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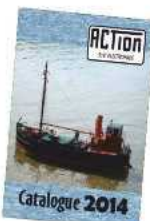
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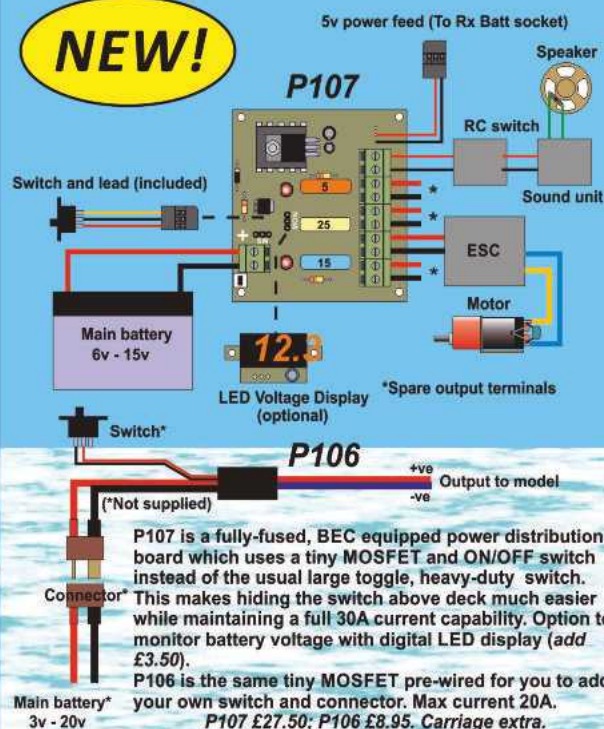
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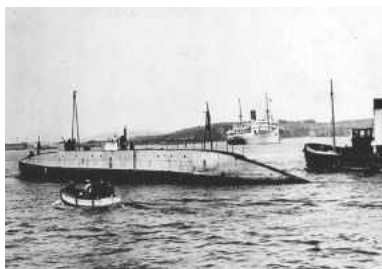
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MAGIC !**



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Bow piece

This 84 Page issue includes Part One (of three), for the new steam powered TSS Manxman Isle of Man steam turbine ferry model built by Phil Button. In addition there is the concluding part of the construction article for the Free Plan of Earnshaw that was in the recent February 2016 issue.

We have a Gallery with a difference in this issue as it features the outstanding craftsmanship of George Zio and his waterline model of HMAS Vendetta, an Australian destroyer on which he proudly served during the Vietnam War. This model is truly an exceptional example of the model maker's craft and also features on our cover.

Michael Watts completes his upgrading of the L'Intrépide r/c yacht, demonstrating techniques equally applicable to many of the other ready to run models of a similar type coming into the marketplace nowadays and Eris Kennedy converts the 1:200 scale ten inch long Heller kit of the Jean Bart tug to full radio control.

In Readers' Models, Bill Burtwell has built an alternative version of Glynn Guest's Vivace plan and Andy Cope describes his unique radio controlled and moveable lighthouse, all based on a £5 polystyrene cone from an out of town retail park hobby shop.

Flotsam & Jetsam looks at three submarines named Nautilus and in Boiler Room, Richard Simpson discusses the art of bending and making pipework. BMPRS News has some spectacular pictures of high speed i.c. craft and so hopefully there is something for everyone in this latest issue of your favourite model boating magazine.

Paul Freshney - Editor



Compass 360

Model Boats notice board for your news

Editorial Contact - Paul Freshney

You can reach the Editor, Paul Freshney, on 01277 849927. The editorial postal address is: Model Boats, PO Box 9890, Brentwood, CM14 9EF.

The email is editor@modelboats.co.uk

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Model Boats Magazine update

I thought it would be useful to include a short note of where we now are as we continue through our 66th year of publishing.

Contrary to the overall pattern of magazine publishing, we have not reduced our pagination and happily continue to publish six 76 page issues (each with a full-size complimentary Free Plan), six of 84 pages and one of 100 pages in each twelve month period.

For subscribers, this means they get 1060 high class pages per annum and six Free Plans which is rather more than any other UK based model boating publication. Okay, perhaps we don't cover everything we would should within this magazine, the available editorial space not allowing everything to be included, but that is the same for any publication and we have the scope to introduce additional stand-alone Special Editions from time to time, the most recent being prepared by Glynn Guest and Colin Bishop in 2014 and 2015 respectively.

So, at a time when alternative modern media was supposed to bring about the demise of printed publications, it is clear that many people still prefer to read books and magazines valuing their high grade professionally prepared and

authoritative content, but where there is a choice of publication then perhaps they are more choosy nowadays and this model boating magazine is doing rather well, and so is presumably not doing too much wrong.

Model Boats magazine is produced by an Editor with a part-time Magazine Designer and administrative support from the Head Office Publishing, Advertising, Finance and Subscription Departments, plus of course most important of all, our extensive range of highly skilled and competent freelance contributor model boating enthusiasts. In addition we have a website and forum, which is looked after on my behalf by Colin Bishop.

I thank all our readers for their continuing support, but also fear that I will not be around in 66 years time as I rapidly approach 64 years of age!

Paul Freshney - Editor

Huddersfield Society of Model Engineers

For 2016 this club has a number of planned events at their Highfields venue. All the Open Days will feature r/c boats, trucks and 4 x 4. All visitors can ride the miniature railway free of charge and all events are from 1100hrs to

1600hrs.

Sunday 6th March 2016

Sunday 10th April 2016

Sunday 15th May 2016

Sunday 26th June 2016

Sunday 24th July 2016

Sunday 21st August 2016

Sunday 25th Sep 2016

Sunday 16th Oct 2016

Huddersfield Society of Model Engineers can be found at Post Code: HD1 5NG which is Highfields Road. Turn left on to this road and continue around to the right for the car park with refreshments and toilets at the pondside. Scale model boats, Club 500 etc. are run, with small and large ponds available, each having 18 inches (45cm) of water depth. For more information please check the society's website:

www.Huddersfield-sme.com

Notification supplied by

Richard Lyons

Bournville MY&PBC

Their 2016 events are being held at their water facility by the Boat House, Bournville Lane, Bournville, Birmingham B30 1QS, and for more information please contact Robert Fowler by email: rob4boats@yahoo.co.uk

Planned 2016 events are:

15th May 2016: Submarine Day from 1000hrs to 1800hrs. All submariners are invited to show and sail their RC submarines.

5th June 2016: Tug Day from 1000hrs to 1800hrs. All tug owners are invited to show and sail their tugs. Tanker towing for teams of up to three, Tug of War and Bollard Pull. Entrants need to be registered by 1100hrs.

10th July 2016: Open Day

1000hrs to 1800hrs for scale and semi-scale r/c models.

18th Sept' 2016: Submarine Day from 1000hrs to 1800hrs. All submariners are invited to show and sail their r/c submarines.

Information supplied by

Robert Fowler

Moorhen Model Boat Club

This club will be hosting a Radio Controlled Model and Craft Show on **Saturday 16th April 2016** at the Roydon Village Hall, Roydon, Harlow, Essex, CM19 5HH between 10 am and 5 pm. Light refreshments will be available to purchase and entry fee will be £2.00. For more information please contact: Mr. Allan Storrar, tel: 07846 309269.

Three Sisters Model Boat Club

This club will be holding an Annual General Meeting at the Caledonian Hotel on Bolton Road, Ashton-in-Makerfield, Wigan WN4 8PF, on **Wednesday 16th March 2016** at 1930 hrs. The club sails Wednesday and Sunday mornings at the Three Sisters Boating Lake nearby. Lakeside parking and toilets are available free of charge with blue badge places also available. If you are interested in model boats and wish to join a friendly club that just wants to enjoy the downtime of building and sailing, please go along and meet the members at the Caledonian Hotel or at the pond, as you will be most welcome.

Notification supplied by

Mike Rudd

Chantry Model Boat Club

Their programme of events for 2016 include:

10th April	Submarine Open Invitation
15th May	AMBO Thames Barge Championship
29th May	Gray Navy
12th June	Tug Towing Open Day
3rd July	AMBO Thames Barge Championship
10th July	Steering and Navigation challenge
24th July	Club Open Day
14th August	Tug Towing Open Day
4th September	Grey Navy
25th September	Submarine Open Invitation

The location of all these events is at:

Bluewater Shopping Centre, Greenhithe, Dartford, Kent, DA9 9SF, and they all start at 0930hrs. Further information is available from the club's website: chantrymodelboatclub.co.uk or by email: info.chantrymbc@gmail.com

Information supplied by **Martin Oliver**

Kirklees Model Boat Club

On **Sunday 24th April 2016**, this club is holding its Steam and Mountfleet Models Open Day from 1000hrs to 1600hrs at Wilton Park, Bradford Road, Birstall, Batley, WF17 8JH. This is an annual event for Steam and Mountfleet models with trophies being awarded for the best steam and Mountfleet models. Steam testing can be carried out by prior arrangement, or an up to date boiler certificates required if testing not needed. Gas tanks may have to be tested prior to the event. Free car parking, refreshments all day. See diary pages on club website for past events. For further information please contact Stan Reffin at: kmbc2015pr@gmail.com or tel: 01132 675790.

Information supplied by
Stan Reffin

CADMA Northern Model Boat Show

An advance date for readers and that is that this popular event is being held once again on **Saturday 4th & Sunday 5th June 2016**, 1000hrs to 1700hrs (on Saturday) and 1000hrs to 1600hrs on the Sunday, at the Doncaster Deaf Trust, Leger Way, Doncaster, DN2 6AY. Adult entry is just £5 and accompanied children are £2. There is free parking on site and more information is to follow.

P.S. Medway Queen

This historic paddle steamer is currently being fitted-out whilst berthed at Gillingham Pier in Kent. The 2016 re-opening of the Medway Queen site is scheduled for **Good Friday, 25th March 2016**. The Ship and Visitor Centre will then be open all four days of the Easter Weekend from 1000hrs to 1600hrs, last admission at 1500hrs. Annual ticket and 'Save a Soldier' price will be £5 per person, children under 16, £3, and family (two adults and children) £13. After Easter, the opening hours will be 1000hrs to 1600hrs on only Saturdays and Sundays. Further up to date information from the website: www.medwayqueen.co.uk

Brass Monkey Marblehead Open

Race Report by **Hugh McAdoo**

At this event held at Guildford MYC's Abbey Meads lake near Chertsey on 13th December, the sailing was not very exciting, but despite the fickle light winds the racing was close and exciting at times, but not in the normal way. There was a good entry, with a competitor returning to Marblehead r/c yacht sailing after a 20 year absence and two new recruits who had never sailed these large models before. Entrants came from across Southern England, some travelling many miles to get here.

Adding to the publicity about old designs still being competitive, Roger Stollery lent a boat to a potential new Marblehead sailor who then sailed this 1992 ROAR EDGE, which has not been upgraded except for a beautiful suit of sails from Brad' Gibson and he was delighted to finish second after a count-back tie with Rob Vice and his 2012 designed CRAZY TUBE FREE. Fourteen Marblehead and three BOTTLE boat skippers made the first starts on a damp morning with a very light mainly easterly, but also variable breeze. After shifting a few marker buoys, PRO Hugh McAdoo got the first race away shortly after the intended 1000hrs start. The course was two laps with a windward spreader mark and gate at the leeward end and a final beat parallel to the south bank.

The racing

Local Skipper Martin Crysell got a good start in Race One and won from Rob Vice who was second, with Alex Cory from Gosport with a STARKERS ready to pounce should any mistakes be made by the two leaders. The boats were very spread out over the course and after a short break for tweaking of this and the boats, Race Two soon got under way with Roger's original ROAR EDGE winning from Alan



ABOVE: Rob Vice (left) receiving his prize. We wonder what it was!

Veal with an updated ROAR EDGE in second place. During this race there were many ladders (yachts moving up the running order), but also snakes (moving down the running order) throughout the fleet.

As the second race was a slow affair, Hugh shortened Race Three to one lap with Roger claiming a second win from Alan Viney's PRIME NUMBER and Rob third. The fourth race was won by Rob sailing his CRAZY TUBE FREE with Roger second and Alex in third place.

Lunch was then taken, much to the competitors' joy, but whether this was a relief or the expectation of the warmed mulled wine and mince pies was difficult to say. The lunch break thus became somewhat extended and Hugh also waited for a decent wind to come, as what little breeze there was shifted more than 90 degrees at times. However, with no obvious improvement, the fifth race was started with Peter Dunne the BOTTLE boat event winner, sailing C J Vice's CRAZY TUBE TOO, which Rob had lent him. Over the same one lap course, the race took more than 30 minutes to complete and at times the legs became more of a reach rather than a beat and run. Rob eventually won with Martin making a late bid for a win following on from his first race success. Third was Roger and fourth was Alex who had



ABOVE: A nice day, but a distinct lack of wind made racing a bit slow.

been chasing the leaders all day. After this endurance test of concentration Hugh offered the fleet an early finish to the day's racing, which under the circumstances was universally welcomed.

Prizes?

The entry fee per boat was not money on this occasion, but a donated prize hidden in a Christmas wrapping, so every competitor came away with an unseen prize, including Hugh with a special prize for running the event. A good day's racing, with convivial companionship, the only downside being the lack of a strong wind, but that is how it goes sometimes.

Results - First 10 only

1st	Rob Vice
2nd	Roger Stollery
3rd	Martin Crysell
4th	Alex Cory
5th	Alan Viney
6th	Alan Veal
7th	Les' Thorn
8th	John Bennett
9th	David Wilkinson
10th	Nick Royce

Model Boats
April 2016
issue is on
sale on the
11th March
2016

Aeronaut

Next month in **model Boats**

This 76 Page issue includes a Complimentary Free Plan for a modern Pilot Boat, drawn and described by James Pottinger. In addition there will be Part Two of the TSS Manxman mini-series by Phil Button and Andy Cope looks at the Aeronaut range of launches.

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. **Don't forget!** The April 2016 issue will be published on **11th March 2016** price £4.75 – 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 30** in this issue...



**FREE
PLAN**

Pilot Boat

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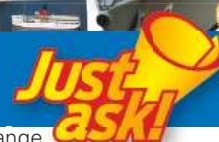
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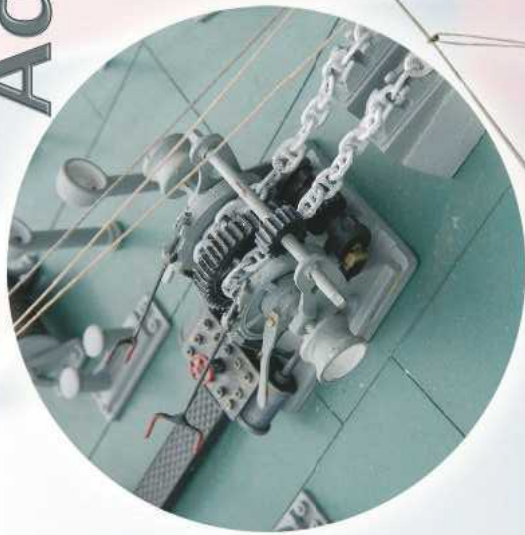


Contents may be subject to change.

Admiralty Coaster C.642

Scale 1:32

Length O.A. 49.5" (1257mm) Beam 9.5" (241mm)
Displacement 35lbs (16.5 kg)



Kit Price
£495
Inc. U.K. Carriage

Typical of many such craft built for servicing fleet vessels. One of a group built by Yarwoods of Northwich, C.642 was launched in 1946 and served until being placed for disposal in 1956. Purchased by F.T. Everard & Sons Ltd of Greenwich, Kent, C.642 was renamed the "Clarity" and used for a short period as a dry cargo carrier before being lengthened and widened in a conversion to a tanker. Steam propulsion was retained until she ended her days in a scrap yard in Antwerp in 1969.

Colour schemes are included for both vessels as shown on the leaflet, plus full size drawings, instruction booklet, numerous diagrams and colour photos in the instruction booklet.

The kit contains a GRP Hull, all woodwork, rod, wire, dowel etc, plus of course hundreds of our legendary white metal fittings including crew figures.



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TSS Manxman



Phil Button's steam driven model

It all started in 2007 when I spotted what was advertised on eBay as a 1220mm long (48 inches) part-completed GRP hull. The seller did not know what it was and neither did I from the picture, but I was intrigued by the appearance as it looked vaguely like it might be some sort of warship (and I haven't built a warship yet). I bid for the hull and won it for about £1 per inch, which did not seem too bad at all.

The hull duly arrived and could now be examined and I could chase around the Internet in an attempt to identify it, **Photo 1** giving a sense of what had been purchased. It was fairly apparent that the 'bulged sides' of the model were incorrect, so I searched for a straight-sided GRP hull from the various manufacturers who produce such hulls. Eventually, it turned out to be based on the Models by Design 1:86 scale hull for the Isle of Man Steam Packet Company ship, TSS Manxman. So now I knew roughly what I was going to build.

At one time there were six very similar ships that were operated by the company and all were built between 1948 and 1955, these being; King Orry, Tynwald, Mona's Isle, Mona's Queen, Snaefell and Manxman. All were single funnel turbine steamers, commonly known as either 'The Six Sisters' or 'Mini-Cunarders'. The Mini-Cunarder name came from their red and black funnels, even though the Steam Packet Company apparently had the colours first and Cunard later borrowed them as they looked so good.

Trawling the Internet revealed much information about the six ships, but eventually Manxman was chosen as she was still around at the time of this research. A vast range of photographs and some line drawings were found, courtesy of Broadband, and I duly planned to scratch build a superstructure on to the eBay hull.

Brief history of TSS Manxman

Prior to getting underway with wood, glue and sandpaper, TSS Manxman, **Photo 2**, was built at the Cammell Laird Shipyard in Birkenhead in 1955 to an original design that dated back to 1936. Each of the ships differed in detail from King Orry (the first one) through to Manxman (the last built) and she remained in passenger service until 1982, when she was steamed to Preston and converted into a nightclub. In 1990, she was then towed to Liverpool for further use as a nightclub as the Manxman Princess. Her life as a nightclub continued in 1994, this time after being towed to Hull, where her bow was cut away as she was too long for the dock.

In 1997, she was finally towed to Sunderland where she remained until scrapping commenced in 2011 after the many attempts to save and preserve her had come to nothing. Whilst in Sunderland, the ship sank twice – once as a result of being moored over an underwater obstruction (then the tide went out), and the second time after metal thieves had



PART 1

been aboard and removed the brass and gunmetal valves from the hull.

Power options?

Before starting work, a decision had to be made as to how the finished model was to be powered, the two options being electric or live steam. As readers of some of my earlier articles in Model Boats will be aware, I have a particularly soft spot for live steam models and the facilities for building them, so steam it had to be.

Having decided on steam power, full radio control of all functions was needed - speed control, ahead & astern control and steering. Steering is easy, it being just one radio channel with a servo and linkage as for any other type of model boat, but full steam engine control is a different matter as it is dependent on the type of engine selected and can require either one or two radio channels.

