Real and **Photo 5** is a general view of it and **Photo 6** is close-up of the bow section. Side extensions to the hull were necessary to enable three tiers of rowers and in the museum there are diagrams illustrating this and other features of the vessel and the battle.

Submarines: Ictineo I and Ictineo II

These were notable in that they were:

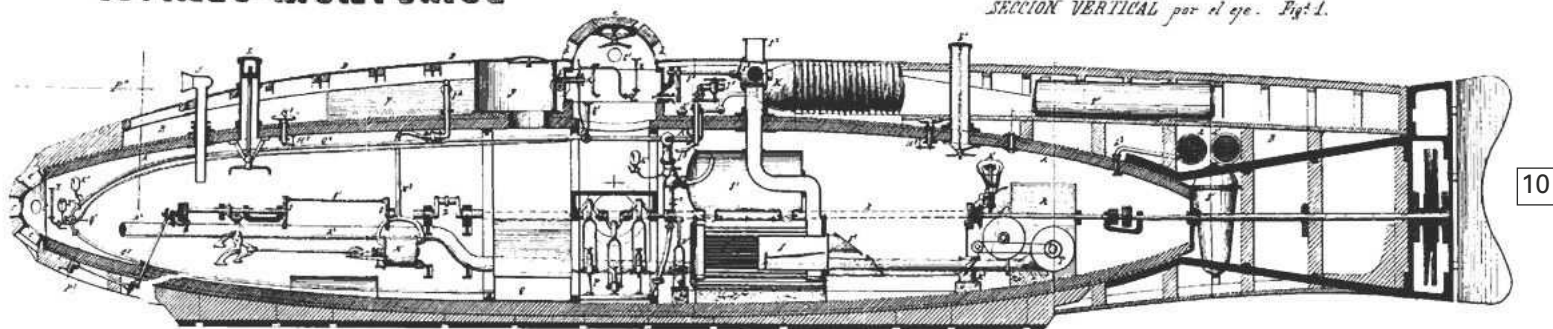
- Double hulled submarines with buoyancy tanks between their hulls.
- Ictineo I had 50 dives, never failing and had a snorkel.
- Ictineo II was more advanced, but unfortunately

destroyed by creditors before properly entering service.

Outside the museum is a replica of the Ictineo I designed by Narcis Monturiol and built in 1859, **Photos 7 and 8**. The original was launched in Barcelona Harbour and performed 50 dives flawlessly to depths of 60 feet and the design incorporated innovative features not equalled until 80 years later. The outer hull was built of Olive wood on an internal oak frame, with a separate internal pressure hull, also of Olive wood, sheathed in copper. Between the two hulls were four pressure tanks allowing water or air into them for the control of buoyancy to provide accurate depth control, a feature that other designers failed to successfully achieve for many years. During diving, a weight inside the hull could be moved forward and aft to control the submarine's pitch. With safety in mind ('Elf and Safety' even then), heavy weights below the hull could be released if necessary from within, to bring the submarine to the surface.



ICTINEO-MONTURIOL



Ictineo I was powered only by human effort using hand cranks to drive contra-rotating propellers, the crew of four achieving just one mile per hour, but it could remain submerged for two hours, with internal illumination by a candle which also warned of lack of oxygen!

After this craft, when moored, was unfortunately crushed by a cargo ship, Monturiol designed the much larger Ictineo II, built in 1867, the first submarine ever to have a combustion engine, **Photo 9** being the replica (photo courtesy of Fraser Gray) and **Photo 10** is an original drawing of the interior. Dissatisfied with the limitations placed on him by Ictineo I with its human propulsion system,

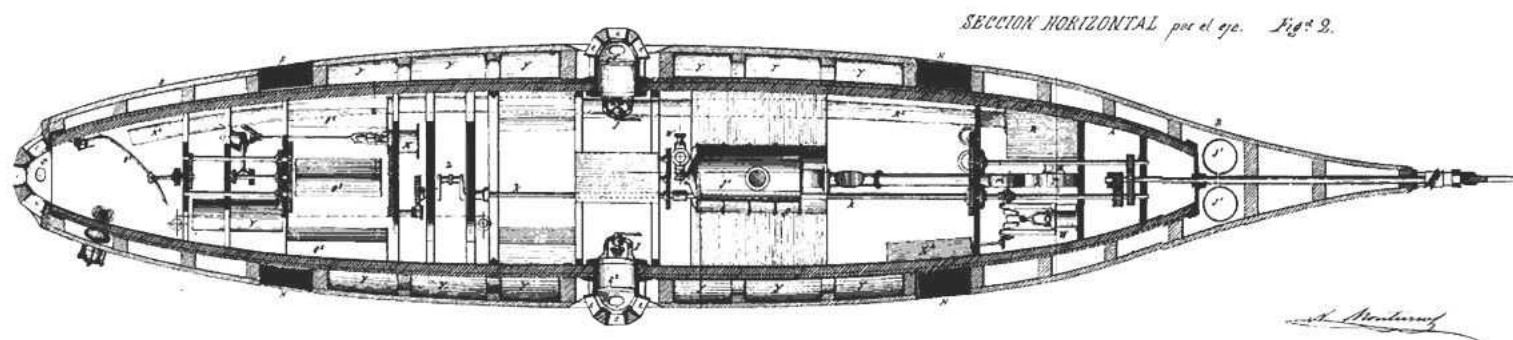
Ictineo I was powered only by human effort using hand cranks to drive contra-rotating propellers, the crew of four achieving just one mile per hour, but it could remain submerged for two hours,



Monturiol realised that the only option was steam power, but contemporary steam engines required a fire which was not an option for a submarine, so he invented the air independent (anaerobic) engine. A reaction of zinc, manganese dioxide and potassium chlorate heated the boiler of a steam engine and the gaseous oxygen released as a by-product by the reaction could be used for breathing and illumination purposes.

No other submarine employed an anaerobic propulsion system until 1940 when the German Navy tested a system employing similar principles, namely the Walter Turbine on the experimental V-80 submarine and later on the Type XVIIIB submarines. The problem of anaerobic propulsion was finally solved with the invention of the first nuclear submarine, the USS Nautilus.

Two crew could operate Ictineo II and it could be successfully submerged for up to eight hours. The hull was test dived to 30 metres, but in theory could go deeper. The submarine was also equipped to enable objects to be lifted from the sea bed, but soon after being launched, it was seized by a creditor and then after the authorities became involved it was broken up for scrap, but the engine survived for many years until 1958, but a rather unfortunate end to what was a technological achievement for that era of the 19th Century.



Other models

The exhibits were being rearranged at the time of my visit, but HMS Victory had pride of place, **Photos 11 and 12**, and it must be remembered that to many Spanish people, the Battle of Trafalgar was a partial success as Lord Nelson had been killed. Other models on display include the SS Pomeranum built in 1882 in Hull for the Alan Line, **Photo 13**, and it seems the museum does like models of British ships.

Conservation

In **Photo 14**, a very large model of a frigate is undergoing conservation whilst surrounded by scaffolding. The methods of conservation are explained in English, together with information on the history and operation of vessels of this type. There are also drawings and sketches of junior officers being instructed in seamanship using large models like this, as in **Photo 15**. This education system was not unique to Spain, many of the large models in British museums being used for a similar purpose by the Royal Navy.



Christopher Columbus

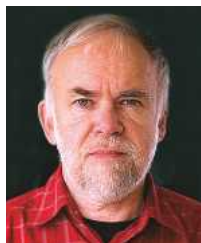
What can I say? A Spanish explorer known all over the World, and he occupies the top of a magnificent column immediately outside the museum, dramatically pointing to the New World, **Photo 16**.

So I hope all this gives you a flavour of what there is to see at this museum and of course there are numerous other historical attractions to be found in Barcelona.

Anthony Addams - 2016



Flotsam & Jetsam



John Parker delves into the archives

38: Binnacle Kits

British Patent Number 583353 'Improved Method of Manufacture of the Hulls of Model Boats and Seaplanes or Flying Boats' was granted to Howard G. Jones in 1946, and Binnacle Products Ltd was the company that manufactured model boat kits under its protection at 93 Walkers Heath Road, Kings Norton, Birmingham, UK. These kits were some of the first to become available post-WW2, and their subject was largely the fast motor boats of the Coastal Forces of World War Two, whose exploits were still large in the public's eye at the time.

Construction

If we examine the patent drawings, we can see that the framework of the model is of 'two shelf' construction formed by the deck and chine floor, spaced vertically by the bulkheads, stern and stem piece. Intermediate stringers are fitted to the foremost bulkheads, and a keel is then fitted to the underside of the chine floor. The framework is covered 'by means of flexible strips or sheets of material adapted to be adhered to and form part of the sides of the hull and the base thereof which base encloses the keel and has a contour conforming to that of hull practice' or in other words, it is planked! The other drawings on the patent specification refer to flying boat hulls.

To me, this is an obvious method of construction, one that will likely occur to the average scratch builder without any 'eureka' moment. It seems hardly deserving of patent protection, but then perhaps Mr. Jones was simply the first to think of doing so, and did it to deter competitors in the marketplace. I don't think it was successful at doing this, as many later kits used this method of construction or a minor variation of it. Witness for example the Marinecraft or EeZeBILT kits, and Vic Smeed was using the method in his Model Maker designs such as Waterbug.

The kit range

Realisation of the patented construction came in the form a series of kits that appeared in the late-1940's. These were very small 1/10th inch to the foot (1:120) scale and came in brown cardboard boxes measuring just 240 x 90 x 25mm (9.5 x 3.5 x 1 inch) with a single colour label. Intended as display models only, they were non-seaworthy, averaged about 175mm (7 inches) long and cost 3s/9d to 4s/0d (four shillings), later 4s/8d with purchase tax (about £7.50 in today's money, adjusted for inflation). The exception was the 115ft Fairmile which was larger and cost 6s/3d. An advertisement in *Model Ships and Power Boats* for August 1950 showed a range of seven models, these were:

1. 73 foot Thornycroft MTB.
2. 73 foot RAF HS ASR Launch.
3. 68 foot Cabin Cruiser.
4. 63 foot RAF Launch.

583,353 COMPLETE SPECIFICATION

1 SHEET

Fig. 1.

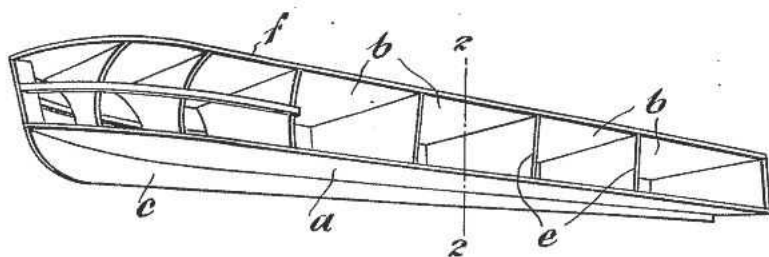


Fig. 2.

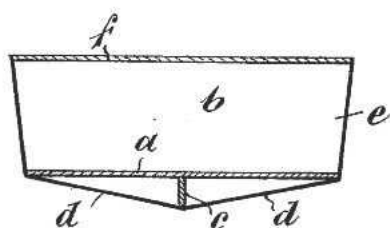


Fig. 3.

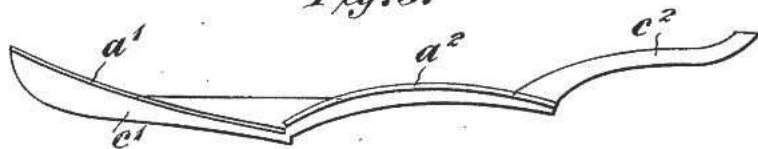
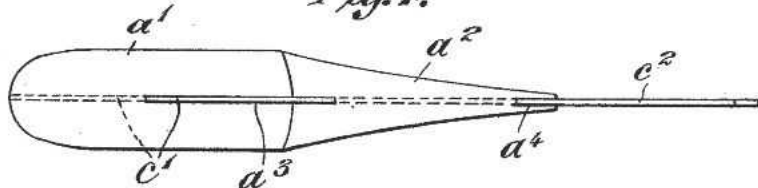


Fig. 4.



Patent specification.

H.M.S.O. (Ty.P.)

[This Drawing is a reproduction of the Original on a reduced scale.]

5. 70 foot Vosper MTB.
6. 67 foot Motor Launch Phyllida.
7. 115 foot Fairmile D MTB.

The advertisement also mentions four marquetry art kits being available, and I understand Binnacle Products was also distributing veneers to the furniture trade. The August 1951 issue of the same magazine has the same advertisement, but notes that No. 4, the 63 foot RAF Launch, has been discontinued. 'Make it a Binnacle New Year' is the message of a January 1954 Model Maker advertisement, which shows an expanded range of marquetry kits, but the same seven boat kits and the distributors being A. A. Hales Ltd. This is the last advertisement I could find for Binnacle Products, yet they must have continued to be available beyond this date, for my own example of a Binnacle kit is the previously unlisted No. 8, the 71.5 foot MTB by Samuel White & Co Ltd.

In the box

Opening a Binnacle kit, one has to keep in mind when it was made and the inexpensive price, because it is an underwhelming experience. Half a dozen small pieces of veneer, three printed cardboard sheets, the instructions, some tiny pieces of dowel and strip and a couple of pieces of clear plastic make up the entire contents. One side of the instruction sheet is generic and describes the making of the hull which we are told is; 'Built on the latest scientific and novel methods', and the other

side details the fittings and superstructure specific to the model. Incidentally the tube of Britfix glue would not have originally come with the kit, but is an interesting 1950's artefact; despite the tube being sealed, the contents have long since dried out due to the porosity of the lead.

It soon becomes clear that the false bottom and false main deck of the basic patented framework construction, as well as all the bulkheads, are to be cut from the printed cardboard sheet, leaving just the keel piece of timber to provide stiffness. On to it is planked the hull, using narrow strips cut from the veneer. So we have a cardboard foundation for the timber planking, which is curved and twisted to hull shape - let's hope it doesn't pull out of shape. The

Above: May 1950 August 1950 advertisement.

Below: Contents of the box (glue not included).

"Binnacle" SHIP KITS
PAT. No. 353563.
FOR CONNOISSEURS OF AUTHENTICITY
Scale 1/10 in. to 1 ft.

No.	Description	Price
No. 1.	73 ft. Thorncroft R.N. M.T.B.	3/9
No. 2.	73 ft. Vosper R.A.F. Launch	4/-
No. 3.	68 ft. Cabin Cruiser	3/9
No. 4.	63 ft. Power Boat, R.A.F. Launch	4/-
No. 5.	70 ft. Vosper R.N. M.T.B.	4/-
No. 6.	67 ft. Motor Yacht "Phyllida"	4/-
No. 7.	115 ft. Fairmile Class "D" R.N. M.T.B.	6/3

Direct Postal Service Add 4d.
THE ILLUSTRATIONS SHOW THE PERFECTION OF THE FINISHED MODELS
NO SHIP MODELLER CAN AFFORD TO MISS THESE WONDERFUL "LITTLE SHIPS" OF
COASTAL COMMAND FROM HIS COLLECTION.
BINNACLE MARQUETRY ART SETS. MAKE BEAUTIFUL PICTURES IN FINE SELECTED VENEERS.

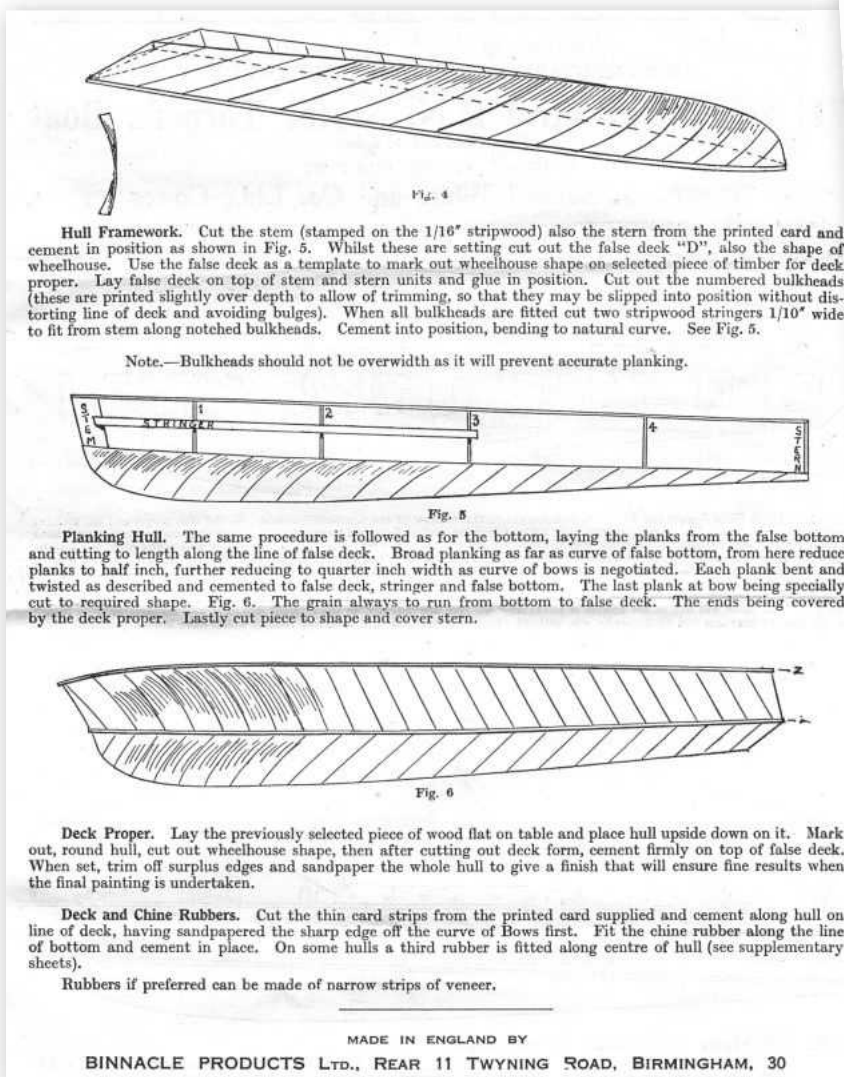
No. 1 The Kings Arms, Prestbury. 5/6 No. 2 Ships that pass. 7/- No. 3 Courtyard of the Saracens Head, Notts. 7/- No. 4 Continental Harbour. 7/-

YOUR RETAILER STOCKS THEM.
Made by **BINNACLE PRODUCTS LTD.**
93, Walkers Heath Rd, Birmingham, 30 Dept. P.



Below: Planking the hull.

Right: Basic drawing for the deck layout.



rest of the work involves gluing on the deck, making the superstructure from scrap veneer, and making the fittings. Various methods are suggested for the latter; the torpedoes are cut from the dowel, guns and hatches from paper and strip wood, and a sheet of plastic dimples used to form the ventilators. No markings are provided, but there is a painting schedule.

I am prepared to believe that a presentable model can be made from one of these kits, but it would take a lot of effort. In its favour, the planked hull enables double curvature, and will be more accurate than a hull that is covered with sheet, but much more work is required on the crude superstructure and fittings. More to the point, it would require a lot of skill, probably more than the purchaser of the kit was likely to possess. Within a few short years, for small display models such as this, the injection moulded plastic kit had begun its rise to dominance and so consigned the Binnacle Kits to history.

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- A Forum that has sections for: Beginners, General, R/C and Accessories, Static, Kits, Scratch build, Steam, Vintage, Events and Chat.

- A Features area that has sections for: Build Features, Kit and Product Reviews, Hints, Tips and Technical, Show and Regatta Reports and General Interest Articles on Model Boating.
- A Link to www.myhobbystore.com which has over 3000 plans available and numerous modelling items, books and kits. These can all be purchased online.

Boiler Room

PART
Sixty five:

Richard Simpson's series on model steam plants



Small boilers

A recent conversation at the pondside highlighted an area that seems to regularly cause a degree of confusion, again as a result of misunderstanding as to what is being discussed in the Green Book set of regulations, and this is what constitutes a Small Boiler or a Simple Small Boiler.

There are those who use a Mamod or Wilescot type of boiler as in **Photo 1**, those that have a Cheddar Pintail or Hemmens Ribbersdale, **Photo 2**, and maybe even those that have a Cheddar Proteus or twin engine boiler, **Photo 3**, all of which fall into different categories, so I thought it might be worth spending a bit of time clarifying just where they each fall within the regulations.