The simplest engine type was selected, it being planned to use a pair of oscillating steam engines with one coupled to each of the two propshafts. These engines can easily be reversed by changing the direction of steam flow to the engine as the inlet becomes the exhaust and vice-versa, and the engine then goes the other way. It was intended to use a single rotary valve to control the direction of steam flow to both engines, reversing them both at once. With careful attention to the design of the rotary valve, it could also be used for speed

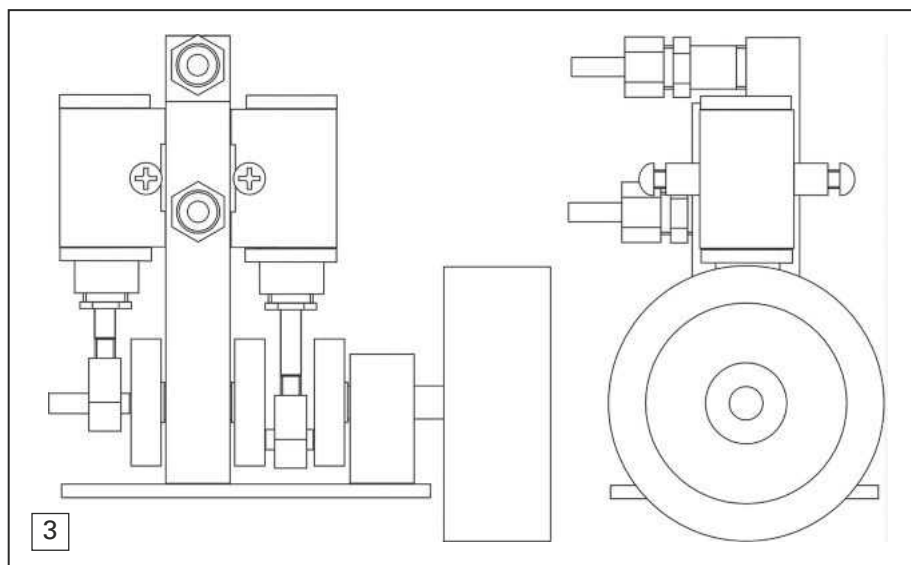


control in both directions, requiring the use of only a single radio channel, along similar lines to using an electronic speed controller in an electric motor propelled boat, but I decided to control the speed with a regulator valve in the main steam line from the boiler. So this resulted in a four channel radio set-up of rudder, regulator (speed control), ahead & astern control and a steam whistle. I always like to fit a radio-controlled steam whistle as it fascinates children, and many adults, when at the pondside.

As a minimum, each engine would need to have two cylinders with the two cranks set at 90 degrees to each other. Why? Well, for reliable speed control and reversing you need to be certain that if the engine stops, it is capable of restarting. If a single cylinder engine is used and it comes to a stop at top or bottom dead centre (as Murphy's Law will ensure that it does), the engine will not restart unless it is given a flick in the appropriate direction, which is not practicable when in mid-lake. A twin cylinder engine with cranks set at 90 degrees should always be capable of restarting, since if one piston is at top or bottom dead centre, the other is at mid-stroke and will impart the necessary 'flick' to get the engine going again.

A complete proprietary steam plant could have





The hull as bought and part fitted-out was nowhere near 100% right for Manxman, but that was not the fault of Models by Design

been installed as a great variety are now available to purchase, but I am too mean to pay for these and so I elected to design and build 100% from scratch.

A design was drawn for an in-line, twin cylinder, double acting, oscillating steam engine of 10mm bore and 11mm stroke using the domestic computer and the Serif DrawPlus drawing software. This is not really intended for CAD purposes, but I have learned how to use it with some adaptation and **Photo 3** shows a side and end elevation drawing of this engine. My eldest grandson had also used the same engine design in his model steam tug Tiddler, but that's another story and it was published in the January 2013 issue of Model Boats.

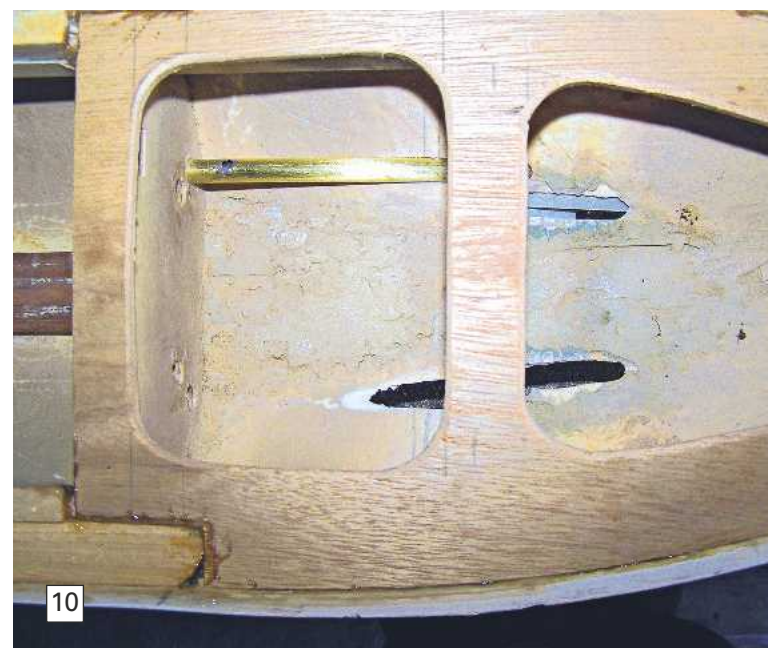
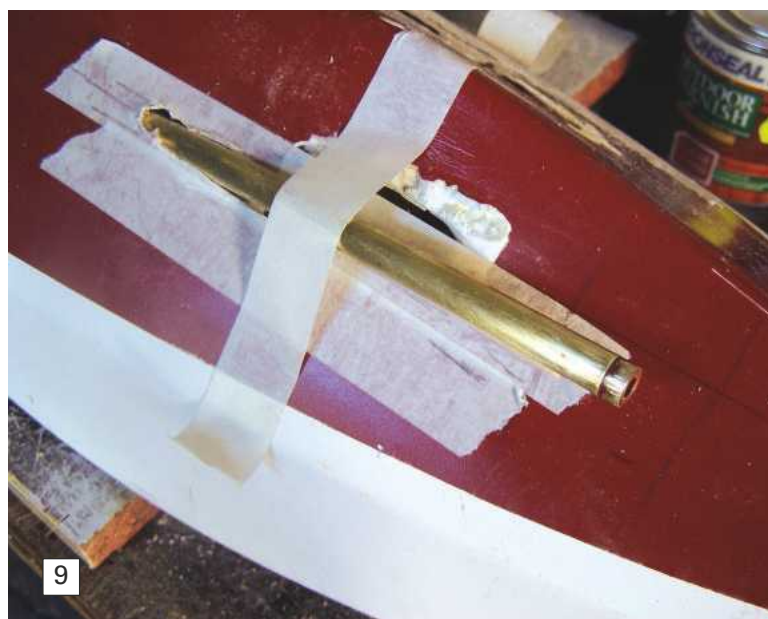
Hull modifications

The hull as bought and part fitted-out was nowhere near 100% right for Manxman, but that was not the fault of Models by Design, but the unknown builder.

Normally, the first task is to make a simple stand so that a model boat can be easily worked upon. However, the hull as purchased had also been fitted with two bilge keels in totally the wrong locations, but which would do duty as a stand in their own right so they were kept, saving the trouble of building a stand.

The next job was to mark the existing side decks to show the area over which they needed to be straight and then to cut away the unwanted pieces of deck with a high-speed rotary tool and cutting disc, hacksaw blades and files. The existing bulkheads were then trimmed to suit the new shape using chisels and craft knife. A cut-out was made at the top of the modified bulkheads to take a deck support stringer at a later stage and **Photo 4** shows the marked out starboard deck and the partly modified port deck and bulkheads.

Since a live steam plant was intended for the inside of the hull and knowing that maximum



possible access would be required, most of the existing deck and hatch coamings were cut away and new deck stringers were made and glued in place into the modified bulkheads. The sides of the GRP hull were then pulled in and glued to the deck stringers, all being held in place with clamps whilst the glue dried and **Photo 5** shows the modified hull after removal of the clamps.

The original wooden keel inside the bottom of the GRP hull was rather thick and I thought it might raise the steam plant and hence the centre of gravity of the model rather high, leading to problems with stability. It was therefore carefully shaved down in thickness using chisels and then sanded smooth. At the same time, most of the centre portions of the existing bulkheads were also cut away to improve access, **Photo 6**.

The bow was modified by adding wooden deck support strips at the sides and various strengthening pieces of plywood inside the

compartment. These pieces were held in place by car body filler, **Photo 7**.

Having attempted to 'soldier on' with the original after-deck and its hatch coaming (please see Photo 5 again), it was finally realised that it just would not do as it did not allow much access to the area that would become the radio control compartment, so it was removed and a new sub-deck of 4mm ply fixed in its place, **Photo 8**.

The propeller shafts as originally fitted were nowhere near parallel to each other, or even in the right positions, so they were both removed and new openings made in the hull and internal bulkheads for them. The shaft tubes were cleaned and re-fitted to the hull in the correct positions, **Photos 9 & 10** giving some indication as to how far out the shaft positions were on the part-completed hull as purchased.

Initially, the tubes were held in place with masking tape, **Photo 11**, before they were fixed in place using polyester fibreglass resin. A fairing





12



13



14



16



15

of carved wood was fixed between each propshaft tube and the bottom of the hull using epoxy glue, all smoothed to shape with car body filler, **Photo 12**. Propshaft lubrication tubes were fitted to each of them and brought up to just below deck level in the radio control compartment, **Photo 13**.

Having resolved the 'challenges' (modern speak for 'problems') with the hull, work could now continue with building the rest of the model. Since the forecastle deck had already been fitted, 1.5mm plywood side deck pieces could be cut and fitted between the hatch coamings and bulwarks, **Photo 14**.

The deck section above the stern compartments needed to be removable for access to the rudder linkage and the radio control gear, so this was made from 1.5mm plywood to be a close fit in the area above the 4mm sub-deck fitted earlier. A 1.5mm plywood deck section was also made to go on top of the forecastle deck, but this would not be fitted until after the hull was painted.

As is my usual practice, all visible areas of the deck were covered in teak veneer, glued in place with contact adhesive and lined in ballpoint pen to represent the deck planks, but I have to admit that subsequent to this I have learned the art of making decks with real planks. Anyway, once the

lined veneer has been varnished, it provides a good imitation of a planked deck and **Photo 15** shows the forecastle deck before adding the plank lines. The two holes in it take the brass tube hawse pipes for the anchor chains and the pencil marking shows the location of the anchor winch.

Upperworks construction

The next major stage in the project now was the fabrication of the main superstructure assembly. As I wanted it to be removable as a complete unit for access to the steam plant, it was all built on a 1.5mm plywood base. To ensure that the whole superstructure fitted the hull as accurately as possible, this plywood base was laid on the hull, held in place with masking tape and the superstructure built on it and **Photo 16** shows the baseplate in position on the hull around the main coaming. The moulded bulwarks seen in earlier pictures have also been removed as they were no longer needed since the final superstructure assembly would replace them.

I am not going into great detail about the superstructure construction as it follows the well trodden path of cutting out the parts and gluing



17



19



18



20



21

them together with epoxy glue, held with many clamps, to obtain the required shapes. It actually consists of a number of boxes, made from 1.5mm plywood with strengthening fillets of 6mm square timber at the corner joints, all glued to the base and carrying cambered beams on the top to take the higher deck levels. The inner sides and front of the forward section were cut away as much as possible for two reasons: First, to reduce top weight and second, to allow as much ventilation to the steam plant as possible.

Photo 17 shows the basic construction of the forward inner section; **Photo 18** the construction of the after deck saloon and **Photo 19** shows a trial assembly of the middle deck level, held on by temporary clamps.

Before proceeding with further construction, the teak veneer needed to be added to the deck sections that would not be accessible later, and to line and varnish them, **Photo 20**. Please note that, as I am rather lazy (and to save on veneer), areas that would not be easily visible on the finished model were left as bare plywood.

The aft middle deck was now cut to final shape, covered in teak veneer and the bulwarks around the deck openings fitted, **Photo 21**. The bulwarks

are made of two layers of 0.8mm plywood, fitted in place one at a time and glued together, since 1.5mm would not easily take up the sharp curve at each end.

At this stage, the decision was taken to paint the inner superstructure, since much of it would become inaccessible once the middle deck and sides were fitted. Obviously, some forward planning was required as any areas that would need gluing later had to be masked before painting, or else be cleaned later. I do not get on very well with either airbrushes or aerosols, so most of my models are brush painted and this generally gives a good enough finish for me. Success in painting is mostly down to good preparation as paint does not hide faults (actually showing them up the better) and the use of a good quality brush.

First, I usually give all wood surfaces a coat of sanding sealer, rub them down with fine wet and dry sandpaper and then apply a coat of primer paint. Once the primer is thoroughly dry, there is a check for surface faults and these are corrected by filling and yet more sanding, then applying a coat of undercoat. Once this is dry, it is sanded smooth before applying one or more coats of the final gloss paint. Many thin coats of paint are much better than



one thick coat as you are much less likely to get runs on it.

Most of the exterior paintwork on the superstructure of the full-size ship was white, but I elected to paint the inside and outside surfaces of the forward section and the interior of the aft cabin in black as I imagined this would look better when seen through the window openings, **Photos 22 & 23**.

Wrong! This proved to be a big mistake when a later trial assembly of the whole superstructure showed that the black surfaces as seen through the outer side panels looked absolutely awful and they all had to be repainted white, and of course you need a lot of white to cover black.

Anyway, whilst the paint dried on the superstructure, the interior of the hull and the exposed 'metal' decks were sanded and given a coat of primer. Any blemishes were filled and re-sanded before the inside of the hull was painted in grey gloss, **Photo 24**. There is no reason why it had to be grey, just that a part-empty tin of it already existed. The structures seen inside the hull in this

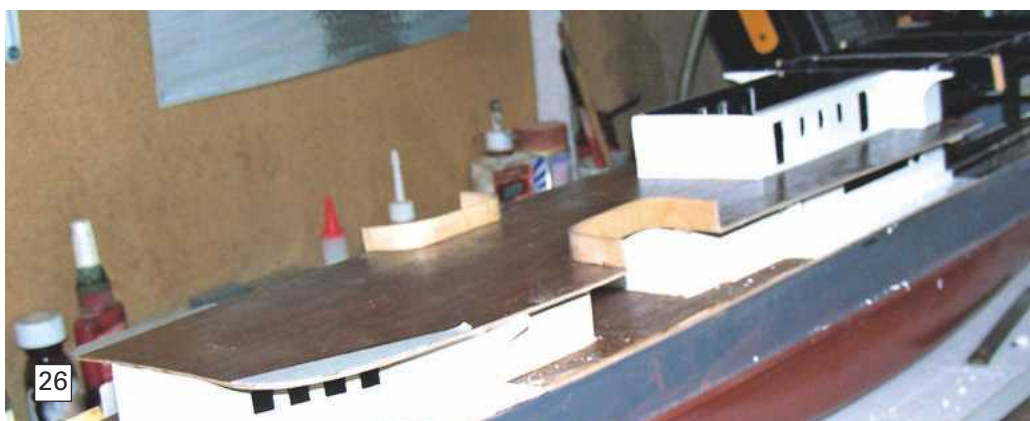
last photo are, from top to bottom:

- The rectangular boiler mounting.
- The circular oil interceptor mounting.
- The tapered mounting for the engine plate.

The cut-outs in the coaming were made to clear the clack (non-return) valve at the boiler filling point and the boiler pressure gauge. The decks and bulwarks were painted in white gloss. At a later stage, the side decks around the machinery space were also repainted black as this made the 'join' between the deck and superstructure less obvious.

A rudder was fabricated at this time from brass rod and sheet and fitted into a brass tube through the hull, the rudder tube being fixed in place in the hull using car body filler. Manxman has a skeg just forward of the rudder and this was cut from 3mm aluminium sheet, filed to shape and fixed to the hull with 10BA screws, **Photo 25**.

Once the painting of the basic interior structure of the superstructure assembly was complete and



the middle deck fitted, **Photo 26**, the two outer sides and the superstructure front were cut from 1.5mm plywood, painted white on the inside and fitted, **Photos 27 and 28**. Cutting the numerous windows in them with a Stanley knife took around four hours per side and is not a process that I would want to repeat in a hurry. The window openings are not glazed, so as to allow maximum ventilation for the steam plant.

At this point, the sides, front and top of the superstructure were painted white and a top deck cabin and wheelhouse made from 1.5mm plywood, the cabin being painted white and the wheelhouse veneered and lined to represent planking and a trial assembly is shown in **Photo 29**. On *Manxman*, the top deck cabin and wheelhouse are in an area of deck that is planked and has a planked wooden structure around the wheelhouse. This was made in the usual manner from 1.5mm plywood, veneered and lined-out in ballpoint pen before being given a coat of gloss varnish, and **Photo 30** shows this deck section during construction.



Funnel

This came next for attention. It is made from a piece of a steel disposable gas canister with the paint cleaned off to allow rings of copper wire from redundant electrical cable to be soldered in place. If you also want to use gas canisters in this way, do be careful to ensure that the can is actually empty before trying to cut off the top and bottom, as it can be a potential bomb if it is not. After cleaning and sanding, the funnel was painted red with a black top and interior before being glued into a hole in the upper deck at the correct angle, **Photo 31**. Stays for the funnel were made up of thin elastic cord called shirring elastic. In practice this has proved not to be very long-lasting and was replaced at a later date by brown linen thread of the type used for stitching saddles. The funnel remains open at top and bottom, as it is required to do duty as both a boiler uptake and for ventilation. Whistles and steam pipes on the funnel are made from assorted scraps of metal and fixed in place with epoxy glue, **Photos 32 and 33**.

Davits, lifeboats and handrails

The davits were fabricated from assorted bits and pieces of plastic and metal from the scrap box before being painted white and fixed in place, **Photo 34**. I must admit to cheating a little as I bought some white plastic lifeboats from eBay and gave them the appearance of wood by brushing on a light coat of wood stain as in **Photo 35**.

The handrails were made using some proprietary brass stanchions of the right height that were in stock for a long while and yes, I know they should have more rails fitted, but this is a semi-scale model. The single rail was made using steel wire armouring stripped from old electrical cable. Painted white and with a stained and varnished capping fitted, they look fine to me. The handrails around the top of the wheelhouse are similar, but without the wood capping.



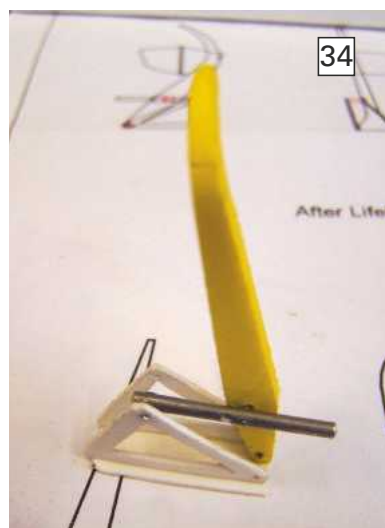
Other fittings

Other parts of the superstructure, comprising the radar shack abaft the wheelhouse, the radio direction finding loop above the wheelhouse, the stairs from the middle to lower deck, the bridge access stairs and the after cabin on the middle deck were all made from yet more bits and bobs from the scrap box, thus substantially completing the superstructure, but I know the many cowl ventilators that form such a feature of steam ships have not yet been fitted, but they will, one day - I promise! Having mostly completed the superstructure and its fittings, it was time to finish off the hull.