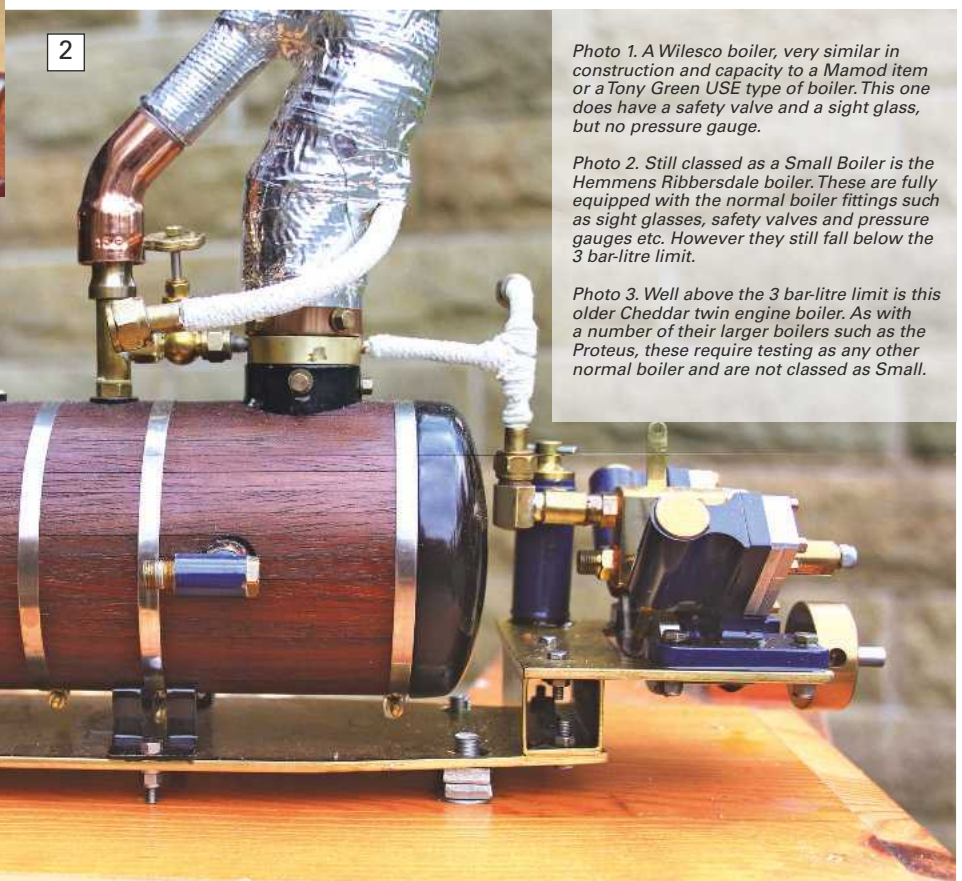


Photo 1. A Wilescot boiler, very similar in construction and capacity to a Mamod item or a Tony Green USE type of boiler. This one does have a safety valve and a sight glass, but no pressure gauge.

Photo 2. Still classed as a Small Boiler is the Hemmens Ribbersdale boiler. These are fully equipped with the normal boiler fittings such as sight glasses, safety valves and pressure gauges etc. However they still fall below the 3 bar-litre limit.

Photo 3. Well above the 3 bar-litre limit is this older Cheddar twin engine boiler. As with a number of their larger boilers such as the Proteus, these require testing as any other normal boiler and are not classed as Small.



Photo 5. The Tony Green type of Simple Small Boilers. These are fired by solid fuel in the form of Tea Light candles and are particularly interesting in so far as they pivot up for easy, safe and convenient ignition.

The Old Bar-Litre Rule again?

If you refer to Boiler Room No. 36, published in Model Boats December 2013, you will find a complete and in depth explanation of just what the Bar-Litre rule is all about, but I will briefly repeat a basic explanation of it here now. Basically it is nothing more than a product, i.e. multiplied together, of two numbers which represent two size related aspects of a boiler. One is its capacity, or internal volume and the other is its working pressure.

First, the capacity is the total internal volume available for holding water. The easiest way of determining this is to fill the boiler completely with water then pour it out into a measuring jug. The internal volume must be completely filled, with no air, and right to the top of the boiler shell. This is then effectively the most accurate method of determining the internal volume as it automatically takes into account cross tubes and braces etc. For the sake of the bar-litre number, this volume must, not really surprisingly, be quoted in litres. Consequently a boiler that holds 500ml of water has a capacity of 0.5 litres and a boiler that holds 750ml has a capacity of 0.75 litres.

Second, the working pressure is determined by the physical dimensions of your boiler, it has nothing to do with what pressure you want to operate it at, what you want to set the safety valve at, or even how fast the engine needs to go. It is determined only by the dimensions of the boiler and set in stone from the day it is manufactured. This is why if you make your own you should use a proven plan, which will quote the working pressure on the plan. If you make your boiler exactly to the plan, the quoted working pressure can be considered as applicable to your boiler. If you change any of the dimensions then it will no longer apply and you will then have to go through the process of determining the working pressure by calculation. A (boiler) inspector must see this information to be sure of just what is the actual working pressure for the specified boiler. A manufactured boiler should be supplied with a certificate that should state an identification number, the dimensions or capacity and the working pressure on it, so there is no doubt and again this should be produced for the examiner who is checking the boiler. Working pressure must be quoted in 'bar', which is the SI unit of pressure and the only unit that can be used to determine the bar-litre number.

So if now we have a boiler with a quoted working pressure in 'bar' as well as the capacity in 'litres' from which we can determine the bar-litre number. For the traditional fans, 14.7 psi is the same as 1 bar so you would have to convert a working pressure quoted in psi to bar. For example a working pressure of 45 psi would equate to:

$45 \text{ divided by } 14.7 = 3.06 \text{ bar.}$

For most purposes, using 15 rather than 14.7 is close enough, so in this last example you have a 3 bar boiler.

So now we have two numbers, the capacity in litres and the working pressure in bar, and all we do is multiply them together. A boiler of 0.5 litres capacity with a working pressure of 4.0 bar would be:

$0.5 \times 4.0 = 2.0 \text{ (or a 2 bar-litre boiler).}$

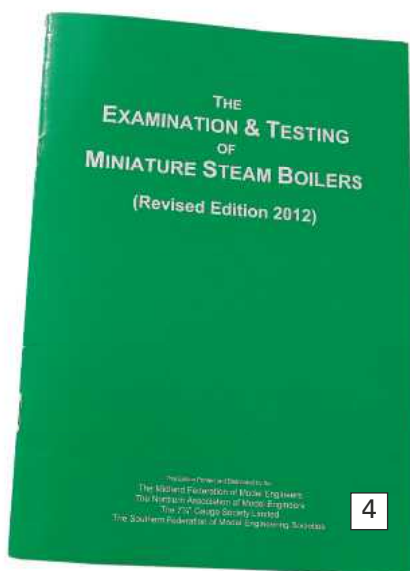


Photo 4. The current Green Book set of regulations, available from most boiler inspectors or any of the affiliated organisations that abide by the rules such as 'The Southern Federation of Model Engineering Societies' as an example.

Similarly a boiler of capacity 0.75 litres and a working pressure of 5.2 bar would be:
 $0.75 \times 5.2 = 3.9$ (or a 3.9 bar-litre boiler).

From this you can see that the first boiler is lower than 3, however the second boiler is above 3 so you can easily see that the first boiler is less than 3 bar-litres and the second boiler is greater than 3 bar-litres. This is our first means of definition and determines what testing procedures the boilers must be put through. For the sake of the Green Book set of regulations anything less than 3 bar-litres is considered a Small Boiler and should be tested accordingly. Just to give you an idea, the old Cheddar Proteus boiler is above 3 bar-litres but the Ribbersdale and the Mamod and Wileco types are all below.

So where does simple come into it?

The new Green Book, **Photo 4**, now includes a small paragraph which refers to Simple Small Boilers, which are the group of boilers such as the Mamod, Wileco and Tony Green 'USE' type of boilers, **Photo 5**, that while coming under the category of Small Boilers are significantly more simple. You will regularly find that these boilers are spirit or solid fuel fired, do not have a sight glass, safety valve, pressure gauge or possibly even a valve on the steam line. They will probably be connected to the engine by rubber tube and they will be significantly smaller than most other boilers. The new paragraph says that such boilers, while not being able to undergo most requirements of the Small Boiler tests, should still have a basic



simple steam test to demonstrate that everything is working as it should. What this does not mean of course is that the Hemmens Ribbersdale and the old Cheddar Pintail boilers and boilers of such type do not need to be tested, as I have had suggested to me.

From what I have seen, it is usually fairly clear whether the boiler in question is a Small Boiler or a Simple Small Boiler and so the testing procedure is easy enough to determine. If there is a boiler out there that may fall slap bang in the middle and it is not easy to determine what it is classed as, I would say it then falls to the discretion of the boiler inspector as to what he wants to see as a test procedure.

Conclusions

I hope this has helped one or two of you to understand just where your boiler falls in the grand scheme of things and what to expect when you present it to a Boiler Inspector. A brand new plant such as this Miniature Steam Clyde Plant in **Photo 6**, should of course come with a test certificate. However some manufacturers do not include the capacity so you may still have to work this out for yourself. You may well end up with a secondhand boiler, of which there are plenty of very good ones around, **Photo 7**, with no paperwork at all, so you will first of all need to categorise the boiler by determining the capacity and the working pressure by calculation. Prior to the introduction of the Green Book, Simple Small Boilers were not considered and I do remember the concern it seemed to raise when it was then being suggested that the these should also be included in a test program. Interestingly though, at my own club even prior to the Green Book coming into effect we already had made the decision to do a simple steam test on such boilers for nothing more than the peace of mind of its owner, none of whom thought it was a bad thing to do.

Photo 6. A complete Clyde plant manufactured by Miniature Steam of Australia and supplied via JoTiKa in the UK. These units come complete with certification to assist you in identifying the class of boiler.

Photo 7. A good range of secondhand boilers showing just how diverse they can be. When you also consider the older Stuart type of boiler and the whole range of homemade items you may find it is easy to see you need to have an idea of what you are doing when you sort out just what class of boiler you have.

Mooring Post



Glynn Guest with advice and tips for modellers

How fast does it go mister?

Over the years I've encountered some wildly optimistic claims by modellers for the speeds of their creations. Yes, it may look fast as it charges across the lake, it may also sound fast and you have spent enough money on it so it ought to be fast, but is it really doing the 20mph (32km/hr) you think it is? Few people seem to be willing or able to back up their speed claims with measurements, yet this ought to be a simple task and can be very informative. If it is a scale model that you wish to operate at scale speeds which produce the same wave patterns as the full size craft, then the model's speed has to be measured.

Model speed = Full size speed x sq. root of model scale

Simple speed measurements can also help you operate your models in the 'sweet spot' that combines good performance with duration. I once tested a model with two different propellers, one having a fine pitch and the other with a coarser pitch. To my eyes, the coarser pitch appeared to make the model go faster as it drew a larger current from the battery. However, when the speed of the model was measured, no significant difference could be found between these propellers, so the lower current when using the fine pitched propeller made it the obvious choice for this model, the net result being a longer sailing duration, less stressed motor and the warm glow of knowing that the model was operating in the 'sweet spot'.

You could measure a model's speed by installing a GPS data logging device or just use a stopwatch

and tape measure, things that most of us already possess. I used to sail on a water which was surrounded by a fence and two posts were exactly 100 feet apart. Nowadays, I use a local water which has two bollards 30 feet apart, not so accurate but good enough for models that do not travel at more than a brisk walking pace. One thing I have learnt is that trying to gauge when the model passes the perpendicular to the markers, to operate the stopwatch function on my wristwatch and keep the model on course whilst running alongside, is fraught with potential problems. It could however make a good comedy item for YouTube hence my not recommending this method for fast models.

It is important that the model has sufficient space to reach top speed before it passes the first marker. With most models, a run up distance of several model lengths ought to be enough when you apply full power from rest. Likewise, sufficient safe space after the second marker is needed since you will be momentarily distracted whilst stopping your watch.

It ought to go without saying that the conditions should be calm. No need to be dead calm, but certainly no significant wind and waves which make maintaining a straight heading on the speed course a problem. If you really want to minimise errors then take timings both ways on the course, repeat several times and calculate the average time. The speed calculation is simply the distance between your two markers divided by the time taken and using an example of a destroyer model, scale 1:100 (i.e. 0.01) and we want it to behave like full size with a top speed of 36 Knots.

If the distance between the markers is 50 feet and the model takes 11 seconds on average to cover this distance:

Model Speed = Distance divided by time
Model Speed = 50 divided by 11 = 4.54 ft/sec

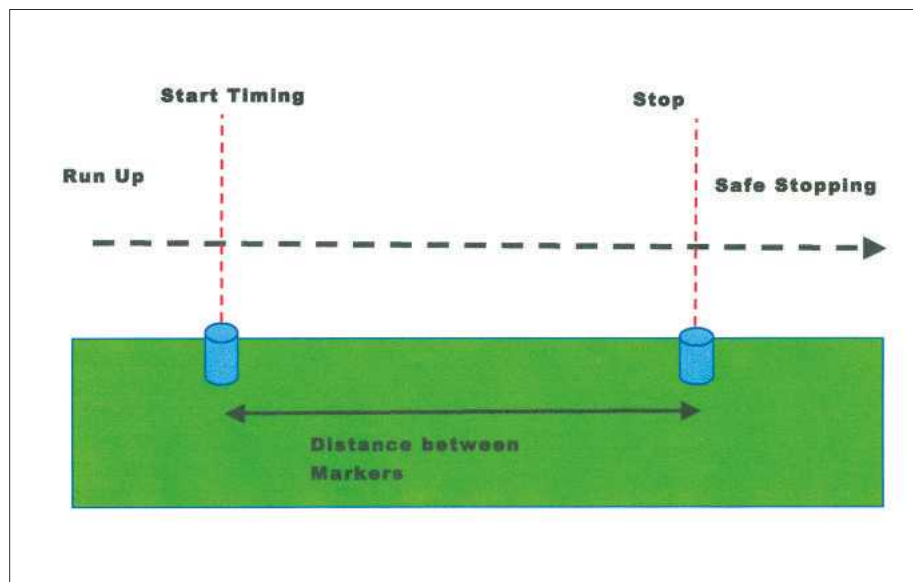
The **Dynamic Top Speed** is given by:

Speed = Full size speed x square root of model scale

Speed = 36 x 1.69 x square root of 0.01 (1.69 is the conversion factor from knots to ft/sec)

So the model's dynamic top speed will be 6.08ft/sec

In this case our destroyer model is actually travelling at well under the dynamic top speed and its wave pattern will not match the full size version at its top speed. You could consider increasing the model's speed, but might be happy to leave it as it is, as after all ships rarely travel at full speed all the time, but at least you know the model's actual true speed.



Hearts of Oak

The Historic Dockyard - Chatham

model
Boats
MINI GALLERY
by David Walter

This popular museum has a visitor attraction called 'Hearts of Oak', which tells the story of wooden shipbuilding at the dockyard by means of a digital theatre. A dramatised story of John North, a retired shipwright giving his grandson a conducted tour of the yard is the theme of the presentation. Inside the entrance to this new attraction you can study two superb models of HMS Victory prior to witnessing the process of wooden shipbuilding from commencing in the saw pit, where large trunks of oak were cut to size, through the construction stages with the mould loft, seasoning and planking of the wood, the gun deck and showcases of the Trafalgar battle time line.

This attraction has been superbly constructed in the old Wooden Walls Building and is worthy of a visit to Chatham in Kent, England.

Right: This large model of HMS Victory was built c1940 for the 1941 Hollywood film That Hamilton Woman, starring Vivien Leigh and Laurence Olivier. It took three months to construct and cost \$5600. The model is over 6 metres in height and 7.6 metres long and weighs 2 tonnes. The 110 guns are still wired and were fired several times during filming. After filming, the model was presented to the US Naval Training Centre at San Diego in the USA by the film's director Alexander Korda. The model remained in their hands until the 1990's when it was acquired and shipped to The Historic Dockyard in Chatham with the generous financial support of the HMS Dorsetshire Association.



Above: The sculpture of HMS Victory was carved entirely from original oak timbers removed from the lower gun deck of Nelson's flagship during her restoration programme in 1991. It has taken the sculptor, Ian Brennan, eighteen years to carve this replica of HMS Victory. Every part of the model, including the sails, rigging and flags has been carved in wood from the original timbers of HMS Victory. This model is on loan from Ian.



Right: A model of HMS Sandwich c.1759, a second rate warship.

Metropolitan & Southern District Team Championship



Roger Stollery reports from Abbey Meads

Held, earlier this year on 20th February, Team Racing is much more of a game than the normal run of racing, because the team members have to sail well together to stay ahead of the opposing team. Both teams try to go fast, but also slowly at times using the rules to slow down the opposition and try not to have a team member coming last. It is a tactical game where knowing the rules is important and therefore it is a good platform for learning and great fun at the same time. Four teams of three came together at the Guildford MYC Abbey Meads lake in a good westerly breeze with B or C rigs being the order of the day. Two rounds of the six race schedule were sailed before the rain started to come down heavily and bring the racing to a close.

Morning's racing

First on the water was the Vice Squad consisting of father Rob and his two sons, CJ and Lockie. They have been team racing before with Footy's and really enjoyed the racing, helping each other round the course. Their opponents were Datchet's Holliday and Thorn who had to borrow a competitor from another team as one of their team didn't turn up. Datchet lost, but stayed on the water to race Frensham's Stollery, Royse and Wilkinson, who finished in that order to win. They stayed on the water to sail the Vice Squad and there was UPROAR at the front of the fleet with Rob and Roger having a tight match race to get the first place, which went to Roger and gave the win to Frensham. The Vice Squad stayed on the water and were again in a tight battle and only just lost to the Guildford team of Hugh McAdoo, Martin Crysell and Alan Viney,

with CJ Vice going particularly well to beat his dad. Guildford MYC then had to sail Datchet and won quite easily, before doing the same to Frensham.

Afternoon's racing

After lunch the wind got up a bit and brought some exciting gusts down onto the water to test the B or C rigs being used. The schedule was repeated with almost all results being opposite to the morning. Datchet did particularly well, mainly because the substitutes were very good and they won all their afternoon races. In particular, they were behind until right near the end of the final beat against Guildford, when substitute, Roger, picked up some amazing lifts and passed the whole fleet, which had gone too far off the Rhum Line to give Guildford their only loss of the day.

Conclusion

Guildford won overall with five wins, Datchet was second with three wins and the other two teams tied for last place, each with two wins. At the prize giving, the competitors thanked Keith Parrott for being race officer for the day. Guildford always encourage those who are last to come back for more, and in this case the club gave three small prizes to the Vice Squad and it was great to see the youngsters enjoying the racing. In particular CJ Vice, sailing his CRAZY TUBE, always made good starts and put lots of pressure on the more experienced sailors at the head of the fleet.

There are more Marblehead events planned through 2016. The Model Yachting Association (MYA) have an excellent website: <http://mya-uk.co.uk>



Above: The 'Vice Squad' of CJ, Rob and Lockie.



Above: Rounding the windward mark.



Right: The 'Vice Squad', 89, 141 and 117 against 'Guildford', 51, 52 and 16.



Above: Tug towing at Beale Wildlife Park and Gardens. Here, four large barges are being manoeuvred.

Left: The MTMBC coaster for tug towing events is 3.5 metres long and is in two sections for ease of transport.

Mid-Thames Model Boat Club

Roger Strudwicke updates Model Boats' readers

This is a long established club and at the end of the 20th Century in the golden age of MPBA Scale Competition and National Championships, we were very much involved in organising and running those events. Since then, the club has kept up with the times and has a full and comprehensive calendar of activities ranging from yachting to high speed fast electrics and tug towing. The club is based at Beale Wildlife Park and Gardens at Pangbourne in Berkshire and members enjoy the use of the clubhouse and the facilities of the park. Within the park, there is much for families to do and see.

Types of craft supported

Yachting includes two main classes; One Metre (IOM) and a mixed class consisting of Fiesta's and Victoria's. The races take place on the outer lake, a challenging course sometimes with fickle winds.

Fast Electrics consist of the well known inexpensive Club 500 class and our own in-house class F600 raced monthly on the inside lake. This is an anti-clockwise M shaped course, the races being run over eight heats. Both classes are hotly contested and well attended.

Wacky racers? We are proud to bring this to the public gaze and are regularly asked about the boats, this being a fairly open racing class for high speed boats taking place on the outside lake. Many members have acquired Chinese imported boats capable of forty odd miles an hour and racing on a large oval circuit lets the hooligan element play with these high speed craft, a bit like the chariot race in the film Ben Hur.

Tug towing. As the name suggests, we try to replicate the manoeuvres seen at the docks, whether it be helping a 3.5 metre model coaster or

pulling and pushing blocks of four feet long barges around a course. This is well supported by our enthusiastic membership, their enthusiasm perhaps making up for a lack of skippering skills!

Out of Season

Beale Park closes over the winter from the end of October to mid-February and during this period the club meets monthly at Tidmarsh Village Hall. Winter activities consist of quizzes, a model show, bring and buy, plus the usual Christmas feast. We actively welcome new members and there are experts available to try and assist with any modelling question. For more information please visit our club website: www.mtmbc.co.uk, or contact Jon Simons by email: jon.simons@hotmail.co.uk. Beale Wildlife Park and Gardens has its own website: www.bealepark.co.uk



Above: Many members have invested in RTR fast electric semi-scale craft for some fun racing.



Above: The club also caters for top class fast electric craft.



Below: International One Metre (IOM) yachts are supported by the club.



IJN Yamashiro



**Athanasios
Kanias'**
superb model

Athanasios was born in Piraeus, Greece in 1946, but now lives in the UK. He has worked as a purser on cruise ships and also performed military service with the Greek Navy. One of his colleagues on the cruise ships was a modeller who showed him one of his models and the 'fire' was lit. Since then he has built many fine and quite often unique models and his work was last featured in this magazine in the July 2013 issue.

Following construction of the George Thurston designed IJN Kongo class battlecruiser Kirishima (reconstructed as a battleship in 1927), the search began for another project. Looking on the World Wide Web, Athanasios found that Fleetscale had plans and a hull for the IJN battleship Fusō, nameship of her class, and so they were duly purchased. Prior to this, his intention was to build her sister ship IJN Yamashiro using Strike Models (USA) plans to a scale of 1:144, but having had some previous difficulties with the Kongo class plans, the Fleetscale IJN Fusō GRP hull and plans to a scale of 1:128 were more appealing, even though subsequently the model was completed as IJN Yamashiro..