More painting

After the top of the model had been masked to prevent paint going where it was not wanted, the hull exterior came in for attention, being rubbed down with wet and dry sandpaper and sprayed with Halfords acrylic primer filler. The yellow colour is awful, but it does do what it says on the tin, **Photo 36**, although using aerosols is not my favourite pastime. After yet more filling and rubbing down, the lower part of the hull was sprayed with Halfords red primer.

Once dry, the position of the waterline was marked in pencil, the lower part of the hull masked-off and the top section brush painted gloss black. Once the black paint was thoroughly dry, the





masking tape was removed and a white line applied at the waterline using 3mm wide self adhesive trim-line from a car accessory shop and after further masking, a coat of gloss white paint was applied to the bulwarks. Handrails similar to those made for the superstructure were then fitted between the front of the superstructure and the bows of the ship.

As a final task to finish the exterior, the rudder was polished and refitted, together with two 35mm diameter three bladed Caldercraft brass propellers, one right hand and one left hand, **Photo 37**.

Final hull work

The forward deck was cut out around the area where the anchor winch was to be fitted and a winch made from an assortment of material from the scrap box once again, **Photo 38**. The holes for the anchor chains were tidied using black eyelets of the right size and the deck veneer lined for the planking. The bollards are made from iron rivets glued into a 1.5mm ply base, all of them and the anchor winch then being painted black before being fitted to the deck. The white painted breakwater is from scraps of 1.5mm plywood and glued to the deck, **Photo 39**. The completed forward deck was finally glued in place on to the forecastle sub-deck.

The masts are from dowel, sanded, painted and fitted into ready-drilled holes in the deck. Rigging is made from the same shirring elastic as for the funnel stays, stained brown using wood stain. In order that the complete superstructure can be removed for access to the steam machinery, the rigging above the upper decks and funnel is connected to the foremast using tiny hooks and eyes so that it can all be easily disconnected.

Conclusion

The model was now substantially completed apart from the machinery and radio control installation and **Photo 40** shows it on the bench in the workshop. In Part Two in the next April 2016 issue of MB, we will cover the work involved in building and installing the steam plant and radio control equipment, together with the initial sea trials.

Enjoy your hobby - Phil Button



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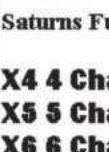
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The Spanish Almirante Juan de Borbón at the Liner Terminal in Liverpool, July 2015.

Range Finder



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 two part review of the Spanish guided missile frigate Almirante Juan de Borbón and continue with the Deans Marine HMS Skirmisher project, plus have the usual Mystery Picture.

Almirante Juan de Borbón - Part Two

As a reminder, in the February issue we closed with an in-depth look at the foremast and moving slightly aft of this is the forward exhaust stack and here we have a reasonably clear view of the detail within the

top of that casing, **Photo 1**. Moving now to a more general view, in **Photo 2** the flag locker is sited centre adjacent to a dark grey liferaft canister in the lower part of the picture. Moving slightly forward is a group of decoy launchers and in the centre of this last picture is one of a number of the hard points for securing the recovery wire for Replenishment at Sea (RAS) activity. In **Photo 3** we have a close-up of this device and it's also worth noting the type of stanchions used.

Harpoon missile launchers

Moving down to 01 Deck and we have the two twin launcher tubes for the Harpoon Block 1D surface to surface missile, a different design to those on RN Type 23 frigates. With these on Almirante Juan de Borbón, **Photo 4**, the missile's exhaust gases are discharged directly over the deck edge and not into a box arrangement as on the RN frigates. Please also note how the stanchions on 02 Deck between the port and starboard flag lockers are mounted on brackets out from the edge of the deck which is unusual, and on the stairway up to 02 Deck the handrails are of a box section and not round as is more common.

Rigid Inflatable Boats (RIB's)

Slightly further aft on 01 Deck are two 7m Zodiac Hurricane RIB's designed to carry 18 persons, sited port and starboard. The Hurricane is similar to the Halmatic 22 used by the Royal Navy, but are each deployed by a swinging arm crane. Directly above

Photo 1. Looking towards the top of the forward exhaust stack.





Photo 2. The forward exhaust casing is attached to the forward superstructure block housing the Aegis system.

Photo 3. This is part of the Replenishment At Sea (RAS) apparatus in the centre of the picture.

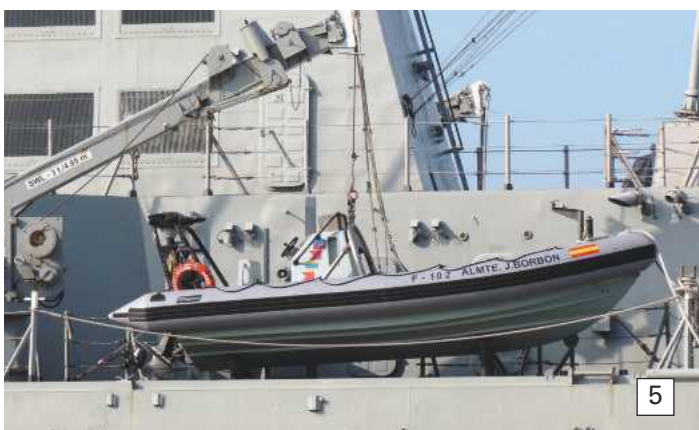
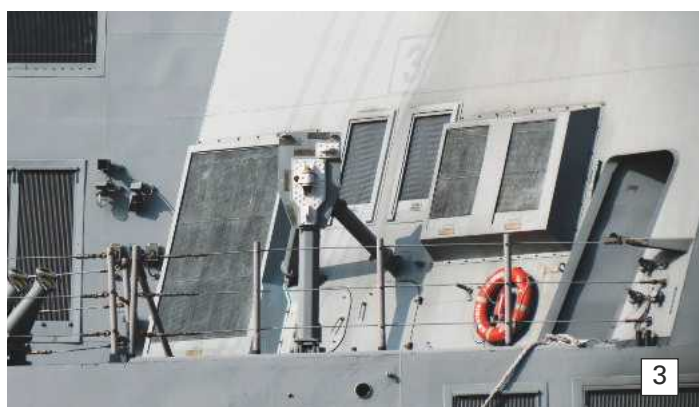
Photo 4. Just aft of the forward exhaust stack on 01 Deck are four Harpoon SSM launcher tubes.

Photo 5. One of the two 7 metre Zodiac Hurricane RIB's.

Photo 6. The Zodiac Hurricane RIB is similar to the UK's Halmatic 22, but has a conventional outboard drive unit.

Photo 7. A general view of amidships, Port side.

Photo 8. An unusual picture!

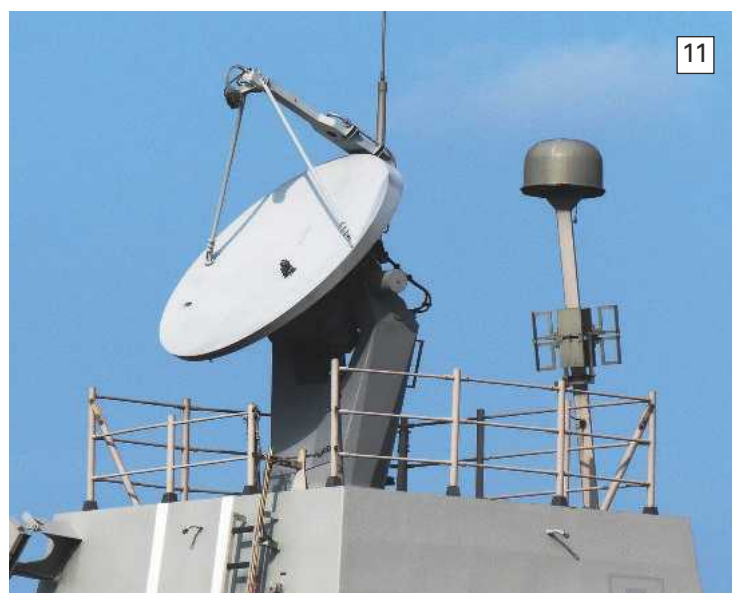


the RIB is a multiple panel watertight door typical of that fitted to the F-100 class, **Photos 5 and 6.**

Looking now more generally at the port side of Almirante Juan de Borbón, **Photo 7** provides a better overall view of the central part of this warship. The structure between the RIB's is another exhaust casing and thanks to the camera of Bill MacCowan we also have a rare view looking down into it, **Photo 8.**



9



11

Photo 9. To the rear of the forward exhaust casing is a vertical gantry and deck mounted pipework for refuelling at sea.

Photo 10. Port side, looking at the second exhaust stack, hangar to the right of the picture.

Photo 11. Mounted on housing on top of the hangar is the SPG 62 target illuminator radar.

Photo 12. Looking forward at the hangar, and SPG 62 radar and the aft facing panels of the Aegis system are clearly visible.

Replenishment at Sea equipment

Aft of this exhaust casing, on the starboard side are more hard points for replenishment at sea activity, **Photo 9**, and to the left is one of the four 12.7mm Browning machine guns. Remaining in the same area, but looking from the port side, in **Photo 10** we can see more detail.

Note the extension to the top and rear of the aft exhaust stack and how the vertical ladder passes through its overhang and to reduce infra red detection of hot exhaust gases, the exhaust ducts are cooled by injecting a fine spray of water.

The deck housing behind the funnel on top of the hangar, supports the aft SPG 62 tracking and target designation radar, **Photo 11**.

Flight deck and hangar

From the flight deck aft is a good view of the hangar, Flyco position, SPG 62 radar and the two aft facing Aegis panels, **Photo 12**. The flying operations visual lighting arrangement on the F-100 class of frigate is slightly different to that on the RN Type 23's. There are three control lights above the Flyco position and a horizontal landing bar above



10



12

the hangar, and **Photo 13** gives a deck view of the front of it. It's worth noting how the crash barriers are fixed to the deck and the curved shape of the barrier frame. All these barriers can be dropped to the horizontal when required by flying operations.

The stern

Our final pictures for this Photo Tour concentrate on the stern of the frigate. Unlike most similar warships now in service, these vessels have adopted a deck configuration aft more reminiscent of the (no longer in RN service) British Type 21's, so the flight deck terminates just short of the transom and then there is a small working deck as in **Photo 14**. The fittings arrangement on this deck can be seen in this overhead picture, **Photo 15**, and our final picture for this Photo Tour shows the transom where there is no large opening for a variable depth sonar array, but Almirante Juan de Borbón can deploy an active or passive towed linear hydrophone array, **Photo 16**.

I hope these pictures in both this and last month's Model Boats will be of use to the prospective model warship builder, this type of vessel being in service with a number of navies including that of Australia.



Photo 13. The flight deck and hangar front.

Photo 14. The flight deck edge netting barrier slopes inwards and all of them can easily be moved to the horizontal.

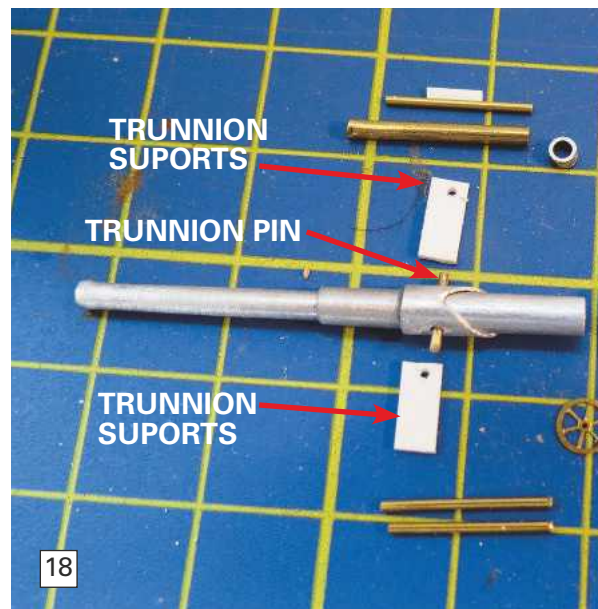
Photo 15. The flight deck finishes short of the transom and this overhead picture shows the fittings arrangement on the small stern sub-deck.

Photo 16. The transom has no large opening for a towed variable depth sonar system. The reason for the three horizontal rows of eye plates is not obvious.





17



18



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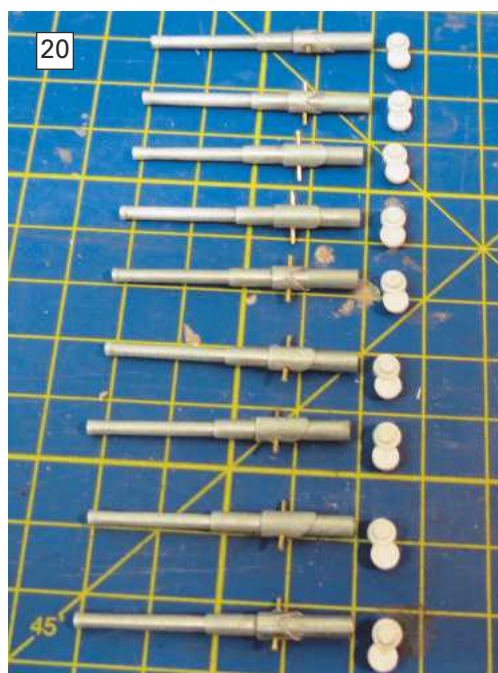
Photo 17. A picture of the 12pdr gun that saw service on warships, and land, in the early part of the 20th Century.

Photo 18. The trunnion side supports and its base piece are ready to be joined, together with the trunnion pin.

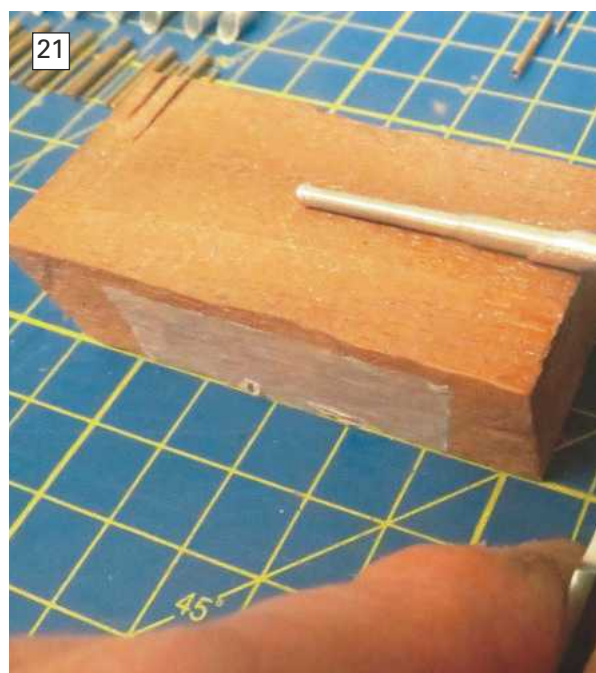
Photo 19. Preparing the breech piece by adding the carrier to it.

Photo 20. All the 12pdrs with their breech assemblies are ready for the next stage of construction.

Photo 21. Fitting the breech ring and breech on to the end of the barrel's jacket.



20



21

HMS Skirmisher - Part Seventeen

Photo 17 is a rare picture highlighting what we are finishing this month, namely the 12pdr Mk. 1 naval guns. Last month the work on the 12pdr guns concluded with the preparation of the breech ring and breech and we will now complete these weapons starting by making the trunnion supports for the trunnion pins.

Trunnion supports

These are made from 1mm Evergreen styrene sheet and to ensure consistency a jig was used to form each set of supports and the location of holes for their trunnion pins. This jig enabled a 0.5mm hole to be drilled accurately and each support cut to the same length, as there are eighteen left and right supports for the nine base pieces. The purpose of this part is to support the gun via the trunnion pin. Also, by using a jig, each base piece could be cut to the same width as the diameter of the cradle on the gun. A general picture is shown in **Photo 18** of the parts we are talking about.

Forming the breech

The part representing the breech, or to be precise the carrier, which is attached to the breech screw, is simply punched out of styrene as a 3mm disc, **Photo 19**. Although a simple component it looks effective on the completed gun. Creating the breech is very straightforward and within a short time all nine were prepared and ready to be fixed to the barrels as in **Photo 20**.

For fixing the breech assembly to the barrel, a jig could have been made, but all that was required was to pencil a mark on the top of the cradle and the collar to create an alignment point. It is essential to keep the lower part of the breech in-line with the length of the barrel, so the recoil cylinder can fit between the trunnion supports and connect to the lower part of the breech, **Photo 21**.

Fixing the trunnion support

With the trunnion supports prepared all that was then required was to remove the trunnion pin from the gun cradle and place the support so the holes in the cradle aligned with the holes in the support



BASE
PIECE



22

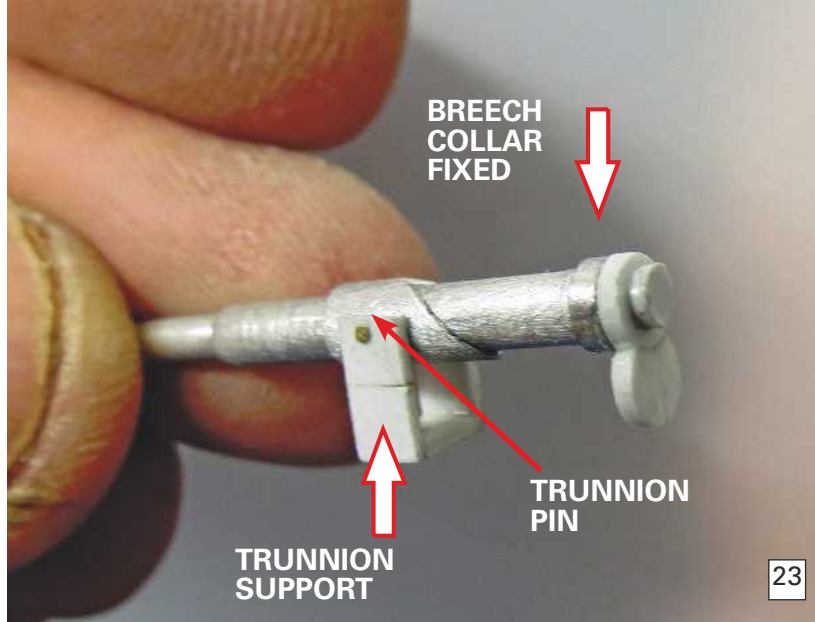


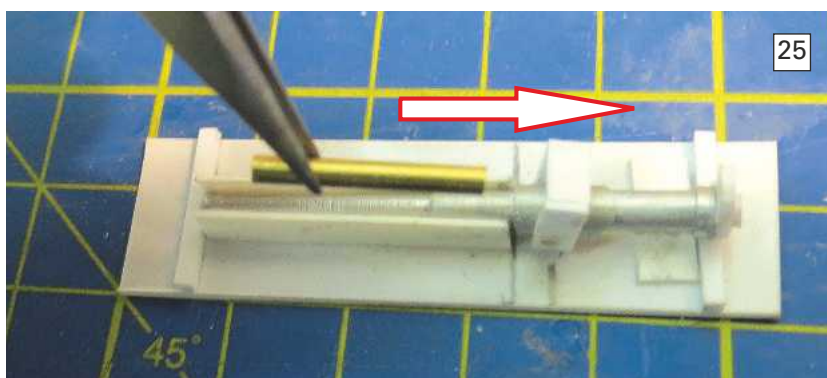
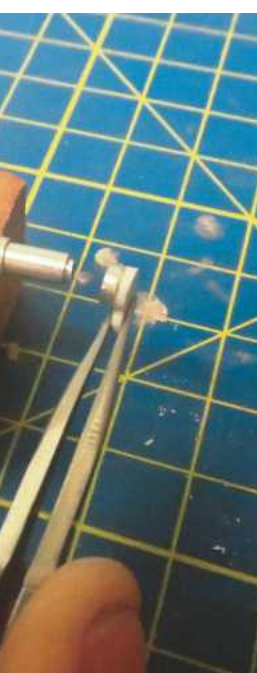
Photo 22. With the trunnion support in place any excess on the trunnion pin is removed, its ends being trimmed and then made flush to the surface with a fine file.