The Fleetscale plans are very detailed and the huge pagoda Conning Tower is very unusual. Fleetscale offer the plans and hull with no fittings, but were able to supply a running gear set of four propshafts, propellers and twin rudders, and so construction duly started in April 2013.

IJN Yamashiro principal particulars

This was the second of two Fusō-class dreadnought type battleships built for the Imperial Japanese Navy. Launched in 1915 and commissioned in 1917, she initially patrolled off the coast of China, playing no part in WWI. She was reconstructed between 1930 and 1935, but was out-classed by other Japanese battleships during WW2. IJN Yamashiro was sunk in October 1944 at the Battle of Surigao Strait with the loss of all but 10 of her crew.

Principal particulars are:

Length:	192 metres (630 feet)
Beam:	28.7 metres (94 feet)
Displacement:	36500 tons full load
Armament (1944):	12 x 14 inch (356mm) guns 16 x 6 inch (152mm) gunst 6 x torpedo tubes 8 x 5 inch (127mm) guns 92 x 25mm guns
Crew:	Approx. 1900

Model construction

What follows is not an in-depth Step One, Step Two etc. construction sequence, but more a series of building notes as Athanasios tends to build parts of a model as the fancy takes him and early on some



Photo 1. The forward part of the Fleetscale 1:128 scale GRP hull.



Photo 2. The main forward sub-deck section in place.



Photo 3. The aft part of the hull with propshaft tubes, the supporting A Frames and rudder posts temporarily held in place with Plasticine.



Photo 4. The stern sub-deck plywood section.

Photo 5. The main deck extends over the quarterdeck with a 14 inch turret barbette at its rearmost end.



major changes of direction were undertaken as the project initially commenced as IJN Fusō using the Fleetscale hull and plans.

Basic hull

The GRP hull has the secondary battery casemate backs moulded into it, **Photo 1**, where you can see also the deck edge supports being installed and the battery mounts etc. It was a relatively easy task to cut the main sub-deck piece to shape so as to match the top edge of the hull as you can see in **Photo 2**. Having the backs of the casemates moulded into the hull, means that this portion of the hull is 100% watertight, which is useful. The main deck extends over the quarterdeck, but was terminated at the break of the forward section (which is just behind the aft-most 6 inch casemate). **Photo 3** is of the stern section of the model and you can see that the propshaft tubes and motor mounts are already installed and aligned. The quarterdeck sub-deck was cut to shape as in **Photo 4**.

Photo 5 is the extension to the main deck section that fits over the quarter deck and you can also see the aft 14 inch turret barbette. Turning the hull over and in **Photo 6** you can see the propshaft tubes and A-frames for the exposed shafts. Getting all these in alignment was not easy, so patience was a virtue. You can also see in this last picture the tubes for the twin rudderposts.

Main superstructure units

The huge Pagoda style of Conning Tower so typical of Japanese capital ships was a challenge, not least

because there is a tubular tripod within it. Work initially commenced with construction of its first and second levels and it was then that the decision to go for IJN Yamashiro was made as Athanasios' daughter, when shown the plans, said; 'What an ugly ship is IJN Fusō '!

So that was that, construction stopped and the US Strike Models plans for IJN Yamashiro were obtained and to Athanasios' surprise, on arrival they were very detailed and a model from them would look more attractive than IJN Fusō, although their hulls up to main deck level were fundamentally identical.

Conning Tower

The tubular tripod mast is around what the main body had to be built, once its lower decks were made. This was not easy, as there are many complex angles to be considered and there was much trial and error to get the whole thing looking right and **Photo 7** shows it well underway. You will notice that its lower deck is already planked and stained, but more on that later, because one can't easily progress upwards with this type of structure,

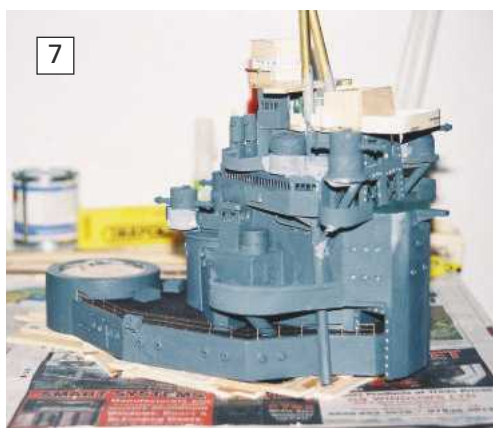


Photo 6. It is essential to get the four propshafts and accompanying A Frames all parallel. The paint helps highlight any hull blemishes that may need rectification.

Photo 7. Early stages of work on the huge Pagoda style of main Conning Tower so typical of Japanese battleships of this era.

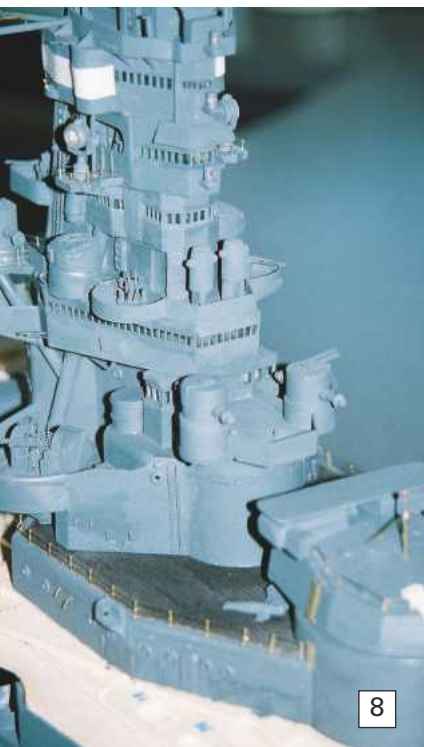


Photo 8. The Conning Tower now well on its way to completion.

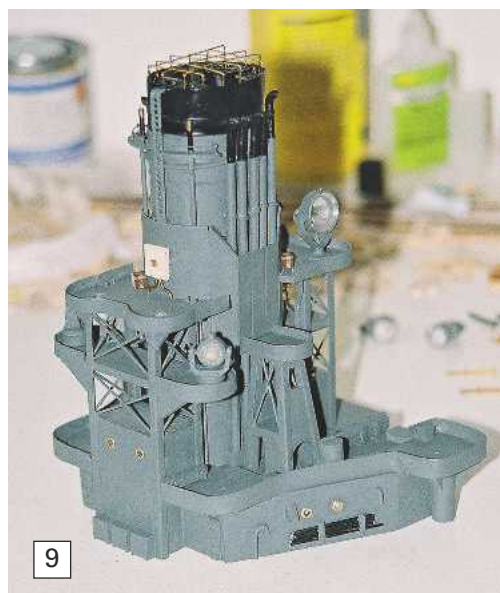


Photo 9. The funnel unit is a model in its own right.

Photo 10. The funnel unit has a 14 inch turret either side of it on the ship's centreline.

Photo 11. The 95 metres of deck planking is nearly completed.

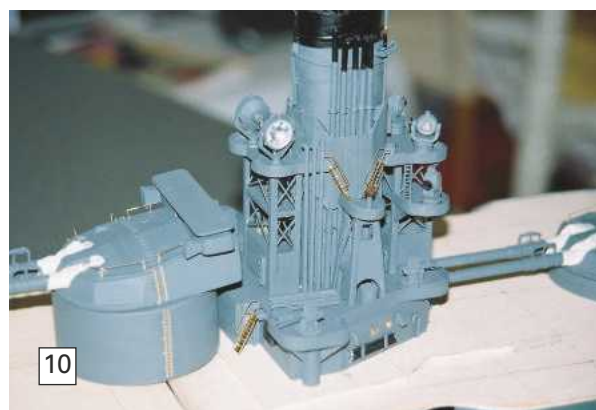
Photo 12. After all that work planking the deck, it then had to be stained almost black in colour.



without completing the immediate preceding deck level first. There are twelve decks in all, each of which had to be parallel with the others and of course the tripod holes are in different places on each of them. It is best to paint (and plank where necessary) as one goes with such a structure, because access later is not easy, particularly when taking into account the numerous armoured windows. Rather handily, if you Google 'Imperial Japanese Navy' and then refine your searches, pictures will be found of various Japanese warships when undergoing reconstruction, these giving you a good idea of how the conning towers in particular, evolved. Ladders etc. are from plastic strip and off-the-shelf mouldings, and **Photo 8** shows it nearly finished.

Funnel unit

The single funnel was basically constructed from styrene sheet wrapped around wooden formers, detailed with the styrene platforms, brass wire and tube etc., plus cut up plastic yoghurt cartons for the smoke deflectors, **Photo 9**. This warship, apart



from the two forward and aft 14 inch twin gunned turrets, had two more on the centreline either side of the funnel and **Photo 10** shows these.

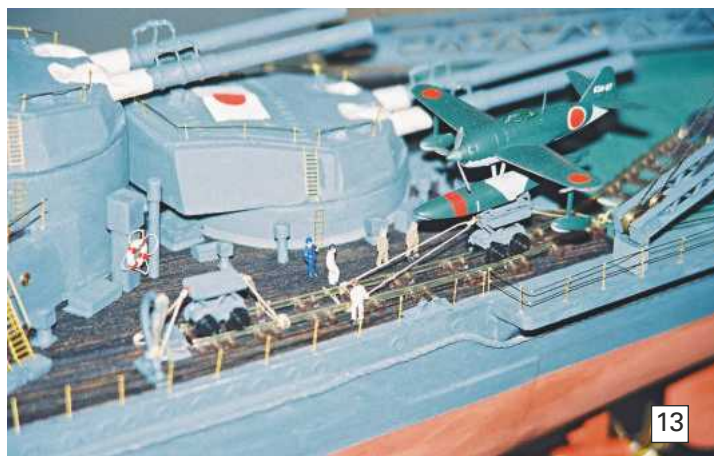
The aft main superstructure unit is a much smaller version of the main Conning Tower, and its construction followed a similar sequence.

Planked decks?

The decks were planked, as was common on many warships of all types and all nations of that period, so there was nothing for it but to do likewise with Mahogany strips and yellow thread for the caulking, **Photo 11**. For the number crunchers amongst you, 95 metres of planking was used in total and when this somewhat tedious task was complete, the planking was all stained an Ebony colour. Seemingly as war shortages mounted, the Japanese Navy painted their decks with a sort of linoleum paint mixed with black soot from the smoke stacks, **Photo 12**.