Photo 23. Each part thus far now fitted.

Photo 24. Preparing for the next stage of assembly - fitting the recoil cylinder.

Photo 25. This multi-purpose jig enables the recoil cylinder to be fitted in the same position on each gun barrel assembly.

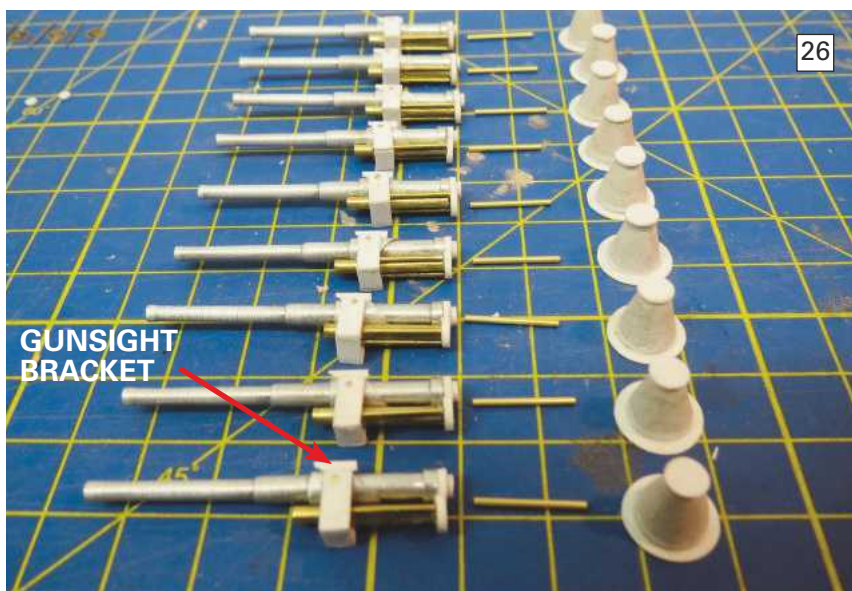
Photo 26. Gun sight brackets have been added to the top of each cradle.



and re-insert the pin. As the pin is longer than the width of the cradle any excess was easily removed, **Photo 22**. The result thus far can be seen in **Photo 23**, minute droplets of superglue judiciously applied keeping it all in place, but still allowing the barrel to elevate.

Recoil cylinder

The next job was to fix these into place and as mentioned earlier, they each fit beneath the barrel and between its trunnion support sides. Each gun is now taking shape with the basic parts laid out as in **Photo 24**. Each end of the recoil cylinder was blanked-off using a 2.5mm punched styrene disc. As always, using a jig to perform a number of identical tasks makes assembly so much easier and ensures uniformity throughout, when generating multiple copies, **Photo 25**, and in **Photo 26**, we have the barrels laid out and showing where the gun sight bracket of strip styrene is positioned..



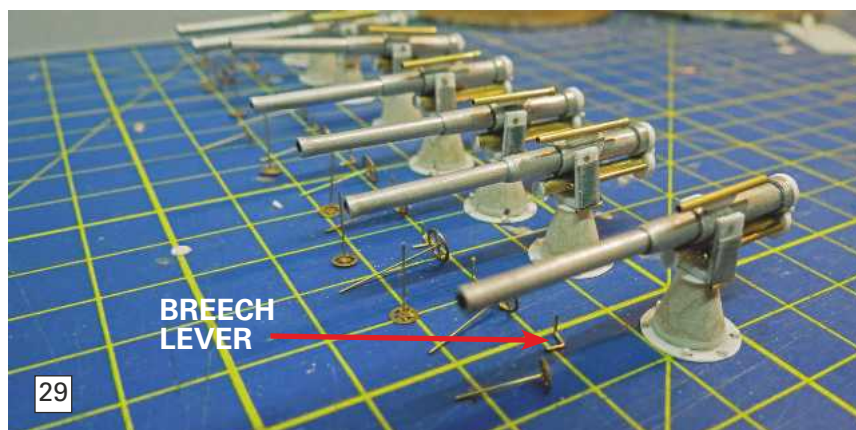
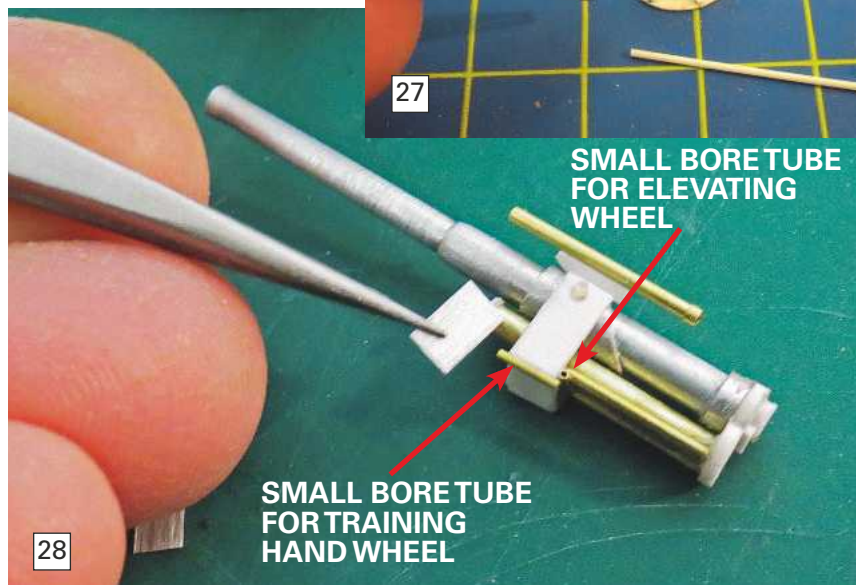


Photo 27. Small slices of 1.2mm diameter styrene rod have been used to simulate the bolts surrounding the base of the gun mounting.

Photo 28. The small bore tube for the elevating and training handwheels.

Photo 29. The elevating and training handwheels with the breech lever are all ready to be fitted.

Photo 30. The training hand wheel is fitted first.

Photo 31. The elevating hand wheel shaft is carefully inserted into its small bore tube.

Deck mounting baseplate

Generally, the mountings for these 12pdr guns were bolted to a deck and as such, the bolt heads would be visible. To simulate the bolts, I used very, very(!) short lengths of 1.2mm dia. Evergreen No. 221 styrene rod, carefully placed around the edge of the deck plate as in **Photo 27**.

Refining the detail

With the idea of improving the surface of the trunnion supports, a strip of Litho plate was added to each side of them. Also a length of 0.45mm o.d. brass tube was added to the lower part of each trunnion support into which would later fit the training hand wheel. A further length of 0.45mm o.d. tube was fixed across the width of the support into which will be inserted the elevating hand wheel, **Photo 28**. Into each elevating and training hand wheel was inserted a length of 0.31mm o.d. brass wire and also breech levers were bent to shape and these can be seen laid out ready to be fitted to each gun in **Photo 29**. The single sight, which is from Albion Alloy 0.8mm o.d. brass tube, is cut to 7mm length and added to the trainer's side of the cradle.

With the hand wheels prepared they can then be fitted into the tubes on the trunnion support



commencing with the training wheels, **Photo 30**, followed by the elevating wheels. The breech lever was then added, located just beneath the breech carrier at the back end of the barrel, **Photo 31**.

All that remained now was to marry each gun to its mounting, **Photo 32**. They can all elevate (a bit) on their trunnion supports, so when finally positioned on HMS Skirmisher there is no real problem installing them as desired. Don't glue things permanently until you are absolutely sure, since fixing a gun barrel perfectly horizontal can create the optical illusion of it pointing down slightly. For the same reason, perfectly upright masts can appear to be sloping forward, so even just half a degree of angle can make all the difference from an appearance point of view.

Gun completion

Making each and every gun may seem unnecessary when there are alternate methods now available such as resin casting or 3D printing, the latter being the latest technology on the block.

Being consistent when scratch building requires some thought, but it is easier than you think and for me, time is not an issue it being the first gun and mounting that consumed this, plus the jigs I have talked about in these last few articles. Making the first gun complete took as long as making the remaining nine, but it's not about time and more about the enjoyment and satisfaction of doing a job, any job, from scratch, **Photo 33**.

Progress to date

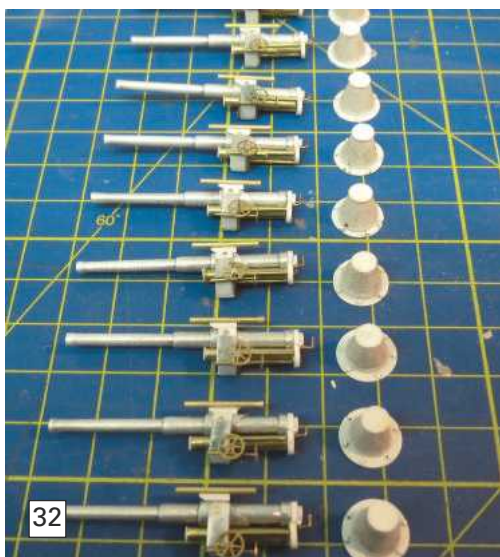
Our final picture for this month, **Photo 34**, shows this Dean Marine 1:96 scale HMS Skirmisher prior to airbrushing and about a third or so of the way through the whole project and with the 3pdr and



Photo 32. With their assembly completed, all that remains is for each gun to be fitted to its mounting.

Photo 33. And here we are! A fully assembled 12pdr gun ready for painting.

Photo 34. All of the guns are temporarily located on HMS Skirmisher.



12pdr guns temporarily positioned. The unpainted model can be totally stripped for airbrushing, but before that in the April issue, we will focus on some more of the remaining small fittings such as the capstan(s) and cable holders, and develop a simple method of replicating the awning stanchions.

References and acknowledgements

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Combat Fleets of the World 15th Edition pages 714/5 Radars and sensors - World Naval Weapons Systems.

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The RN Gunnery Pocket Book Illustration, Plate 4.

HMS Mauritius ref: Cruisers of the T Second World War by M.J. Whitley pages 120 to 126
Warships of WW2 by H.T. Lenton & J.J. Colledge, pages 48 and 49.

Z31 ref: German Warships Volume One by Eric Groner, page 208.

Fine brass tube and wire from **Albion Alloys**.
My thanks to **Bill MacCowan** for his overhead pictures of an F100 class frigate and **Bill Clarke** for the Mystery Picture.



Answer to the February 2016 Mystery Picture

The clue was: Survived the fate of the Roma.

Well I guess many of those with keen recognition skills will have identified the picture as a light cruiser of the Colony class or to be more precise, the Fiji class. The one single feature that identifies the Colony's from previous classes is their flat transom and the Mystery Pictures was indeed HMS Mauritius with its distinctive camouflage. At 10450 tons, these six inch gunned light cruisers were a direct result of the Second London Naval Treaty.

The Fiji class were 555ft 6ins overall by 62ft beam, a smaller hull than the Southampton (and Edinburgh) classes, but the main armament of twelve 6 inch guns was the same, but the secondary battery differed, having eight 4 inch, eight 2pdrs and eight 0.5in machine guns, as of December 1940. Four shafts with geared turbines developing 80000shp in total meant they were capable of 32.25 knots. A fixed catapult was fitted amidships with a hangar either side of the fore funnel and provision for two Walrus amphibious aircraft.

HMS Mauritius after commissioning in 1940 was in the thick of the action escorting convoys for the best part of 1941 in the Indian Ocean. It was not until May

1943 when HMS Mauritius was transferred to the Mediterranean in preparation for the Sicily landings (Operation Husky) and in June 1943 she received additional 20mm guns and two quad 0.5inch machine guns.

On the 10th September 1943 whilst providing gunfire support for Operation Avalanche, the Salerno landings, she was the target for one of the Nazi radio controlled glider bombs (Fritz X) which the previous day had sunk the Italian Battleship Roma. Fortunately though for HMS Mauritius, the Fritz X missed! The warship then transferred from the Mediterranean in April 1944 to UK waters in preparation for D-Day.

Apart from her primary task of gunfire support, HMS Mauritius engaged and sunk a series of small German warships in August 1944, followed by a brief refit at Devonport and a short spell in the North Sea when she engaged Z31. As WW2 was drawing to a close, she transferred to the 10th Cruiser Squadron for operations off Norway. Following a lengthy refit from February to August 1945 at the Cammell Laird Shipyard on the River Mersey, HMS Mauritius returned to service, being active as a cruiser squadron flagship. In 1952 it was decided to place her in reserve and by 1959 she was on the disposal list, eventually being broken up by T.W. Ward in 1965.

This month's Mystery

The clue is: BB1



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Earnshaw **PART 2**

Earnshaw

This r/c model is loosely based on the New Zealand vessel Earnslaw. The model is to an approximate scale of 1:72 giving it a length of 28 inches (71cm) and an operating weight of 5.5 pounds (2.5kg). The prototype is powered by two brushed RE 385 type motors, but could be modified to single screw propulsion. Construction is mainly of balsawood sheet with card used in the superstructure and a canvas awning covers the aft part of the upper deck.

Glynn Guest completes the freelance coastal steamer, included as a Free Plan in February 2016 MB

At the end of Part One, the basic model was complete and here in Part Two we are finishing it ready for final ballasting, testing and on the water trials.

Soldering woes

Wire had to be run around the corners of the frames to support the awning, save for the first two frames where it was inset to provide clearance for the lifeboats. It could have been epoxied in place, but soldering was the preferred method as it is usually quick and tough enough to accommodate any little accidents.

The joints were cleaned, treated with a dab of flux only to discover that the 25 Watt soldering iron was not man-enough for the job, so out came the 40 Watt iron. This too failed so out came the 100 Watt iron which is usually reserved for the heavy soldering jobs and this just about struggled to produce some poor joints and then would often soften the epoxy joints between the wire and deck.

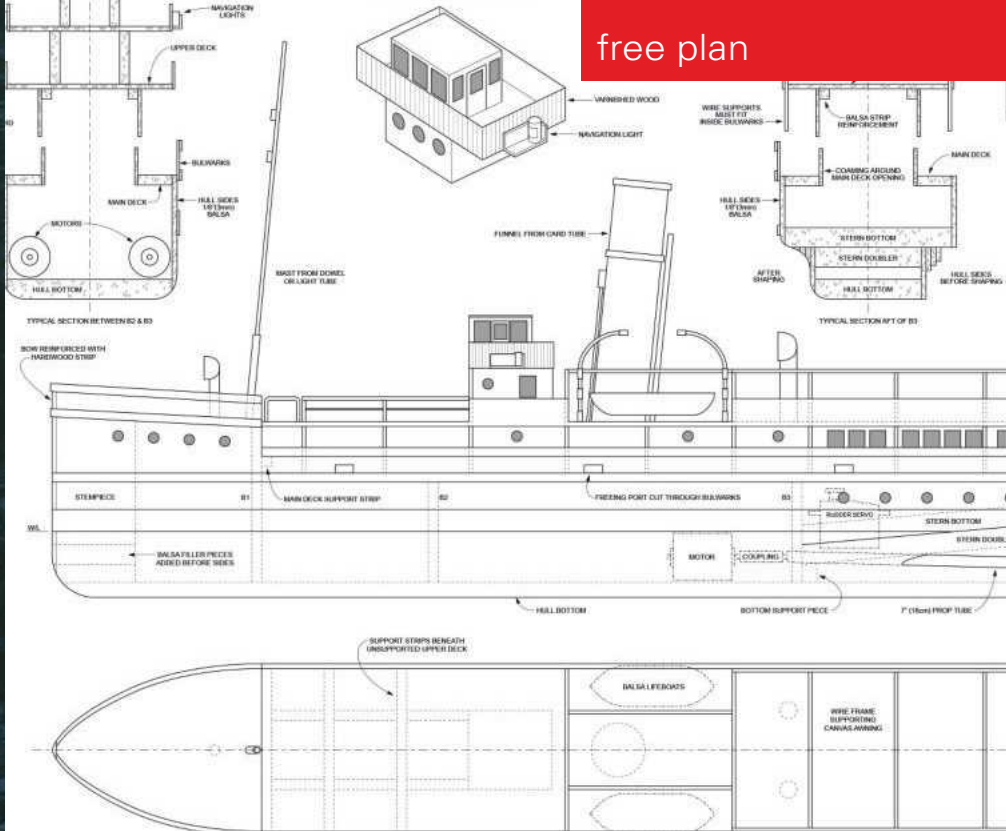
The problem appeared to be the use of a slightly thicker than usual copper wire for the frames, as it would conduct the heat away too rapidly before the solder could melt and fuse into the copper. Luckily a small gas powered pencil torch had been bought

some years ago and by using the flame directly on the copper, a neat joint could be made. However, welding a naked flame near wood sealed with inflammable cellulose dope is never a good idea, so a thick heat shield had to be used, **Photo 26**.

The curved stern section of the awning support wire was held with an L-shaped frame fitted in the same fashion as the other frames, **Photo 27**, and yes, the burnt area on the deck is where I foolishly tried to solder a joint without a heat shield. Luckily burning cellulose can be blown out if your reactions are quick enough and subsequent coats of dope and paint have hidden my mistake.