Seaplane handling

The aircraft crane was constructed from brass tube and plastic pre-formed open web truss pieces (as used by railway modellers) for the jib piece. This crane is mounted externally on the port side of the



hull right aft and looks quite strange. The aircraft catapaults were also assembled using the same type of pre-formed plastic trusses, albeit a different size. The aircraft were moved on small wheeled trucks on rails and the measurements of N Gauge (but not the scale) rather conveniently matched that which was required. The aircraft are readily available online and **Photo 13** is of this crowded area of the quarterdeck. How they managed to clear everything away so the 14 inch guns could safely traverse, elevate and engage the enemy without their explosive blasts destroying all the adjacent scantlings is something for conjecture.

Photo 14 is the starboard stern quarter (of the completed model) which also has a catapult, but no deck handling gear for the seaplanes. For your interest, **Photo 15** is of the part-completed IJN Yamashiro on Athanasios' kitchen breakfast bar, confirming the size of the model.

Other details

The ship's boats are from Quaycraft as are some of the fittings and the stairways, some ladders and the deck edge stanchions, these all being photo-etched. They can be had in the retail marketplace and 0.3mm brass rod was used for the handrails. It is always best to go as thin as possible for these, as

paint can make an otherwise scale handrail look like a tree trunk. The crew are suitably modified N gauge rail people and there are 75 of them on the model with the rest of the 1900 complement below decks having their dinner!

The six main battery turrets were obtained from Strike Models, but of course to a scale of 1:144, a major difference to the 1:128 scale of this Fleetscale based model and that could not be ignored. Enlarging the turrets was not that difficult as it so happened, using strip and sheet wood to enlarge them to 1:128 scale and range finder directors were added to four of them. Suitable brass tubing was cut to size for the twelve 14 inch barrels, three different sizes sliding within one another and cloth being used for the flash shields over their mantlets.

These sort of sack-like covers, common on many capital ships of that time, allowed the gun barrels to elevate, but also stop debris and water entering the interior of the turret. The model's turrets can all traverse and their guns elevate and the point of this little homily is that having a scale model already, albeit to the wrong scale, means that one has a 3D representation in one's hand from which the final correct sized version can be derived. There are also the sixteen 6 inch guns in hull casemates, each built from scrap wood, tube (from a redundant

Photo 13. The Seaplane dollies and their track on the port side of the quarterdeck.

Photo 14. Starboard stern quarter of IJN Yamashiro.

Photo 15. Almost complete and yes, it is a large model!



16



17



18

Photo 16. IJN Yamashiro on the water in 2015.

Photo 17. Stern view and note the cumbersome (and weird) external derrick on the port side aft for the seaplanes.

Photo 18. USS North Carolina is the next project.

Photo 19. Setley Pond, the sailing facility for SRCMBC with HMS Exeter in the centre of the picture. Please see text for club contact details.

clothes hanger tube in a wardrobe) for the turret itself and small bore tubing for the gun barrels. The four twin 5 inch AA guns are based on those of the British Queen Elizabeth class of battleship and are commercially available at 1:128 scale. The rest of the anti-aircraft battery consists of 25mm guns, their barrels once again being created by using 0.5 and 0.2mm brass tubing.

Motors and running gear

This warship has twin rudders and four propshafts and each propeller is driven by a three pole motor, rated 8900rpm at 6v. The servo for the rudders sits between the inboard propshafts and is connected to the two tiller arms in a conventional manner. Two 6v 10Ah SLA batteries are installed, each with one electronic speed controller connected to two of the motors. The speed controllers are forward of the

motors and the two batteries also sit forward in the hull, but being a model battleship this means that a lot of lead was also needed for ballast. The model's final weight is actually 15.5kg (34lbs), so it is no lightweight and not for the faint-hearted.

On the water

Because of the size of this model, pre-pondside testing was not possible, particularly as Athanasios lives in a flat, but when taken to the lake, it sat perfectly upright but needed a fair amount of lead to bring it down to the correct waterline. Initial sailing trials showed no major vices and next on the agenda was the Solent Radio Control Model Boat Club Navy Day that is held annually and **Photos 16 and 17** are of IJN Yamashiro on their pond at Setley in 2015. In the second of these pictures you can just see the external aft mounted derrick for the seaplanes, a somewhat clumsy arrangement in Athanasios' humble opinion.

Conclusion

Athanasios hopes this inspires readers to build model warships of the non-European and US Navies. Japanese warships have a unique grace and style, and of course in the late-19th and early 20th Centuries, many of the designs were actually from British naval architects, shipyards and naval expertise. To finish, here is a picture of Athanasios' next project of USS Carolina, **Photo 18**, that is already well underway and yes, the workbench is laid over a bed.

Athanasios is pleased to be a member of the Solent Radio Control Model Boat Club (SRCMBC) who use Setley Pond in Hampshire's New Forest and **Photo 19** is of their sailing facility.

Data Box

SRCMBC Scale Captain is Davis McNair-Taylor, tel: 07887 967887 and the website is: www.srcmbc.org.uk

Strike Models: www.strikemodels.com

Fleetscale: www.fleetscale.com

Enjoy your hobby - **Athanasios**



19

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Test Bench

Model Boats looks at new products

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● These pages are open to you - your shop window to bring to the attention of our thousands of readers, new products - kits, books, videos, engines, R/C gear, motors, anything that could be of interest to model boat builders. Send your information initially to Model Boats Test Bench, PO Box 9890, Brentwood, CM14 9EF - or ring the Editor on 01277 849927 for more details.



Omega Model Boats

A range of inexpensive GRP hulls

This business was started by Chris Peppitt in a small industrial unit in North West Kent to provide a wide range of high quality GRP hulls that are easy on the pocket. Chris has a keen interest and passion in model boating which started when he was young. His father taught him how to build a model from scratch and he knows how long it takes to create a perfect hull. With experience in creating GRP (fibreglass) mouldings, Chris decided to start Omega Model Boats to provide a range of designs with a high quality finish

and at a reasonable price.

All the hulls are made using Lloyd's approved resins and fibreglass mat. Prices start at **£19.99** for a Springer hull up to **£79.99** for a recent introduction of a 40 inch Pilot Boat which is sold as a hull and cabin. The range includes a Thames Swim-Head lighter (27.25 inches long), tugs, naval vessels and leisure boats. Hulls are available to purchase from the Omega Model Boats Online Shop via their website, but are also available from The Dockyard Model Shop at Chatham Historic Dockyard in Kent. Visitors



Above. Harbour Defence Motor Launch hull, 940 x 203mm, 1:24 scale, £39.99 plus p&p.



Below. Admiralty Motor Fishing Vessel hull, 940 x 300mm, scale 1:24, £39.99 plus p&p.

Above. Springer hull, 457 x 203mm, priced at £19.99 plus p&p.



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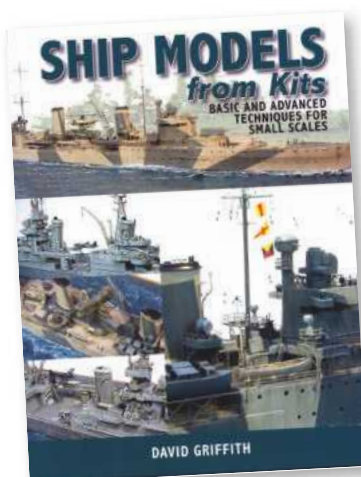
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Ship Models from Kits – Basic and Advanced Techniques for Small Scales

Written by David Griffith. Softback, 144 pages, 248 x 189mm, over 200 colour photographs. ISBN: 978-1-84832-091-8, price (RRP) £14.99. Published by Seaforth Publishing, an imprint of Pen & Sword Books Limited, 47 Church Street, Barnsley, South Yorkshire, S70 2AS. Tel: 01226 734222, website: www.seaforthpublishing.com. Available direct from the publisher or through the usual retail outlets. Seaforth Publishing have been reprinting and updating selected specialist model making books and this is one of them and

well worth a mention.

I'm always interested in books that give practical advice and guidance to ship modellers



building small scale kits and this book, by the highly experienced award-winning ship modeller and author David Griffith, does just that. From the first chapter, which looks at 'What's on the Market' by way of commercially available kits in the 1:350 and 1:700 scale range from manufacturers which include Airfix, Revell, Tamiya, Hasegawa, Dragon and Trumpeter for plastic kits and White Ensign, L'Arsenal, Combrig and NNT Modell for resin kits, through chapters for 'References and Resources', with ideas about where to go for more detailed sources of information, like books, magazines and the internet, to 'Tools, Techniques and Materials' including hand and power tools, paintbrushes,

soldering, glues and fillers.

These are followed by two chapters which are step-by-step guides to building a plastic Tamiya (1:700 scale) kit of the heavy cruiser USS Indianapolis and a resin NNT Modell (1:700 scale) kit of the cruiser HMAS Sydney. There are also chapters on Painting and Weathering; Rigging; Bases and Dioramas and the book concludes with a Model Gallery.

With full colour photographs throughout, this is without doubt, one of the best books on the subject of small scale ship model making I have ever seen, whether you're a novice or an experienced modeller, working with plastic or resin kits, this book is definitely for you.

Book Review by **John Deamer**

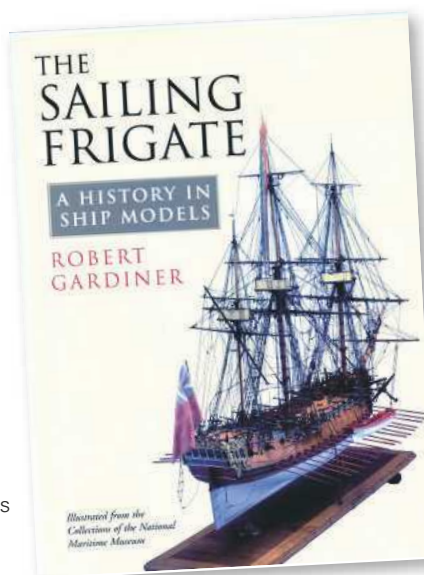
The Sailing Frigate – A History in Ship Models

Written by Robert Gardiner. Softback, 128 pages, 246x186mm, over 150 colour photographs. ISBN: 978-1-84832-295-0, price (RRP) £16.99. Published by Seaforth Publishing, an Imprint of Pen & Sword Books Limited, 47 Church Street, Barnsley, South Yorkshire, S70 2AS, tel: 01226 734222, website: www.seaforthpublishing.com. Available direct from the publisher or through the usual retail outlets.

The National Maritime Museum in Greenwich houses the largest collection of scale ship models in the world, many of which are official contemporary artefacts

made by the craftsmen of the navy or the shipbuilders themselves, and range from the mid seventeenth century to the present day. As such they represent a three-dimensional archive of unique importance and authority. Treated as historical evidence, they offer more detail than even the best plans, and demonstrate exactly what the ships looked like in a way that none but the finest marine painter could achieve.

In this new edition of the book, published for the first time in softback format, the author, Robert Gardiner, utilises photographs of many of the best examples of ship models to tell the story of the evolution



of the Sailing Frigate. The superb full colour photographs, including many close-up and detailed views which are captioned in depth to focus attention on the construction, armament, deck fittings and appearance, together with any interesting or unusual features of the actual ships they portray. Although pictorial in emphasis, the book weaves the pictures into an authoritative text, producing an attractive and unique form of technical history.

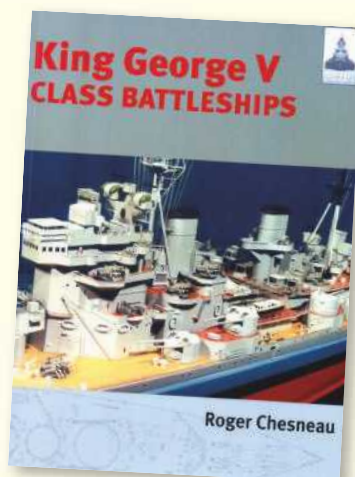
While the book is of particular interest to ship modellers, all those with an interest in ship design and development in the 17th to 19th Centuries will be attracted to the in-depth analysis of this beautifully presented book.

Book Review by John Deamer

ShipCraft 2 – King George V Class Battleships

Written by Roger Chesneau with plans and camouflage schemes by John Roberts. Softback, 64 pages, 297 x 210mm, over 120 photographs drawings, and plans including over 70 in colour. ISBN: 978-1-84832-114-4, price (RRP) £14.99. Published by Seaforth Publishing, an imprint of Pen & Sword Books Limited, 47 Church Street, Barnsley, South Yorkshire, S70 2AS. Tel: 01226 734222, website: www.seaforthpublishing.com. Available direct from the publisher or through the usual retail outlets.

The five battleships of the King George V class, Prince of



Wales, Duke of York, Anson and Howe, were the most modern to serve in the Royal Navy in WW2 and all rendered invaluable service in the war effort and indeed HMS

King George V and HMS Prince of Wales could be credited with influencing the very course of the conflict. Instrumental in the sinking of the battleship Bismarck, they brought about a fundamental shift in German naval policy, the emphasis moving away from heavy surface ships towards the U-boat arm.

This is a new 2016 reprint of the second volume in the ShipCraft series which provides in-depth information about building and modifying kits of these famous warship types. Lavishly illustrated, it takes the modeller through a brief history of the class, highlighting differences between sister-ships and changes in their appearance over their careers. This includes paint schemes and camouflage, featuring colour

profiles, highly detailed line drawings and scale plans. The modelling section reviews the strengths and weaknesses of available kits, lists commercial accessory sets for super detailing of ships and provides hints on modifying and improving the basic kit. This is followed by an extensive photographic gallery of selected high quality models in a variety of scales. The book concludes with a section on research references, including: books, large scale plans and relevant websites. In short, this book is essential reading and reference material for anyone contemplating, or in the process of, building a model of one of this class of ship.

Book Review by John Deamer

German Naval Guns 1939-1945

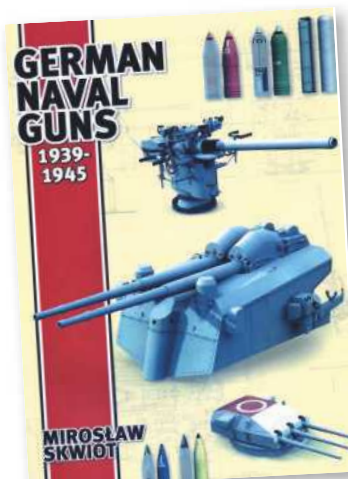
Written by Miroslaw Skwiot. Hardback, 400 pages, 305 x 222mm, over 1000 b&w photographs, line drawings and computer-generated drawings. ISBN: 978-1-84832-080-2, price (RRP) £40.00. Published by Seaforth Publishing, an Imprint of Pen & Sword Books Limited, 47 Church Street, Barnsley, South Yorkshire, S70 2AS. Tel: 01226 734222 website: www.seaforthpublishing.com. Available direct from the publisher or through the usual retail outlets.

This superbly illustrated

encyclopedia covers every German artillery piece mounted on ships of the Kriegsmarine during the Second World War, from the huge 15 inch (38cm) guns carried by the Bismarck and Tirpitz down to the 0.787 inch (20mm) light anti-aircraft guns and machine guns used by almost every German warship. All makes and variations of these weapons are described individually, including their mountings and the ammunition they fired, with extensive tabular data, but the feature that makes this book unique is the outstanding range, precision and detail of the illustrations.

Almost every known close-up

photograph of these weapons, many from the author's own collection, is included, usually



reproduced large enough to see every important feature, plus accurate three-view line drawings perfect for modelling purposes. However, the most spectacular element of the illustration is provided by computer-generated, full colour 3D representations of the guns and their mountings, seen from every conceivable angle.

The total number of illustrations is well over 1000 making this book by Miroslaw Skwiot without doubt the most comprehensive and complete reference work available to model makers, enthusiasts and naval historians, that I have ever seen.

Book Review by John Deamer

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*B Class boats in action
(B44 of Garry Dickson
and B11 of Andy Rennie).*

BMPRS News

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Craig Dickson
reports on the
AGM and reflects
upon the superb
2015 racing
season

Unlike this time in February 2015 when I prepared my report for the May issue of this magazine (which goes to print in late March), it has been unseasonably warm which has allowed plenty of time for the testing of our boats through the winter. It also makes for a much more enjoyable outing knowing that the water won't be frozen over and seeing daffodils and other spring-flowering bulbs making their early appearance. Having put this on paper just now, I just hope that I am not tempting fate, weather-wise!



RIGHT: Low water levels were prevalent at several venues last season, needing careful lake bed launches.

2015 BMPRS Annual General Meeting

Following our final race of the season in October 2015, our next get together was at the AGM in November 2015 held at the R.A.O.B. Club in Coventry. We enjoyed again the use of their private function room with refreshments, a licensed bar and a buffet lunch laid on for free to all attending. With about 25 members in attendance, the meeting got underway promptly at 10am working through the agenda as is usual during such meetings.

The atmosphere of the meeting was generally innocuous and light hearted, and yet still allowing for essential points to be covered in detail, debated and voted upon where necessary. In no particular order of importance, some key points from the meeting were as follows:

Election of Officers

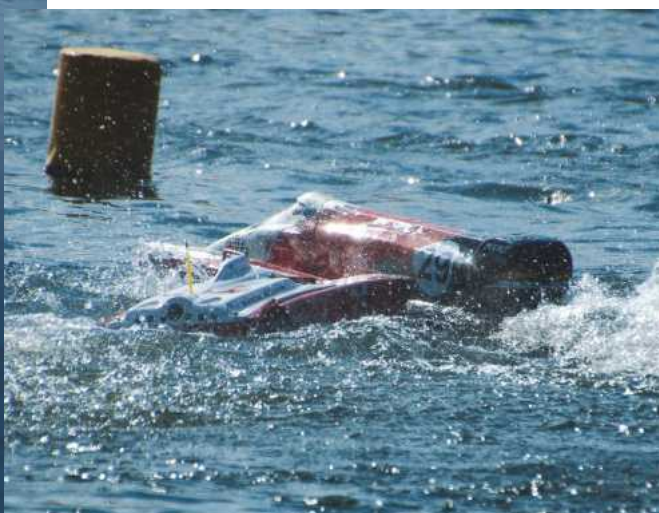
There were no proposals for changes of committee posts and with all existing officers being happy to stand again for their respective positions, our committee remains unchanged for 2016.

Membership and Race Entry Fees

Our Treasurer Andy Rennie reported that our finances were in a healthy position and consequently recommended that membership and race entry fees remain unchanged, and everyone was in agreement with this. Last year these fees were increased by a very small margin, but our



ABOVE: AA Class boats handling choppy conditions surprisingly well at Nottingham. (Photo courtesy of Judith Beesley)



LEFT: Two of the big cat's colliding, Kevin Alcock's Conquest running into the side of Graham Stanley's F1.

RIGHT: A fine collection of cut glass trophies ready to be presented at the BMPRS 2015 AGM.



Society is still arguably unmatched when it comes offering best all round value for money on the racing circuits.

Health and Safety

Mark Wild was pleased to report that there had been no serious incidents or accidents during the 2015 season, but emphasised the importance of all members continuing to take this seriously to maintain our excellent Health and Safety record. It is easy to think that it is a matter for 'someone else', when in fact all members should take responsibility, not just the Health and Safety Officer, but the Society's membership as a whole.

Proposals and Rule Changes

D Class and Catamaran T2 Class:

Andy Utley had proposed that the maximum engine capacity in these two classes should be increased from 50.8cc to 65cc to reflect the increasingly popular 30.5cc single cylinder engines. This change would allow members who wanted to run twin engined boats (30.5cc each engine) to do so. An interesting discussion followed. It was argued (in favour of this proposal) that the trend in the market will see a gradual phasing out of the sub-30cc spark ignition engines over the next few years, favouring the circa 30cc+ size. Concerns were raised as to whether our society insurance would allow for this change, and it was reported that this had already been investigated and deemed not to be an issue.

What about this giving an unfair advantage to the twin engine 30cc boats against those currently

running single engine 26cc spark ignition powered boats? Mark Wild, who had seconded Andy's proposal, made the point that all of the top placed boats in these classes have been single engine powered, with the smaller 26cc s.i. engines often giving their bigger counterparts a run for their money.

A show of hands was needed here which went to the vote. Although five members voted against and two abstained, the majority voted in favour and so this proposal was accepted with this rule to be updated accordingly.

Race Entry Fees for single boat entry

Craig Dickson (me) had proposed that if a particular class on the day had only one entry, the person entering on the day should have no race entry fee to pay in that particular class. There have been occasions within some of the less well supported classes, where only one member had entered and turned up to race on the day (for example in the C Class in 2015). That member rightly deserved first place and championship table points for winning, even if only having to do one qualifying lap for the win. However, I suggested that it was unfair in my opinion for that member to have to pay a full race entry fee for 60 seconds or less of running time once on the course, more or less as a formality for the win. The proposal was seconded by Mark Wild. Discussion followed and eventually by way of a majority vote, it was decided that a single boat entry scenario would attract just a nominal £1 entry fee.



ABOVE: This two inch hole in the side of the Crusader was above the waterline so the boat still able to race, but it needed repairing for the next season.



LEFT: Voted Member of The Year, Mike Barnes launching Luke Bramwell's winning T1 Class X-Cat at Leicester.