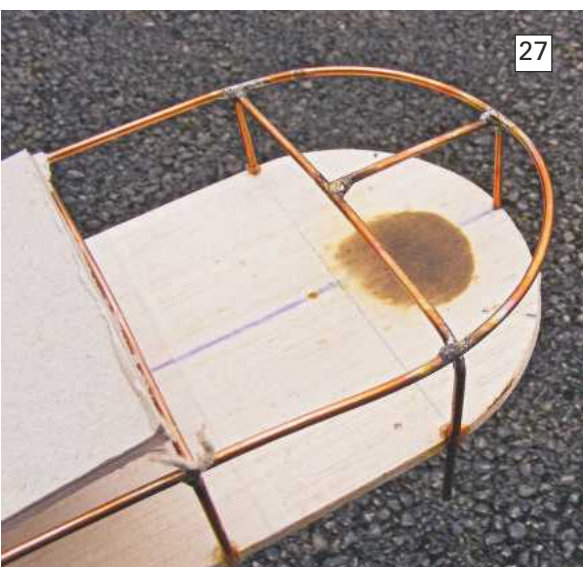
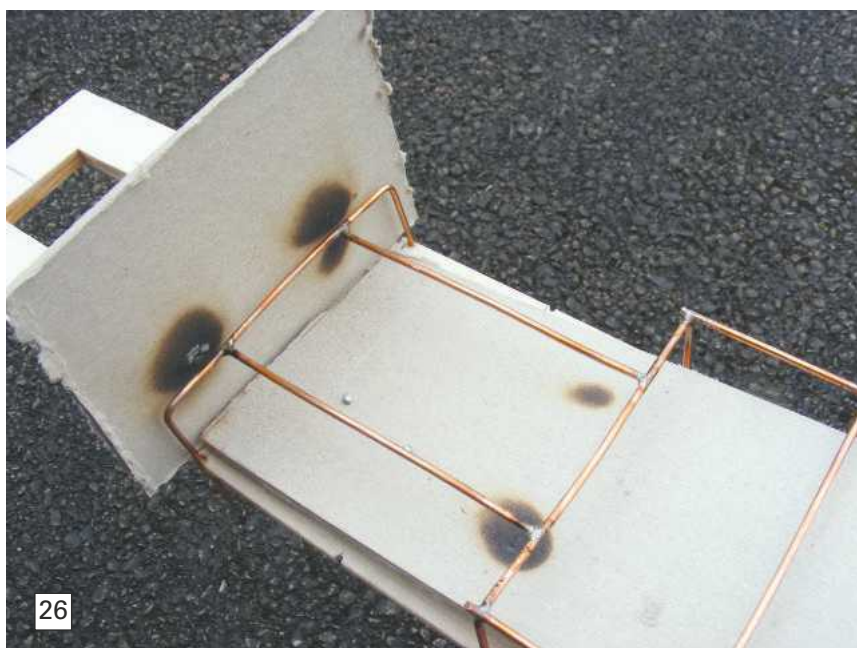
Wire supports for the bridge and deck stanchions were added to the forward part of the upper deck, again extending downwards to act as upper deck supports. Lesson learned from the awning supports, and so some finer copper wire was used to make the railings. An attempt was also made to suggest passenger boarding gates in these railings.

The lifeboat davits were made from copper wire, but thankfully no soldering was required. After bending to shape, some plastic tubes were threaded on to the wire and the bottom ends of the davits were glued into holes through the deck.



Final pieces of card

Photographs of Earnslaw gave me an escape from further soldering and its attendant problems. Canvas dodgers were shown to be fastened to the railings around the covered area of the upper deck. These can be represented with thin card and thus hide the absence of railings on the model, **Photo 28**, but if you prefer it, then railings could be soldered or



glued in place.

The prototype's funnel is of thin card, wrapped around a suitable former and glued together, its bottom being trimmed to produce the desired rearwards rake. Two of the card rings were added to the top of the funnel before it was given a couple of coats of dope on both the outside and inside surfaces. After gluing to the upper deck, tubes were added to suggest a steam and whistle pipes,

Photo 29.

Painting and finishing

Before getting into the final stages of a model build, I usually try to give it a short sailing run to check that it will be stable and everything works as any serious problems can be resolved without risk of damage to paintwork and the smaller fittings yet to be added.

With this Earnshaw model I had to settle for a test float in the bath. At least it showed that the model would float and when ballasted down to the waterline, it was stable. The r/c gear functioned correctly, but only in so far as the model could be shunted between the ends of the bath, but this was enough to then finish the model with some degree of confidence.

As befitting its use in warmer climes, the model was going to be mainly white in colour. The method chosen was to spray the whole model with a can of white primer then add the other colours. This seemed the easiest method as most of the tricky parts and areas were white. Following the instructions on the spray can, four light coats of white primer produced a good solid coverage without any paint runs.

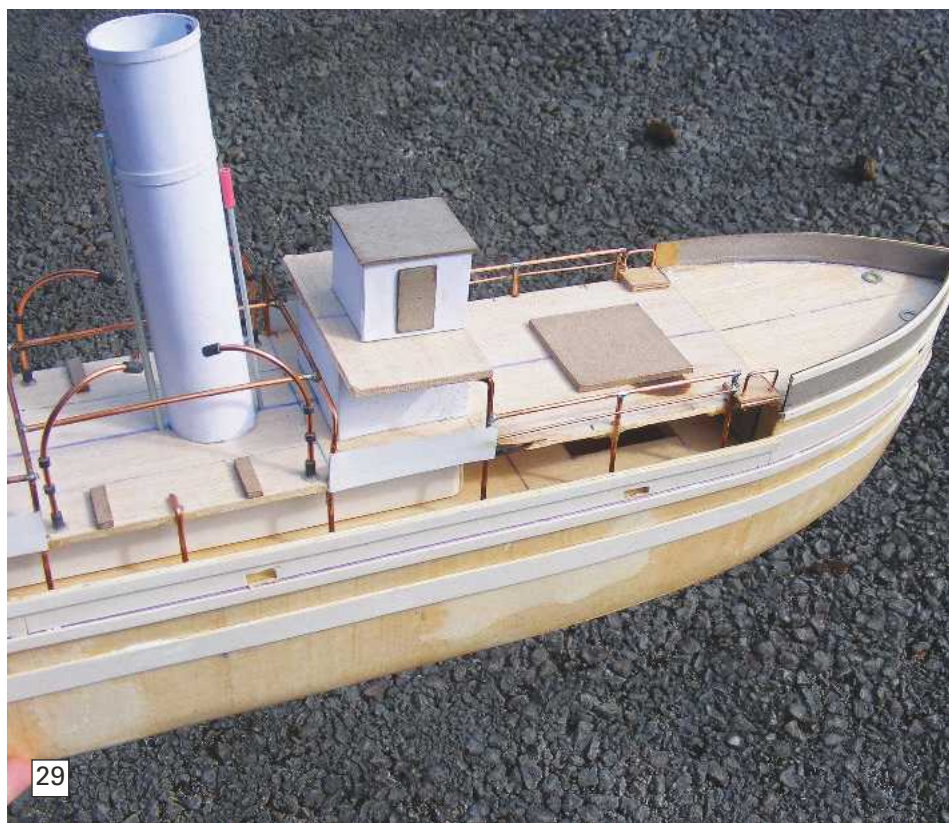
The decks were painted with a matt light brown to suggest wood that was starting to fade in the sunlight. Matt green was used on the hatches to suggest canvas covers. The funnel is red with a black top and its inside is also painted black. As this is a freelance model you may choose a different set of house colours for the funnel if you wish.

The undersides of the hull were painted with gloss dark red, by mixing equal amounts of red and black to get the desired shade. The use of gloss paints in this area was deliberate as they are more durable than matt paints.

To make the windows in the superstructure and wheelhouse, strips of black self-adhesive tape were cut to the desired window depth and then pressed in place. Then, using a sharp blade with minimum pressure, the vertical gaps between the windows were cut and peeled away, this method ensuring the windows are in line.

The portholes on the hull sides were made with circular blobs of gloss black paint. An easy method is to use a length of dowel which is just dipped on to the surface of the paint and then placed on the hull at the position you need the porthole. I always practice first on some scrap material to refresh my technique and ensure the correct diameter 'hole' is produced. With this method it is better to lay the model on its side and allow the paint to dry before doing the other side as this avoids the paint running and producing funny looking portholes!

To harmonise the paints used and offer a little extra protection to the matt paints used, the model was given a couple of light coats of clear satin varnish. Keep the spray can further away from the



model than usual and move it quickly so that it is more of a 'dusting' than painting and this also minimises the risk of any adverse reaction between paint and varnish.

Final touches

A varnished wood bulwark seems to be a popular feature around the bridges of vessels from this period and some suitable wood veneer was found in the scrap box to make this.

Some spare pieces of balsawood were laminated to make the correct thickness block from which the two lifeboats could be carved. Sanding, sealing and painting quickly had them ready to glue into their positions on the upper deck, either side of the funnel.

Sailing this model without any visible passengers on the decks was unthinkable and because its scale was close to model railway OO scale, this seemed to be a good source. A quick Internet search located some nice looking passenger figures, but the price was a shock as a respectable boatload could easily have doubled, if not trebled the cost of the model. More searching located an EBay offer of 100 plastic figures for a few pounds, not the same quality, but I figured when out on the water they would look okay just the same.

These figures came halfway around the world in a short time and whilst good enough, they came with a few problems. The figures had no bases as presumably you were expected to just apply a spot of glue to the soles of their shoes and stick them in place. This might be okay on a model railroad layout, but seemed less than robust for a working model boat. Each figure was therefore going to be glued securely to a small square of thin plastic sheet only

“Sailing this model without any visible passengers on the decks was unthinkable and because its scale was close to model railway OO scale, this seemed to be a good source. A quick Internet search located some nice looking passenger figures”



to find that common adhesives did not produce a strong-enough bond. In the end a hot glue gun was used but with extreme care to avoid burnt fingers.

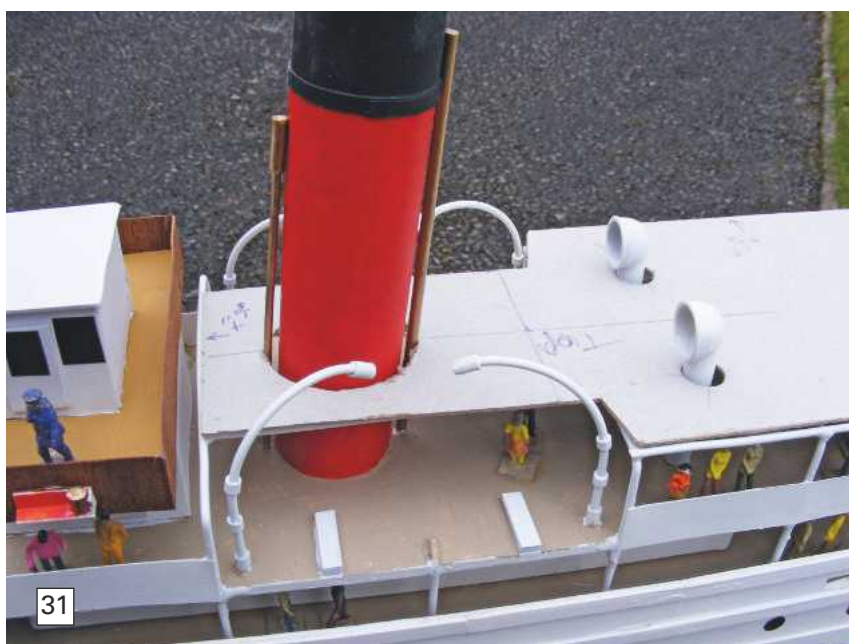
The second problem with these bargain figures revolved around the colours used to paint them as a limited range of vivid shades had been used. Whilst a few so attired might be acceptable, I could not see a whole boatload looking realistic. Also, the painters seemed to think that everyone had black hair. A session with some paints produced a more natural looking set of passengers and they were then stuck to the model in what I hoped were life-like positions, **Photo 30 and 30a.**

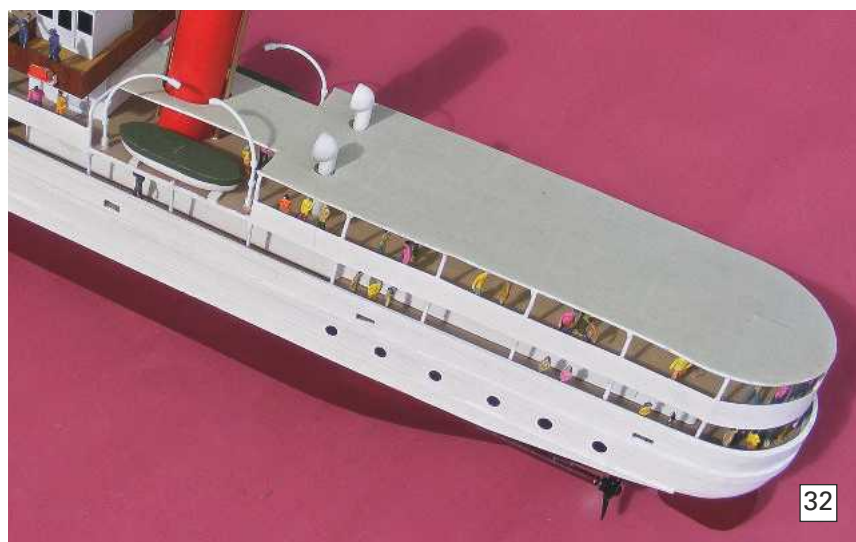
A single pole mast was fitted into the bow deck and it was made from a bamboo skewer just pressed into a hole in the deck. The spares box was raided for a few other items which added a little extra visual interest to the model.

The awning had been left until last, in truth because I was not sure just how to make and fit it. The eventual material choice was solved by the discovery of an old window blind in some odds and ends stored in a corner of the garage. The material had originally been a solid green colour but had faded over the years to a washed-out shade and it looked just about right for a canvas awning on a working vessel that operates in all seasons.

The next problem was that the funnel and two cowl vents needed accurate circular cutouts in this awning. This was solved by making a card template with the approximate hole positions made in it then fitting it over the funnel and trying the vents which had not yet been secured to the deck. A few adjustments were needed before the template was correct, **Photo 31.**

The positions of the holes were then transferred to an oversize strip of canvas which was then laid over the wire supporting framework. The canvas was secured to one frame at a time starting from





32



33

the funnel and working backwards. A clear contact adhesive such as Bostik, seemed to produce a strong bond between the awning and wire framework. A few weights were used to ensure nothing moved until the adhesive had set after which the excess material was trimmed from around the edges of the frame, **Photo 32**.

Radio control and ballasting

The r/c gear was reinstalled for a final ballasting session. The six cell NiCd pack was fitted ahead of



35

the motors in the central compartment, being held in place with two strips of foam plastic along either side, **Photo 33**. The two Mtroniks Micro Viper esc's slipped either side of the battery and against Bulkhead Two, also secured with foam strips, this keeping the bulk of the wiring away from the propshafts and motor couplings.

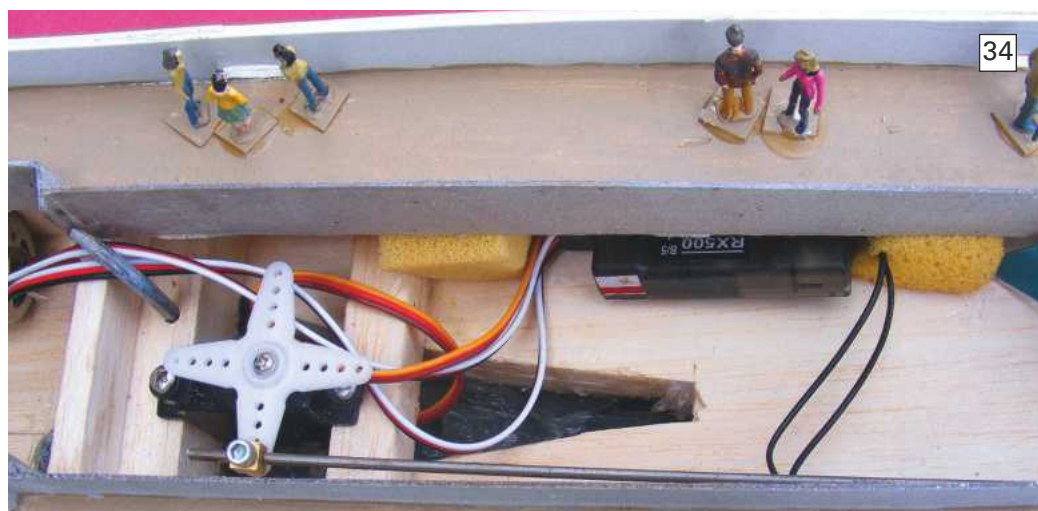
Receivers seem to get smaller every year and it was possible to slot it under the main deck just aft of the rudder servo, **Photo 34**. A couple of pieces of foam were wedged at both ends of the receiver to prevent it moving. The small 2.4GHz aerial could then sit at the end of the hull opening and be both above the water and away from any potential electrical interference.

Final ballasting was undertaken by adding pieces of a dense metal to the compartment between Bulkheads One and Two, plus the space beneath the rudder servo. Lead is probably the densest metal you can easily obtain, but iron or steel can be a good alternative, especially if it's free. After getting the model down to the desired waterline, all internal ballast must be secured to avoid embarrassing changes in trim whilst sailing and silicone sealant is as good as any for this job. **Photo 35** is of Earnshaw complete and ready to go.

On the water

Earnshaw weighed in at about 5.5lbs (2.5kg) ready to sail. As the input power had previously been measured at 3.2 Watts, this gave an extremely

“Final ballasting was undertaken by adding pieces of a dense metal to the compartment between Bulkheads One and Two, plus the space beneath the rudder servo”



34



modest Power Loading of around 0.6 Watts/pound and an equally modest sailing performance was expected, **Photo 36**. In fact the model moved smartly way as soon as the throttle stick was advanced and the true top speed was measured at only 2.2 ft/sec (0.7 metre/sec), but seemed to match both the model's scale and character. It was in fact a close match for a dynamic scale speed equivalent to a full size vessel moving at 12 knots, a realistic cruising speed.

The model's stability was never in question, even when a full-size workboat churned up the canal waters where the testing was being performed. It was also rewarding to find that the model was only slowly deflected off-course by the adverse effects of winds and waves.

Testing the rudder response showed that full rudder (about 30 degrees) would produce a turning circle of about 12 feet (3.7m) diameter in both directions. At first I thought that this was larger

than expected, but then realised the maximum rudder angle was a shade smaller than usually used on my models. Also, the rudder was between the two propellers and it did not benefit from having any propwash hitting it. The rudder is in fact in the sluggish boundary layer of water that is dragged along with the hull.

One simple way of tightening the turning circle was to apply the motor mixing facility by moving the left hand Tx stick horizontally in the same direction as the rudder stick. With full deflection of both sticks it was easy to halve the turning circle diameter which seems to be more than enough for most sailing needs.

Moving Earnshaw astern showed that the rudder alone had only marginal control, so again the answer was the judicious application of differential motor control to counter any wayward tendencies. With the rudder stick on the transmitter left alone, it is possible to enjoy the tight, and with practice, accurate steering that a mixed dual motor control can offer.

Conclusion

The intention was to create a model of an interesting and attractive type of small steam powered passenger vessel and Earnshaw seems to have succeeded, as sailing it produces a nice feeling and in some ways it's almost like being on the real thing. The chance to experiment with a radio control set-up that gives the option of conventional rudder and/or mixed control of twin motors is something that has proved to be very successful, all done by the clever electronics within the transmitter and a method I will certainly use again.

Enjoy the hobby - Glynn Guest

“The model's stability was never in question, even when a full-size workboat churned up the canal waters where the testing was being performed”

36





L'Intrépide



Michael Watts
upgrades the keel
weight and rudder
response

While this short article focuses on the modifications to a particular proprietary scale model, it may provide some more general practical guidance to modifying yachts and/or improving their performance. My remarks at the end of the earlier article in MB January 2015 on Page 54 were as follows:

'Launching her for the first time I saw that she sat lower in the water than expected. As a first step I reduced the weight of the battery by replacing the AA cells with AAA's – a reduction of 24 grams (a little less than 1oz). She seems to sail quite well, but rudder response was very poor, probably due to the two large fixed stabilising fins either side of it'.

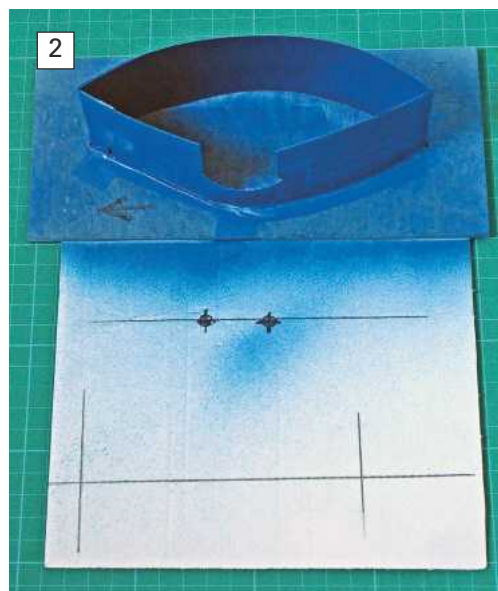
In addition to this, I suspected that the hollow plastic fin and bulb assembly leaked water, and so reduced the overall buoyancy. The measurements gave a potential maximum buoyancy loss of 100 grams if the whole unit was filled with water, excepting the volume occupied of course by the lead and for those who prefer Imperial measurements, 1oz is equivalent to about 28.3grams.

Keel weight

I removed the fin & bulb assembly from the hull, separated the pair of plastic mouldings, and revealed the cast lead weight, **Photo 1**. The downside was then immediately obvious, because although the lead weighed about 600 grams, it extended most of the way up the fin with the centre of gravity about a third the way up, and the bulb only partially filled the plastic moulding anyway, so the potential for some improvement was clear. In essence this was to reduce the lead's weight a little and move its centre of gravity downwards as this would both allow the model to have some more freeboard and provide the weight with an increased righting-moment. The internal volume of the plastic

Photo 1. The separated plastic fin, bulb and lead weight. Please note that the lead extends right up the fin and doesn't fully occupy the bulb.

Photo 2. The cardboard mould-box held together and sealed against leaks with masking tape. It has been sprayed with paint to give some protection against the wet plaster.





ABOVE: L'Intrépide under sail with its new keel weight fitted as in this article and both rear stabilising fins removed from either side of the rudder, seen here at Oxford MBC and their Hinksey Park venue.

bulb was measured at 44ml and if this was all solid lead, the weight would be $44 \times 11 = 484$ grams. So, if the lead were recast to the full size of the bulb, with a bit up the inside of the fin, this should do the trick with a resulting weight of about 500 grams.

Casting

I had cast keel weights before (Model Boats, March 1995, Pages 64 to 66) and so made a plaster mould from the plastic fin and bulb, but limited the mould to its lower part. It must be emphasised that great care should be taken when casting lead, since the process is potentially dangerous. The plaster must be fully dry and lead melting, and casting, should certainly be done outdoors with one's face and hands fully protected. It is best to seek professional



Photo 3. The plastic fin and bulb positioned in the mould box with its lower half filled with plaster.



Photo 4. The aluminium plate shaped and with holes to fit over the existing plastic fin screw-hole spigots.

Photo 5. The aluminium plate with brass studding and nuts to ensure it will remain central in the plaster mould when the molten lead is poured.



advice if at all inexperienced or unsure.

Fortunately, I had learned well at technical college back in 1956 when I was 15 – those were the days – and **Photo 2** shows the cardboard mould box and **Photo 3** shows half of the plaster mould with the plastic keel and bulb in place. To secure the weight in position, an aluminium plate was made to be cast in the lead at its lower end and to locate on the existing screw-hole spigots within the fin, **Photo 4**.

To assist in keeping the plate central in the bulb space when casting the lead, a piece of brass studding secured with a couple of nuts was added, **Photo 5**. The original 600 gram lead weight was cut into small pieces that would fit in the stainless steel melting pot, to provide a total weight a bit more than 500 grams. This was melted (in the garden) in a stainless steel pot over a gas powered

Photo 6. The equipment for the lead casting: clamped-up plaster mould with aluminium plate held by cardboard jig and screws; The gas camping stove and the stainless steel crucible.

Photo 7. The new lead keel weight, cast around the aluminium plate, with the top half of the plaster mould removed.



the newly cast lead weight. This weight, with its cast-in locating plate, was assembled between the modified plastic fin halves and the fitting screws replaced. The whole thing was clamped together and sealed with adhesive tape. Then some glassfibre resin, **Photo 8**, was poured inside along the inner joins and especially to bond the lead & aluminium plate to the plastic fin. The lead was then coated with some filling compound and filled smooth. The whole assembly was then sprayed with Halfords acrylic grey primer as in **Photo 9**, and was then finished in white and finally with a clear acrylic lacquer spray covering.

Mathematics?

From the direct measurements taken both before and after this modification, it was reassuring that:

- 1) The new lead keel weight was 520 grams, compared to the original of 600 grams.
- 2) The new centre of gravity (of the lead) was about 160mm below the yacht's centre of buoyancy, compared to the original of about 110mm.
- 3) The overall effect was that, even with the reduction of 13% in the lead weight, the righting moment of the lead was increased by 26%.

Buoyancy of the plastic fin and bulb assembly

The effective volume of the whole original assembly was considerable, especially because of the large volume of the upper part, with its fixing screws, that was part of the hull form (please see *Photo 1* again). Great care was taken to reseal the joint between the two plastic halves of the modified fin by running glassfibre resin around the inside edges after assembly. In addition, the whole unit was filled with builder's expanding-foam filler (also seen in *Photo 8*), which is of very low density and resistant to water. This compensated somewhat for removal of the stiffening effect of the original lead high up

Photo 8. Right: Glassfibre resin and hardener was used to secure the weight and plate to the plastic fin and to seal the fin join on its inside edges. Left: Builder's expanding foam was used to fill the whole of the re-assembled fin.

Photo 9. The newly assembled weight and fin undercoated with Halfords grey acrylic primer spray.

Photo 10. L'Intrépide with all the noted modifications applied and on its supplied stand. Please note that the two rear stabilising fins have also been removed from the rudder. Despite the text listed scale of 1:25, the true scale would seem to be about 1:12.



camping stove, **Photo 6**. With the aluminium plate held in position with a cardboard jig and a couple of screws, the lead was poured steadily into the warmed plaster mould. The newly cast lead was allowed to cool fully for about 1 hour, before it was ready to be removed from the mould, **Photo 7**.

The plastic bulb and lower part of the fin was cut from the original fin & bulb assembly to match



within the fin and of course now the model yacht sits higher in the water because of its reduced total weight.

Other improvements

Deck-to-hull join

This comprises a rebate in underside of the deck panel into which the top edge of the hull moulding locates. As previously described in January 2015, the top edge of the hull had been cleaned-up to provide a better dry fit and then a narrow strip of foam plastic cut to fit within this rebate as a seal, but some water was still leaking into the hull. So a further narrow strip of foam plastic was added and currently there is no sign of water leaking into the hull – hurrah!

Rudder

As a first step, the two large fixed stabilising fins were removed, meaning a further weight reduction of 35 grams, but without making any changes to the rudder itself and not surprisingly, this has made a significant difference in the response of this yacht to its rudder movements. This is great, as now the size of the rudder doesn't need to be increased and **Photo 10** is of the model in its new guise ready to go.

Finale

You might reasonably ask whether this was worth all the time and trouble? Arguably it wasn't, but the original proprietary scale model is quite a detailed yacht and it costs very little. When I first saw it at Brighton Model World in 2014 I thought it most attractive, and still do. In addition, I have reprised some of my long-ago practical and measurement skills, had some fun and most important, now enjoy sailing a boat that performs all the better for my efforts, and the kit? The Internet is a wonderful shopping tool and the brand new L'Intrépide model with r/c, arrived direct from China at a price of little more than £60. Just a bit of 'Googling', and there it was.



Oxford Model Boat Club

This club is very active with static, free running or radio controlled models powered by electric motors, steam engines or wind, but sorry, no i.c. craft. The scale models include replicas of full-size craft such as military and harbour vessels, merchant ships, tankers, tugs, fishing boats, offshore power boats and sailing vessels such as Thames barges and schooners etc. For racing model yachts, the club has a well supported calendar for both International One Metre (IOM) and Fiesta yacht classes. The One Metre yachts are sailed on the reservoir and Fiestas on the smaller yachting pond near the Lido.

Meeting times on the water at Hinksey Park are:

Sunday mornings from about 0930hrs. Thursday afternoons from 1300hrs, 52 weeks of the year.

Social meetings are held on the first Thursday of each month (except January), at 1930hrs in Jordan Hill Sports Pavilion, Banbury Road, Oxford.

Annual Membership is £20 for single adult membership and £30 for family membership.

For more information please go along on the sailing days and/or to the meetings, or please contact Oxford MBC via either:

Club Secretary:
secretary@oxfordmbc.org.uk

Club website: www.oxfordmbc.org.uk

HMAS Vendetta

George Zio's pre-modernisation 1:96 scale model of this Australian warship

HMAS Vendetta was the second of the Australian Daring Class destroyers and was built at HM Australian Naval Dockyard, Williamstown, Victoria, being launched on 27th October 1956 and commissioned on 26th November 1958. The destroyer was deployed to the Far East Strategic Reserve on multiple occasions and in 1965 and 1966 undertook deterrence patrols during the Indonesia and Malaysia Confrontation. Together with several voyages escorting the troop transport HMAS Sydney to Vietnam, from late 1969 to early 1970 HMAS Vendetta was assigned to combat operations and became the only Australian-built warship to serve in a shore bombardment role during that war.

Vietnam War

On 15th September 1969, HMAS Vendetta departed Sydney to join the US Seventh Fleet in Subic Bay, arriving on 26 September. On the 2nd October 1969 she sailed into Da Nang Harbour and opened fire on targets in and around it, and in so doing created Australian naval history by becoming the first and only fully Australian built Daring class warship to fire her guns at the enemy in war. Australia was the only allied nation to provide naval support to the United States Navy during the Vietnam War. During the following seven months HMAS Vendetta performed one of the roles for which she was designed, namely providing naval gunfire support on the gun-line off the coast of Vietnam and in this role, she excelled herself.

The destroyer's main activities were the provision of naval gunfire support to assist ground forces, particularly the United States Marine Corps units operating closest to the North Vietnam border. Seven ships were usually stationed on the gun-line and attacks fell into two categories:

Unspotted shelling of areas where North Vietnamese or Viet Cong forces and facilities were known or believed to be.

Spotted fire missions in direct support of ground troops.

She was also the last Australian warship to fire a broadside salvo in a combat zone. During her five tours of duty, HMAS Vendetta fired 13295 x 4.5 inch shells, plus over 400 rounds of 40mm and steaming 26000 nautical miles in the process. Personnel awards included one appointment as an Officer of the Order of the British Empire; two Mention in Despatches and sixteen Naval Board commendations.

End of service

HMA Vendetta was modernised from 1971 to 1973, but was finally decommissioned on the 9th October 1979. During her twenty-one year career, she steamed 670952 nautical miles and following that sad end of service occasion, HMAS Vendetta languished in the Royal Australian Navy's mothball fleet until 1986, when she was sold to a ship-breaker in Taiwan.



ABOVE: George Zio with the box art painting for the new Trumpeter kit of HMS Hood.



Principal particulars

Launched:	3rd May 1954
Type:	Daring Class destroyer
Commissioned:	26th November 1958
Decommissioned:	9th October 1979
Displacement:	2800 tons standard 3600 tons full load
Length:	388 feet 6 inches
Beam:	43 feet
Armament:	Six 4.5 inch guns in 3 twin turrets Six 40mm (2x2 & 2x1) Bofors anti-aircraft guns Five 21 inch torpedo tubes in a quintuple mount (removed by late-1960's) One triple barrellled Limbo anti-submarine mortar
Main Machinery:	Two Foster Wheeler boilers English Electric geared steam turbines (two shafts)
Speed:	Over 30 knots

D08



RIGHT: Overhead amidships view revealing the detail of the ship's boats and all to 1:96 scale.

BELOW: The aft 4.5 inch turret. The grey covered objects on the upper deck edges by the railings have liferafts within them.



This HMAS Vendetta model is 48 inches long and to 1:96 scale.



1:96 scale waterline model

George Zio served in HMAS Vendetta during her gun-line service in Vietnam during 1969 and 1970. As with so many sailors who build a model of their favourite ship, he finally decided to construct a scratch built model of HMAS Vendetta, the warship which saw him safely through harms way many times as well as a typhoon in the South China Sea.

George began his research by sifting through old photos as well as putting a call out to ex-crew members appealing for detail photos, with many contributing to this request. A 1:96 scale waterline model was chosen, because mostly navy divers (of which he was one) only see the hull of a warship, but also a waterline model seemed more businesslike. At this scale, HMAS Vendetta is a fraction over 48 inches long, making for a handy sized display model. The materials used were plastic (styrene) sheet, evergreen styrene pieces, brass rod and other bits and pieces.

He decided to build and then paint the model which turned out to be quite a bit of fun to say the least, in his words. The mast with all its fittings has approximately 200 soldered joints requiring an immense number of heat 'sinking' processes and as George comments, a model ship is really not just a big model but a collection of numerous smaller models all combined into the one; e.g. the guns, turrets, directors, boats, masts, stacks and so on all being separate items.

On a few occasions he would go to the Surrey Park Model Boat Club in Melbourne to get some inspiration from their members and their super r/c models - a great bunch of guys. Many times he has also looked through Model Boats magazine at some of the incredible models, which spurred him on to complete the model because sometimes his enthusiasm waned, so a big Thank You to all those fine model builders out there.

The photo of George is taken with the painting of HMS Hood, the box art for the new Trumpeter 1:200 scale kit and is painted by a good friend of his, Randall Wilson from NAVART, who is the chief artist for the Trumpeter naval kits box art. He also is ex-navy and a helpful critic of George's model making efforts.

Float a Boat (a retail shop) was great in allowing George behind their counters to search in the drawers for those special bits needed for his HMAS Vendetta model and finally he wishes to acknowledge his partner Dianne for all her patience during the project.

*Happy modelling to all from **George Zio***

Websites

NAVART website: www.navart.com.au
Float a Boat website: www.floataboat.com.au
HMAS Vendetta: www.navy.gov.au/hmas-vendetta-ii

Looking forward from the stern.



Amidships port side view of the mast and central section of the warship.





The mast is always complicated to construct on Daring class destroyer models, because the forward funnel is inside it.



ABOVE: The aft 4.5 inch turret.



General view from port stern quarter looking forward.

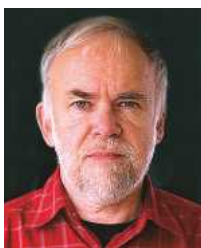


ABOVE: HMAS Vendetta had an anti-submarine role with the Limbo mortar mounted aft.



ABOVE: The aft deckhouse with the two twin 40mm Bofors guns.

Flotsam & Jetsam



John Parker delves into the archives

36: Three Submarines called Nautilus

The original spiral-chambered cephalopod Nautilus gave its name to several submarines. I will look at just three here: one was fictitious, a work of Victorian imagination that nevertheless showed the way; one was ill-fated, attempting an impossible voyage under the command of a famous explorer; and one was the first true submarine that made that voyage possible. Less than one hundred years span the first to the last, such was the pace of invention, and a common thread unites them all.

Mobilus in Mobili

The foreword of my copy of Jules Verne's 20000 Leagues Under the Sea states that when it was

written in 1869, submarines hadn't been invented, but that is patently untrue. Jules Verne had been inspired in fact by contemporary submarines such as the French Navy's *Le Plongeur*, and the design of his Nautilus was soundly based on the state of the art of iron ships of the time, incorporating observations made during a crossing of the Atlantic in the *Great Eastern*, then the largest vessel afloat and full of technical innovation.

Although no detailed drawing of it appears in the book, the written description makes clear it was a streamlined cylinder of a form 'almost like a cigar', 70 metres long by 8 metres wide, with a flat deck on top to support the wheelhouse with its circular 'eyes' and a semi-recessed 'longboat', and a fish-like tail with a four-bladed propeller. Mid-ships mounted hydroplanes (in the fashion of the time) and ballast tanks with powerful pumps enabled the submarine to overcome its 10% reserve of buoyancy and dive. The rooms, furnished in the finest Victorian décor, can be mapped out and it all generally makes sense, suggesting that Verne used a model. An altogether more fanciful version, styled more for dramatic effect than hydrodynamic efficiency, appeared in Walt Disney's popular film version.

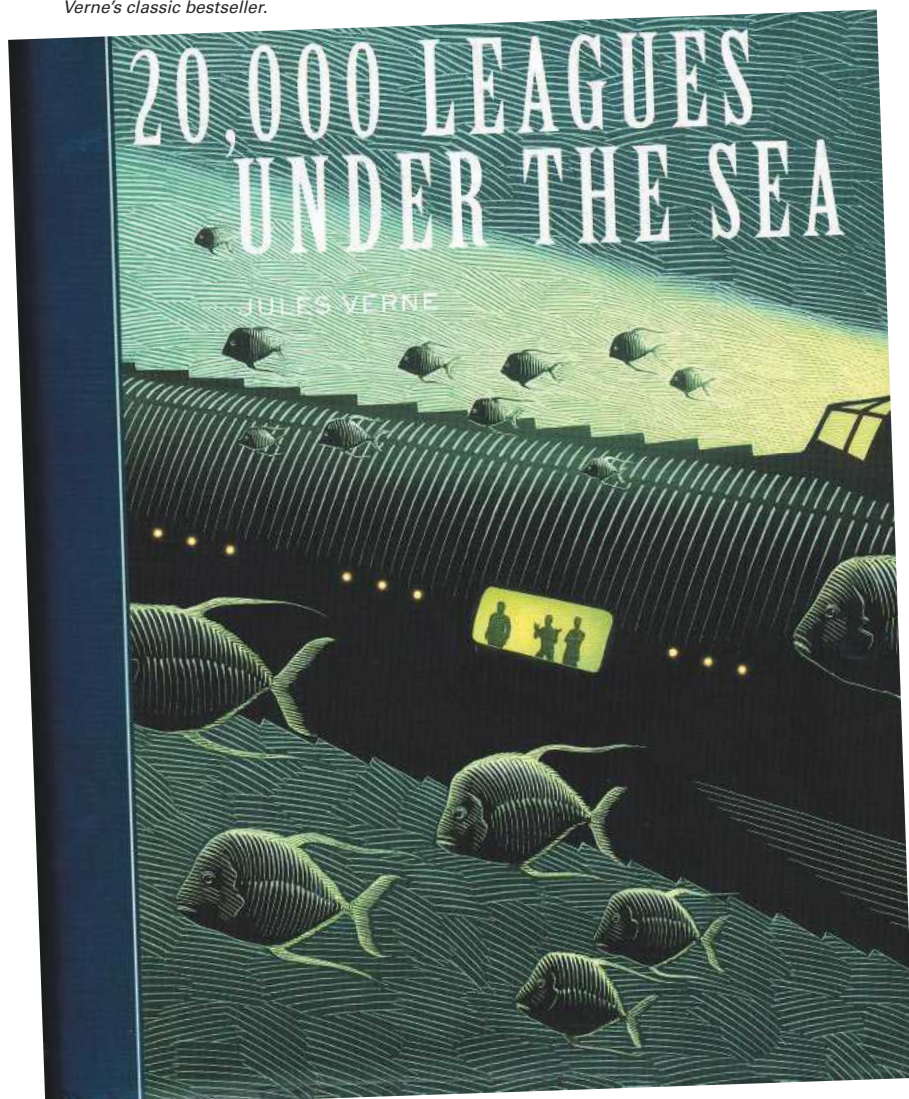
Where Verne did have to let his creative imagination go was in details such as propulsion. Captain Nemo, the mysterious designer of the submarine, would have found his voyages too severely restricted if his Nautilus used the technology of the day. His Nautilus is battery powered, but has enormous stores of energy made possible by extraction of elemental sodium from seawater; its maximum speed was 80 kilometres per hour, though it normally cruised at about half this. It also dived deep, 16000 metres, and was well equipped to sustain Captain Nemo and his guests, namely Professor Aronnax, his aide Conseil and the harpooner Ned Land on their subterranean voyages. It certainly lived up to the motto *Mobilus in Mobili*, roughly translated from the Latin as 'Mobile in the Mobile Element' that Captain Nemo had engraved on the cutlery.