RIGHT: Graham Stanley's substantial F1 Cat kicking up a lot of spray from its powerful engine. (Photo courtesy of Judith Beesley)

BELOW: This photo of Ian Searle's D127 Phantom shows how much propwash is generated by these large D Class boats with surface drives. (Photo courtesy of Judith Beesley)



ABOVE: Luke Bramwell accepting his second place trophy. (Photo courtesy of Judith Beesley)



ABOVE: Kevin Alcock accepting his trophy from Nicola Rae having gained third place in the highly competitive D Class. (Photo courtesy of Judith Beesley)



ABOVE: Madelyn Reid (left) and Sue Butler accepting gift vouchers in recognition of their superb efforts with lap counting. (Photo courtesy of Judith Beesley)

2016 Race Calendar

A provisional list was proposed for ten events, thanks to the kind co-operation of our existing host clubs. Some of these dates may change nearer the time, subject to availability of the water for our use, so please check the BMPRS website for the latest information. General discussions took place regarding potential new venues as it is important for us to have sufficient availability to allow for a decent number of events to be run, as well as the enjoyment of experiencing the features unique to each venue. It was agreed that further enquires would be made to follow up the potential of several suggested new venues. Finding suitable inland waters for racing i.e. powered model boats can be more challenging than one might expect as to start with, proper permission has to be granted to use the lake and any other essential facilities, as without these there can be no racing. That permission will almost certainly be subject to consideration of the needs of existing users of the water or lake in question, wildlife included. Also essential facilities such as nearby toilets and provision of a suitable rescue boat are needed. Thankfully all of our existing venues are really well catered for in all of these aspects, so we are very fortunate to have the support from the people involved, local to these places.

Any Other Business (AOB)

With the formal business taking the meeting well past its halfway point, it was time for AOB and more general aspects to be considered. Interesting discussions were enjoyed regarding ways of further promoting our society, as a number of members (committee included) had begun attending some of the national model boat shows. It was agreed that we would explore the potential for more active

participation at these events for the 2016 season.

Madelyn Reid raised a very important point regarding lap scoring issues that both she and Sue Butler had encountered whilst manning the Race Control Desk. The issue was with certain boats having race (identification) numbers that were very difficult to see leading to potential lost laps for racers of such boats. Both Madelyn and Sue explained that it was a twofold combination of numbers being either too small or positioned in a place easily obscured by the propwash and chop created by the hull when at speed. For example, race numbers placed on the sides of the hull right near the transom, even when at the minimum 50mm height, can be easily obscured and invisible in choppy waters.

It was agreed that ideally, hull design permitting, race numbers should be mounted above the deck on a vertical plate to give maximum visibility. Also (common sense though it may be), the numbers should be in a colour sharply contrasting with the background and certainly of 50mm minimum numeral height, the bigger the better. A circular email will be sent to all members highlighting this issue for the benefit of everyone racing.

Time for lunch?

Having concluded the formal aspects of the meeting, everyone was delighted to get stuck in and enjoy a splendid buffet that had been prepared, and an orderly queue quickly formed around the serving table and there wasn't much food remaining afterwards.

Mark Wild had arranged a raffle to raise some money to sponsor our secretary Madelyn Reid, Vice-President Nicola and her partner Andy, all of whom were going to climb Sydney Harbour Bridge in January 2016 to raise money for The Brain



ABOVE: Is this AA Class boat reaching the edge of its limits? (Photo courtesy of Judith Beesley)



LEFT: The Broken Compass Award made by Ron Willets for Graham Stanley. (Photo courtesy of Garry Dickson)



RIGHT: Paul Edgecombe's splendidly presented D95 Patriot. (Photo courtesy of Judith Beesley)

Tumour Charity, in memory of their dad and BMPRS founder, Stewart Rae (AKA Scoop). Madelyn has a phobia of heights, so for her this prospect was no mean feat. With donations from those present and a separate donation from the BMPRS, £100 was raised.

Presentation of the Trophies

Perhaps the highlight of the AGM was the presentation of the trophies and a fine set of cut glass trophies they were. The top three places in each class gained a trophy, with further trophies being awarded for:

Best Junior – Luke Bramwell

Best Newcomer – Sally Dickson

Scoop Challenge Trophy – Garry Dickson

By a vote of those at the meeting, Mike Barnes gained the accolade of **Member of The Year** and gifts were presented to Sue and Madelyn for their help in lap scoring and to Judith Beesley for her superb photography work.

Member Ron Willets, unbeknown to us all, had handmade a special trophy aptly named **The Broken Compass Award** especially for Graham Stanley who had experienced some rather substantial collisions with his catamaran this season, more often than not with the marker buoys. Unfortunately he could not attend the meeting, so Mark Wild took this award on his behalf knowing that Graham would accept it in the spirit of fun intended. Those present all had a good laugh about this when reflecting upon some of the highlights of the 2015 season.

Comments on the final 2015 places

The Championship Final Results Table should hopefully be self-explanatory. However you may

wonder; 'How come a person with the highest total points ended up in a lower position than a person with fewer total points'? Although eleven events were run in 2015, only the best seven scores were used for the Qualifying Total. The reason for doing it this way, is so that people who cannot race at all events still have a good opportunity of achieving a top placed end result, but clearly those members who raced in less than seven events during the year will have had less chance of ending high in the results table. Some of those lower down the table (in each class) only raced at a few of the venues and so their total points were clearly limited.

Several of the classes were very tight in terms of the points gap between the top places, the AA Class in particular with only one point between Andy Rennie and myself, a category that went to the last race of the season! However, we should not forget that despite the competitive nature of this hobby, our aim as a Society is to ensure that we have plenty of fun as well.

Our Junior members again enjoyed another successful season of racing and gave the older ones a run for their money on several occasions. Luke Bramwell, who won this year's Best Junior Trophy, did really well winning the Catamaran T1 class and taking third place in the A Class, so well done Luke!

You might also wonder how the various boat classes are defined in terms of boat types, and engines allowed etc. and the table is intended to give some clarity on this. We try to cater for as broad a range of different types of boat as is possible, both in terms of hull design and choice of power plant. So whether you might want to run a small craft or a substantially sized mono-hull or catamaran, you should be able to find a class in which to race. Striking a balance though is always tricky, because it is impossible to cater for every combination of available boat and engine.



ABOVE: Nicola Rae presenting Kian Searle with his AA Class trophy. (Photo courtesy of Judith Beesley)



ABOVE: Mark Wild (left) accepting the Broken Compass Award, handmade by Ron Willets (right) for Graham Stanley who could not attend the meeting. (Photo courtesy of Judith Beesley)



LEFT: Mike Barnes's winning D Class boat. Mike has won this class three years in succession. (Photo courtesy of Judith Beesley)

BELOW: Craig Dickson's winning AA Class Magnet, the boat for the 2015 season featured in the 2015 MB Winter Special Edition. (Photo courtesy of Judith Beesley)



Winter activities and crash damage repair

The winter recess provides the ideal time for attending to boat repairs, building and general testing of setups in preparation for the new season. At the time of writing I have heard rumours of several new boats being planned for 2016, although I have yet to see any of the build efforts or their progress.

In terms of boat repairs, many of us will have at least some race damage to attend to. Sally Dickson's Crusader ended up with a hole in the starboard side of the hull following a collision and a slightly battered bow section following a mishap in its last race of 2015. Both of these bits of damage could be relatively easily repaired following a thorough cleaning and degreasing of the damaged section and the application of glass reinforced paste, filler and some traditional elbow grease. One of the tricky aspects when attempting repairs of this nature, is to try and ensure that the end result hides any evidence of the original damage. As well as aiming for a good smooth finish, colour matching or lack of it can give the game away. White coloured boats can be more forgiving making it is easier to colour match any repairs, which is one of the reasons why a white hull is a popular choice. Alternatively, the application of vinyl decals over the repaired section is a simple, but effective, alternative to make the original damage invisible.

Finishing on this note about repairs, it is time that I now get stuck in on that Crusader and patched up its damage. I look forward to writing for you again in the next issue.

Cheers for now, **Craig**

BMPRS 2016 Race Calendar

Date	Venue	Round
10th April 2016	Branston 1	1
24th April 2016	Nottingham 1	2
22nd May 2016	Branston 2	3
26th June 2016	Branston 3	4
10th July 2016	Nottingham 2	5
24th July 2016	Kingsbury 1	6
4th September 2016	Kingsbury 2	7
18th September 2016	Leicester 1	8
2nd October 2016	Nottingham 3	9
16th October 2016	Leicester 2	10

These are the provisional race dates. Please check the BMPRS website for the latest up to date confirmation.

BMPRS Race Classes

Hull Type	Engine Type	Max Engine Size cc
AA Class	Mono Hull	Nitro/Glow 3.5cc engine with gearbox Nitro/Glow 4.6cc engine without gearbox
A Class	Mono Hull	Nitro/Glow engine 3.51cc to 7.5cc
B Class	Mono Hull	Nitro/Glow engine 7.51cc to 11cc
C Class	Mono Hull	Nitro/Glow engine 11.01cc to 50cc
D Class	Mono Hull	Spark Ignition 0.1 to 65cc
Catamaran T1 Class	Cat's, Hydro's or Tunnel	Nitro/Glow engine, up to 11cc
Catamaran T2 Class	Cat's, Hydro's or Tunnel	Spark Ignition engines up to 65cc Nitro engines: 11.01cc to 15cc

BMPRS 2015 Championship Results

(Top 5 in each class only)

Position	Name	Races Entered	Total Points	Qualifying Points
AA Class (11 entrants in 2015)				
1	Craig Dickson	7	94	94
2	Andy Rennie	11	117	93
3	Kian Searle	9	85	74
4	Robin Butler	6	58	58
5	Graham Stanley	7	56	56
A Class (11 entrants in 2015)				
1	Mike Barnes	10	114	105
2	Sally Dickson	11	104	84
3	Luke Bramwell	10	80	76
4	Kian Searle	9	66	58
5	Robin Butler	5	47	47
B Class (6 entrants in 2015)				
1	Malcolm Pratt	8	111	99
2	Garry Dickson	10	114	91
3	Andy Rennie	8	72	72
4	Mark Beesley	9	76	68
5	Bernard Holder	3	40	40
C Class (4 entrants in 2015)				
1	Ian Searle	8	67	67
2	Harry Stuart	4	60	60
3	Bernard Holder	3	39	39
4	Mike Gelson	2	22	22
D Class (15 entrants in 2015)				
1	Mike Barnes	11	128	102
2	Garry Dickson	11	138	96
3	Kevin Alcock	9	71	65
4	Malcolm Pratt	11	74	64
5	Ian Searle	8	55	53
Catamaran T1 Class (5 entrants in 2015)				
1	Luke Bramwell	10	133	99
2	Andy Rennie	9	113	93
3	Boyd Elson	3	42	42
4	Bob Cheshire	2	18	18
5	Kurt Cave	1	15	15
Catamaran T2 Class (9 entrants in 2015)				
1	Garry Dickson	11	146	102
2	Malcolm Pratt	11	128	96
3	Graham Stanley	9	80	70
4	Kevin Alcock	8	70	65
5	Mark Beesley	10	75	62

Note: The qualifying points are derived from adding up the points gained from the best seven scores out of a maximum of eleven (eleven 2015 BMPRS events being run).

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