Their adventures included an encounter with giant squid, the exploration of underwater forests and trenches, re-discovery of the lost city of Atlantis and underwater ship wrecks, examination of the wonders of marine life made possible by the Nautilus's side viewing ports, travel through all the seas of the world and ultimately a trip under the polar ice and yes, the book was a runaway bestseller.

Under the Ice

The Australian Sir Hubert Wilkins was arguably the greatest explorer of the twentieth century.

BELOW: A modern edition of Jules Verne's classic bestseller.

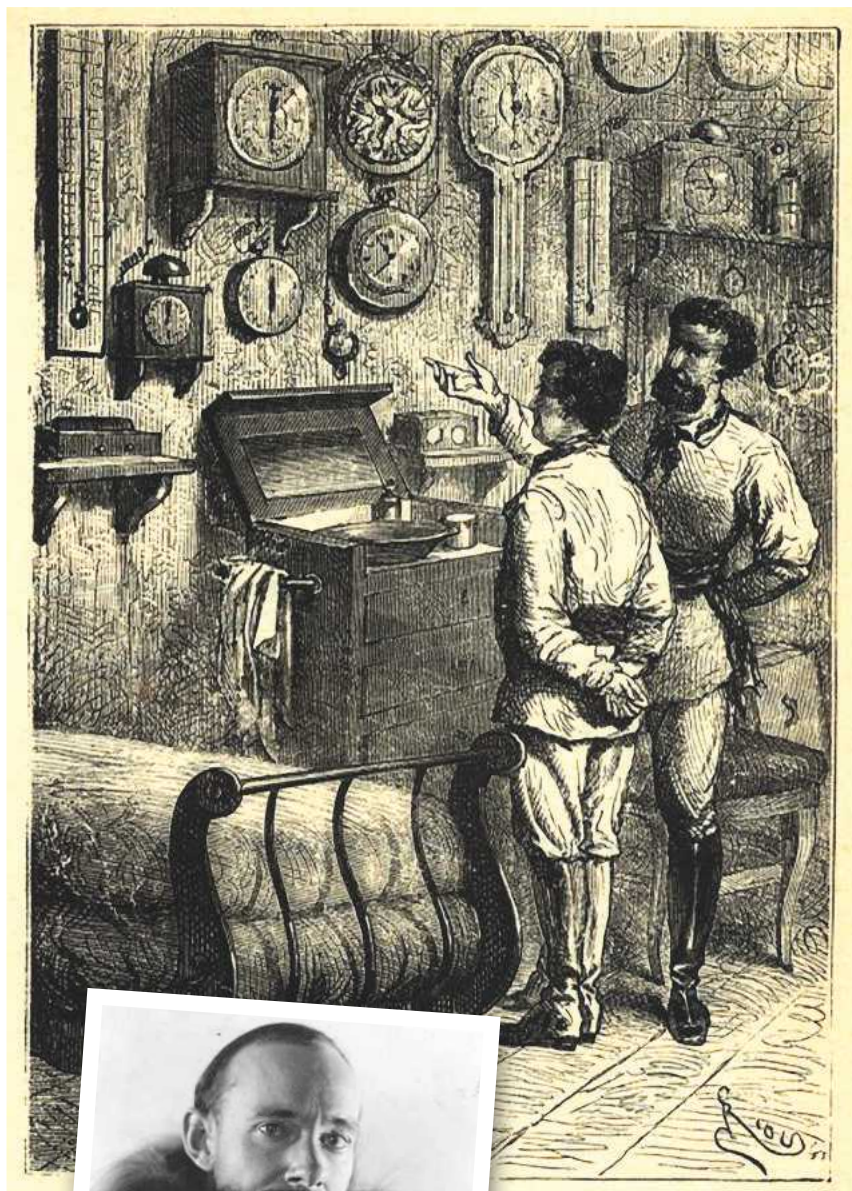


He discovered more previously unknown land than anyone else and led a charmed life as a war photographer, news reporter, spy, and aviator. However, by 1930 most of the earth had been explored and so, inspired by Verne, he turned his attentions to exploring the polar ice-cap, but from below. He conceived a trans-Atlantic expedition by submarine that would attempt a foray under the ice cap of the North Pole to gather scientific data to support his theory that understanding the poles was the key to forecasting the world's weather.

He chose a decommissioned US Navy O-class submarine from the Philadelphia Navy Yard, which he leased for the nominal sum of one dollar per year, and named it Nautilus after Jules Verne's creation. The boat had been designed by the submarine pioneer Simon Lake, who now set about the task of modifying it for the expedition. A complete covering for the upper works was fitted and an extendable ice drill. The boat had an underwater range of 150 miles at best and would need to find thin ice at frequent intervals if, as hoped, it was to navigate under the pole. An extendible arm was also fitted with a wheel to enable the submarine to skate along under the ice, which was believed to be smooth.

The modifications and other costs of the expedition were adding up, and Wilkins had to accept sponsorship from Hearst's newspapers, which put demanding conditions on the money being paid. Worst of all, the submarine was found to be in deplorable condition, unreliable and full of leaks. She was almost lost during a test dive, due to foreign matter jammed in a vent valve, and had to be rescued in an Atlantic storm after both her engines failed. The obvious thing to do was abandon the expedition until a more suitable submarine could be found, but it was too late for that as too much momentum had been built up. Nautilus put into dry dock at Devonport, Plymouth, for repairs, then headed to Norway to pick up the scientists who would form part of the crew. On 18th August 1931, two months behind schedule and perilously late in the polar season, she set off.

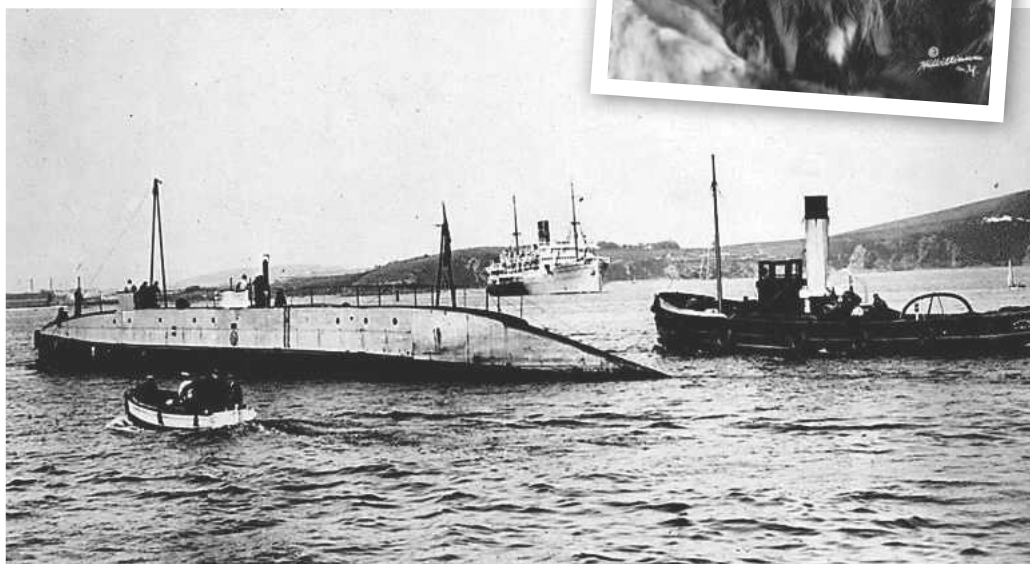
They made good progress until 22nd August



ABOVE: Captain Nemo shows Professor Aronnax the instruments of the Nautilus. (Illustration from the origin edition).



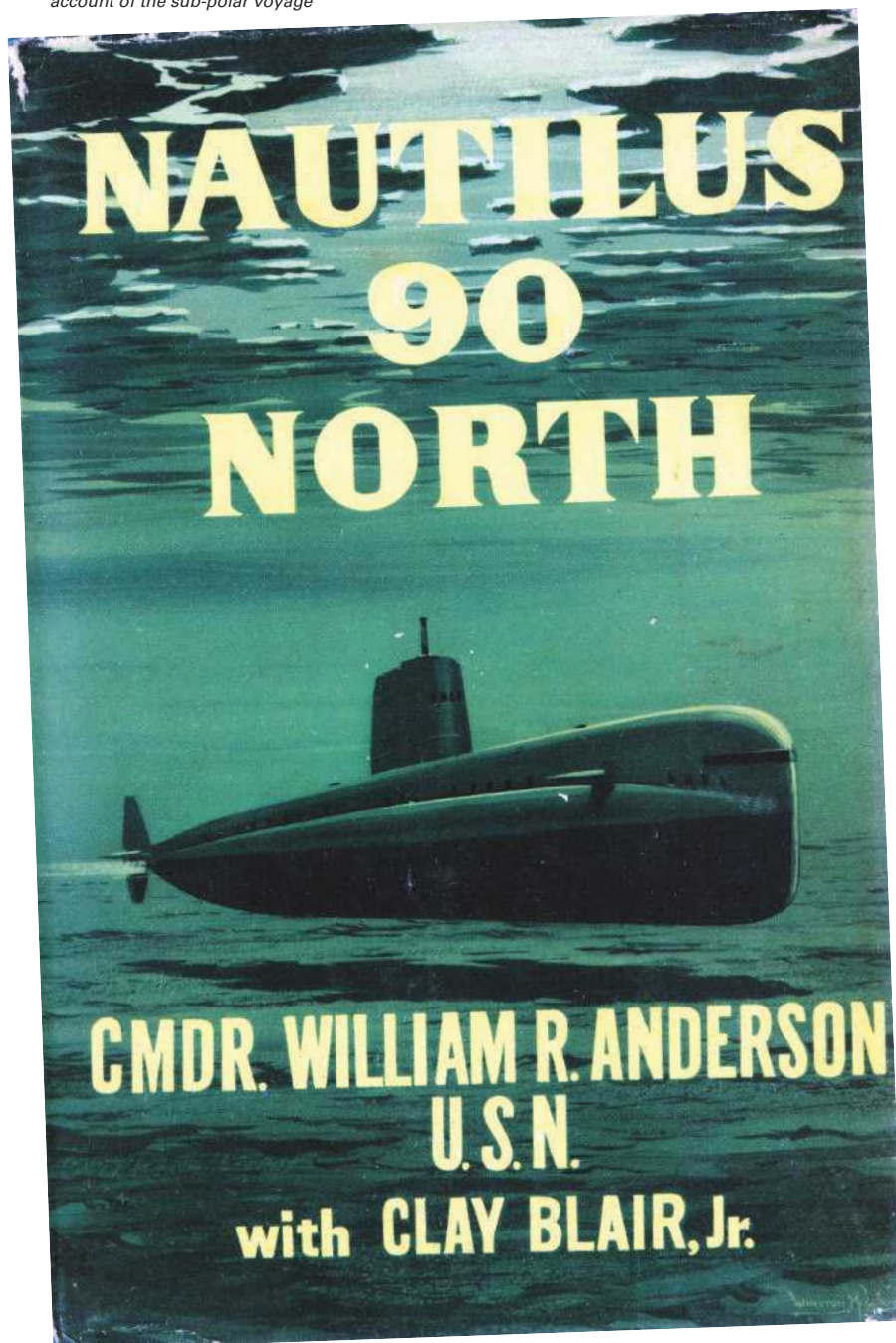
LEFT: Hubert Wilkins c1926 (From public domain).



LEFT: Wilkins' Nautilus being towed into Plymouth (Unknown photo source).

when they reached the edge of the ice pack and prepared to dive. It was then that Wilkins discovered that both stern diving planes had apparently sheared off, rendering submerged control impossible. He sent down a diver, who soon confirmed his worst fears. Officially, the record of the voyage shows that they were simply lost, broken off it was assumed by a collision with the ice, but privately Wilkins always believed it was sabotage, the act of desperate crew members anxious to see that the Nautilus never dived beneath the ice. Whatever the cause, the missing hydroplanes almost certainly were their saviour, for we now know the underside of the ice is anything but smooth, 150 to 200 foot deep ridges run across it that made nonsense of the plan to puddle jump across the pole. Also without an accurate means of navigation (compasses

BELOW: Commander Anderson's account of the sub-polar voyage



performed erratically near the pole) they would soon be lost, using the last of their limited battery power in a vain search for open water.

Short dives under the ice without the stern planes were made for the sake of camera, and much valuable data was collected including depth soundings, water temperatures and samples from the ocean floor. Wilkins considered the expedition worthwhile because of this, but the public wasn't satisfied as they had been lead to expect a voyage beneath the Arctic ice-cap, and weren't interested in the research. Hearst withheld the sponsorship money and Wilkins faced bankruptcy. The unfortunate circumstances of Wilkins' voyage and its outcome were to sully his reputation for a long time.

Nautilus 90 North

The dream of virtually unlimited underwater travel, as Captain Nemo had at his disposal, came true with the commissioning of the atomic powered USS Nautilus in September 1954. Here was a vessel that was independent of the surface, able to create its own oxygen by electrolyzing seawater, to distil it to provide drinking water, to circumnavigate the globe without resurfacing on the power of its atomic reactor. The joke going around at the time was that she would only re-surface every seven years, to enable the crew to re-enlist.

With the success of the atomic Nautilus, the idea of a trip under the polar ice of the North Pole was revived, particularly with the Cold War between the superpowers providing the impetus. Future submarines would be able to carry nuclear missiles and the shortest route to Russian targets was over the pole. In the greatest secrecy, Nautilus was modified for her new mission of mapping a polar route. The modifications included installation of one of the first inertial guidance systems, needed for accurate navigation beneath the ice.

Nautilus was deep beneath the polar ice



LEFT: Launch of the USS Nautilus in 1954 (US Navy photograph).

“The dream of virtually unlimited underwater travel, as Captain Nemo had at his disposal, came true with the commissioning of the atomic powered USS Nautilus in September 1954.”

somewhere past Greenland on the first such mission when a fuse blew, causing the twin inertial guidance systems to fail. Powered them up again would take hours and in the meantime Nautilus would only be on dead reckoning. A 180 degree turn was completed, but already the depth soundings did not correspond with those of the back-tracked position. It was then that the civilian ice specialist they had taken on board recalled the expedition of Wilkins to the same area twenty-six years previously. He had taken with him for interest's sake Wilkins' charts, and pouring over these they were able to conclude their correct position by comparing measured data, the temperature, depth soundings and so on with the data on those charts, and thus avert a potential disaster.

America needed a scientific coup to regain prestige after the Russians launched Sputnik, and President Eisenhower determined that the Nautilus should make the first submerged trans-polar voyage in history. The coded message Nautilus 90 North revealed that on Sunday 3rd August 1958 and on her third attempt, she was successful. Somewhere too, the log had ticked over to show she had doubled the record of the fictional Nautilus, having travelled 40000 leagues (120000 miles) under the sea.

Back to school

Whilst researching an idea for a new model which would have a very different means of propulsion, I remembered something similar in a book published many years ago, 1989 in fact. This book was one of a series written by Peter Holland, a name that may be familiar to older readers, and it was intended to show how working models could be built by anyone including children. The two examples I have, covered models powered by rubber bands and balloons and contained numerous beautifully simple, but highly ingenious designs.

It had been some time since I last looked at these books, so it was quite natural to start thumbing through the pages. The thought came to me that the designs might tempt my grandchildren into building something and that all schools ought to have such books available. At this point the proverbial 'light bulb' popped into existence above my head.

We are being told that youngsters ought to be encouraged into STEM (Science, Technology, Engineering and Mathematics) careers. Many schemes are being run nationally to support giving students of all ages a taste of STEM activities outside the traditional classroom environment. But far too many youngsters have never experienced doing anything creative in these areas and have difficulty in conceiving that they could ever build something that works (in real life as opposed to on a computer screen that is). After all, how many times have you been approached whilst sailing your scratch built model when someone asks you; 'Where did you buy that mate'?

As many modellers have children or grandchildren

at schools, it could be a thought to enquire about the schools extra-curricular STEM activities. They may well have something organised, but you may find that no matter how well qualified the staff are, few, if any, have ever made something that has to work from scratch, so here is where the successful modeller can offer some assistance and guidance.

I have personally witnessed at national events to encourage students in Engineering, some awful creations that any half-decent modeller would have avoided. Quite a few fell to bits as soon as they started; most failed to achieve a fraction of their intended tasks and the disappointment of the youngsters was obvious.

Sadly, the response from the school could be negative with either no interest being shown or a string of reasons why it is impossible for them to take up your kind offer of assistance. The most likely reason is that Child Protection Regulations prevents them. It is true that schools cannot let any Tom, Dick or Harry walk in and have contact with the pupils. This could halt anyone who is easily deterred, but the answer is quite simple, in the UK that is.

An organization called STEMNET exists to help in such cases. By contacting their Regional Offices, they can arrange the DBS checks needed to clear you as someone safe to interact with children and to put it crudely but quite truthfully, 'backsides will be covered'. If opposition to your genuine offer of help still exists then it might be worth contacting the Local Education Authority.

If we want to help students develop skills and make informed career choices then a little extra help seems worthwhile and it might also attract a few into our hobby!

scale musings

Mooring Post



Glynn Guest with advice and tips for modellers

Jean Bart

Eris Kennedy
converts the Heller
1:200 scale model tug



There must be a limit on how small one can go with a working model boat and when I spotted this kit in the hobby shop I fell in love with it immediately. Here was the quintessential 1950's ocean going tug if ever I saw one, **Photo 1**. I asked the shop assistant to open the box and let me delve inside and made a quick, if rushed, assessment as to whether or not a working model could be made from the static kit, **Photo 2**.

Initial indications were encouraging, as despite being only 261mm (10 inches) long, the tug had deep lines and looked like it should have just



enough displacement to enable the fitting of a motor, speed controller, receiver, rudder servo and battery, although the last item might have to be a small LiPo pack. It also looked like the deck could be made so that it was removable and it came with a propeller that appeared to be robust enough to be used for actual propulsion.

There was another attraction as it only had 123 parts, this meaning I should be able to build it in a couple of weeks and have it ready for our club's forthcoming annual indoor pool event. So, the kit was purchased and if indeed the conversion proved impractical, then it would still make into a nice display model.

Getting started

Once back home, work began. First, the hull halves were joined and once the glue had set, it was launched into the test tank, aka the kitchen sink, and some ballast added in the form of coins until it was down to the intended waterline, **Photo 3**, and the amount of weight it could absorb? Well, just 87.5 grams as in **Photo 4** on the small dual scale weighing device intended for jewellery and gold. In fact, the total completed all-up weight of Jean Bart

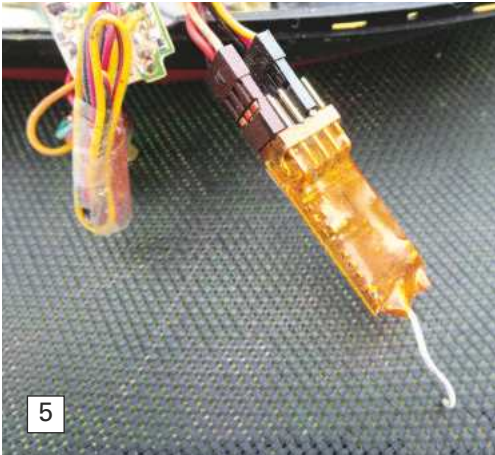




3



4



5



6

is just 113.5 grams or 4 ounces.

The next question was: Would the internals fit in the available space? These include a small receiver weighing barely 3 grams, **Photo 5**, along with a dismantled servo for speed control incorporating a forward and reverse capability and a 3.7v 500mAh LiPo battery, weighing just 13 grams salvaged from a redundant model aircraft, as well as a small geared can type of motor from the same ill-fated micro-flying machine. Please note just how small the receiver is compared to the leads and plugs.

These were all weighed together with the decks and superstructure and the total weight was significantly less than the previously established total displacement of 113.5 grams, so additional ballast would be needed. The running gear was temporarily positioned inside the hull and confirmed it would fit, so it all looked good, but there would be a twist and more on that later.

Hull and driveline

Two piece hulls are never the optimum solution for a plastic-magic conversion as leaks along the join can be hard to eliminate and when it came to sea trials it was discovered that there was indeed one amidships, so this had to then be rectified. Anyway, whilst re-engineering the hull, the largish horizontal apertures above the anchor recesses were blanked-off with styrene card, **Photos 6 and 7**.

Once the hull halves were joined, an 1/8 inch propshaft tube hole was drilled. This was a little tricky and the hull was broken-through at one point on its starboard side, **Photo 8**, but once the brass tube was in place, a little plastic filler satisfactorily repaired the damage.

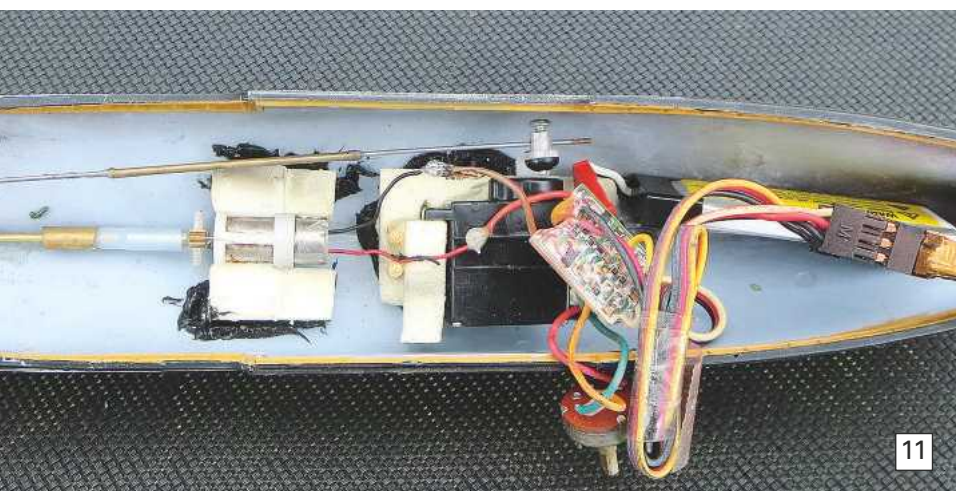
For the propshaft itself, a suitable piece of brass tube that telescoped nicely into the outer tube was used, principally to save weight and the plastic kit included propeller was epoxied to the end of this. You could use brass rod for the shaft, but the tube, apart from being lighter, minimises the impact of any vibration emanating from its rotation.



7



8



Rudder

The rudder post is also from brass tube with a blade soldered to it. The rudder tube is from brass and kept as short as possible to allow the tiller arm to go on top of the rudder post and clear the underside of the stern deck. The tiller arm itself has a small model aircraft wheel retaining collet as its boss. In fact, the top and bottom of the collet were also reduced in thickness as in **Photo 10**. Rather than using a micro servo, a slightly heavier and physically larger 'not-so-micro' unit was used, but in fact it contributed to the stability problems experienced later (the 'twist' mentioned earlier). This servo had to go on its side, sitting in a recess cut into pieces of polystyrene foam secured in the hull in front of the motor and gearbox, **Photo 11**.

Finishing-off

The rest of construction was conventional plastic kit assembly type of work. The model was sprayed with water based matt acrylic colours and the decals protected by a further coat of clear varnish. Some concessions have been made to the fact that



With the propshaft in place, a short length of silicone rubber fuel tube serves as the coupling. The motor's gearbox output shaft is a little smaller than the internal diameter of the coupling, so a short length of brass tube with a slot cut in it lengthways was slid on to the motor end of the coupling. The slot allows the sleeve to be closed down and squeeze the rubber coupling on to the motor's output shaft and it has proved to be okay in service, **Photo 9**. The motor and gearbox were fixed in place with bath sealant silicone, checking for best possible driveline alignment at the same time.



this is a working model, so the towing bows have been left off and also some other fittings that would get broken at the pondside, including the handrails which in any case as supplied with this veteran kit are quite coarse.

One great advantage of this tug is the way in which the decks slide in and out of place. First, one slides the aft deck in place followed by the aft bulkhead, **Photo 12**, and then slide the foredeck into place, **Photo 13**, before standing the aft A-frame mast in place. The sharp-eyed amongst you will notice the weird grey thing under the rudder skeg in this last picture and what it is will become apparent in the following section.

Sea trials and a problem

It did not become clear until the completed Jean Bart was launched in the kitchen sink for its final flotation trial that a notable list to starboard existed. I thought this could be corrected by shifting the

internal lead ballast to port, but it was rapidly discovered that in fact the model was exhibiting what is known as an 'Angle of Loll'. This occurs when there is zero metacentric height and it manifests itself as a permanent list, one way or the other, which if the model is disturbed by an external force such as the wind or a wave, can easily result in a capsize.

I knew this unhappy state of affairs had arisen, because the model would sit on the water with either a list to port or to starboard, but not sit upright, so what to do? Text books say that lowering the centre of gravity is the solution, but the ballast, driveline battery and r/c gear could not be got any lower inside the hull, so it was resolved to fit it to the exterior of the hull. This is something that I have previously never had to do with a Plastic Magic conversion and having said that, a change to a smaller and lighter rudder servo would probably help a bit.

However, you dear reader, must also remember the two week building time slot before the club's forthcoming annual indoor pool event, and the quick solution was to cut a slot in a lead 'sinker' weight and clip it under the rear keel section. Problem solved, and once in the water the external ballast is soon forgotten even when in the clear water of a swimming pool, **Photo 14**.

Jean Bart tracks straight and manoeuvres quite well with its slightly larger than scale rudder. The little plastic propeller provides plenty of thrust and the 3.7 volt LiPo battery provides more than enough power for this little model. Going astern is fine, as is alongside docking, but then un-docking is hard because the water's surface tension has a significant effect on this little model, which is barely 10 inches long.

Conclusion

All in all, this little project has all the features that for me at least, make a Plastic Magic conversion so appealing. It looked good (eventually!) on the water, was inexpensive, went together quickly and actually sails quite well with the external ballast. Had the small matter of stability and displacement been considered more carefully, then maybe, just maybe, the need for external ballast could have been avoided, so perhaps another Jean Bart should now be purchased and built?



“It did not become clear until the completed Jean Bart was launched in the kitchen sink for its final flotation trial that a notable list to starboard existed.”



Richard Simpson's
series on
model steam
plants

Boiler Room

PART **Sixty Three** Pipework bending and cutting

Last month in the February 2016 issue, we looked at a few basic aspects of pipework and its layout in the model and why it is important to maintain good condition pipes that are well routed and thoughtfully located, so as to make operation and maintenance as easy as possible. Don't be misled into thinking though that everything in the garden is rosy, as you will almost certainly find that pipe runs may need modifying over time and this is when we are tempted to just 'bend things over a bit' to get it to work rather than take the time and effort required to manufacture a new pipe. After the first sea trials of Ben Ain, **Photo 1**, a couple of things were identified, that I wasn't happy with. These included the need to vent-off water before admitting steam into the engine at startup and

venting-off the boiler during cooling down, so I decided to completely remake the steam supply line to the engine with a vent valve incorporated,

Photo 2.

This month however, I thought it would be time to look a bit more closely at just how we go about making the pipes for our steam plant, and probably far more interesting, just what shortcuts we can come up with to make our lives that little bit easier. For me that is the real key to successful pipework, thinking about how you can go about making a length as easily as you possibly can. If we make the most of this type of thinking, neat well presented pipe runs can be achievable by everyone, making their models that bit easier to operate and maintain,

Photo 3.

Photo 1. Sea trials are an invaluable way of determining if everything works well as you get the opportunity to operate and maintain the model and determine just whether any pipe modifications are going to be required.



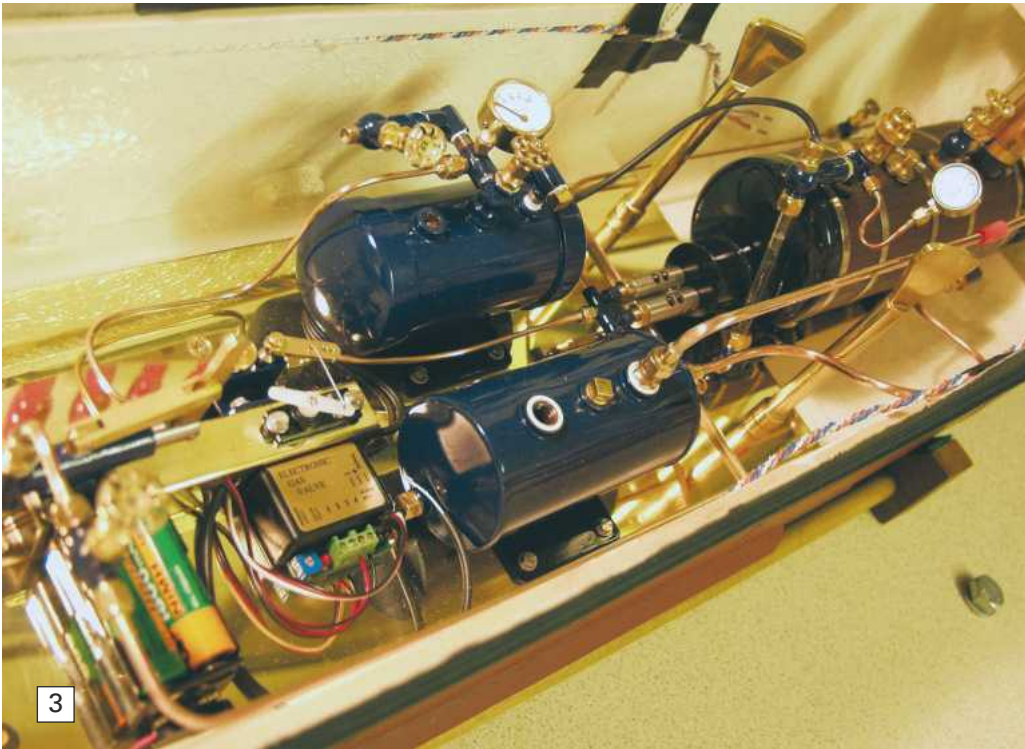


Photo 3. I think a lot of modellers see neat and tidy pipework as either something not worth bothering with or something that is beyond them, but it is well within the capabilities of the average modeller and well worth doing properly.

Planning

If you remember in last month's February 2016 issue, I mentioned a section of pipe that incorporated four bends in two different planes. After a lot of thought and deliberation a design that incorporated two separate pieces of pipe, each

with two bends, which slid together to ensure the perfect displacement angle and total length, was designed. Cheating, possibly, but who cares? Anyway, the result was a piece of pipework that did the job and looked neat and tidy. It is always worth looking at how we can make life as easy as possible for ourselves and that is where searching for opportunities where one can get a bit creative are beneficial. Planning the job will also help you to think the process through, get things laid out and to hand on the workbench, and may then help you to avoid such howlers as soldering the second cone on to the pipe before you place the nut along it. It is well worth laying out all the parts on the bench before you start, to help plan the pipe runs and just where you will want the bends, sleeves and fittings, **Photo 4.**

Photo 2. This was a perfect example of a necessary alteration, as after sea trials the engine supply pipe was completely remade to incorporate a vent valve to flush through condensation and vent the boiler during cooling.

Photo 4. It sounds daft, but laying everything out before you start bending is a good idea. You can see where you want the fittings to end up, allow for their length, as well as see much they may affect the bend positions.





Photo 5. Never underestimate a lump of bar stock as a bending tool. Anything can be used as you will normally be bending the pipe 'cold'.

Photo 6. The two most common bending tools. Springs can be very difficult to remove afterwards and with regular annealing this quickly becomes a pain. Pipe benders though have a fixed radius so are not the most flexible of tools.

Manufacture

Once the planning is complete, it is time to consider the order in which to do things and for me, at least, I always start with the bending and generally at the centre of the pipe. This allows imperfections to be compounded away from the centre, keeping them to a minimum, and both ends can then be trimmed to length. Bends can be performed with a number of different tools, but either a simple former, **Photo 5**, which can basically be any round heat resistant object, or a dedicated bending tool such as a pipe bender or springs, **Photo 6**. The main disadvantage with the bender is the fact that the radius is fixed, so one invariably ends up using a combination of tools. Either way, the one and only key to success is regular annealing or heating. This is because copper hardens very quickly, which means that its metallic structure forms crystals under stress and become much harder. This hard structure then resists bending and we end up with a crease as opposed to a nice smooth curve, so the crystal structure must be broken-down again into the nice soft copper that bends so much more easily. Consequently, after bending a piece of pipe only a few degrees we will feel the pipe becoming firmer as the structure changes. For you to become successful at pipe bending you need to gain the experience of feeling this point and knowing just how far you can take a bend. Go too far and get a crease and you will have to start again, but don't go far enough and you could end up annealing the pipe more frequently than necessary, thereby taking up much more time. Your only solution when you feel the pipe stiffen is to stop bending and heat the pipe to red heat again. After it has cooled you can then continue the bend for a few more degrees until you feel it stiffen again. A typical ninety degree bend will consume maybe three or four heating's to form to shape, and it is always best to heat it up again when in its final shape to relieve any remaining stress in the metal. Once you have mastered the ninety degree bend you will be surprised at how many pipes can now be created with this simple

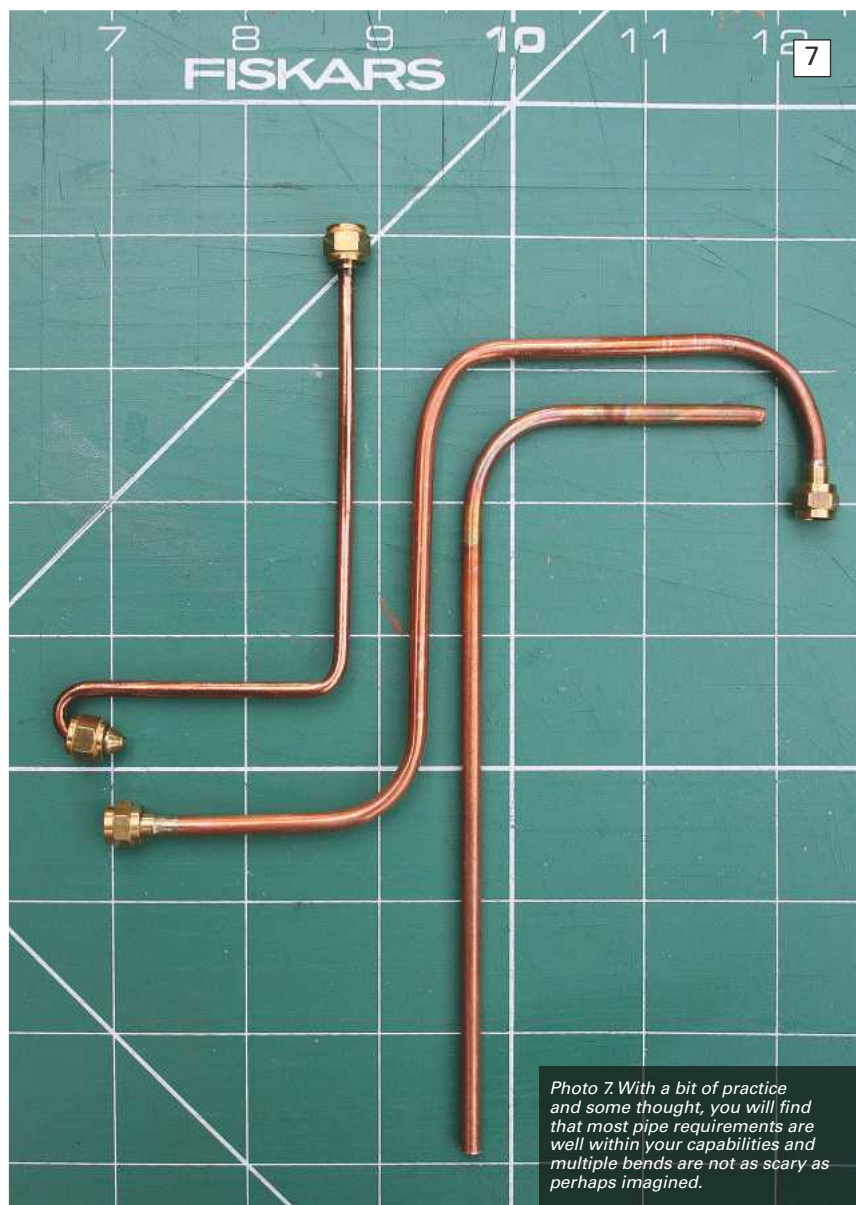


Photo 7 With a bit of practice and some thought, you will find that most pipe requirements are well within your capabilities and multiple bends are not as scary as perhaps imagined.

technique. The single most common failing is forming a crease or 'kink' and this will invariably be as a result of insufficient annealing of the metal and bending the tube too far.

Generally it is best to judge the bends from the centre and work out where the bend should start from along the pipe and mark it with a pencil line. You can still see the pencil mark after heating and this of course is then the starting point for the bend. If you work this way it is very difficult to get the bend in the wrong place, as trimming the tails will actually determine that, but when two bends are required this is more of a concern. If you do get a bend in the wrong place, it is not too difficult to open the bend out gently and then moving the pipe further around the former, or bender to progress the position of the bend slightly, but again, regular annealing will be required. In the case of more complicated pipes I find it very useful to use sections of redundant 2.5mm domestic cable copper core to initially bend to the shape I want, so I can see the relationship of the required bends. You can even use the wire as a former to get the correct radius and position of the bends and this will certainly help when you are creating pipes with a number of bends in them, **Photo 7**.

Cutting pipes

Once you have the bends in the right place the next step is to cut the ends of the pipe to length with the pipe cutter. You will now realise the sense in working from the centre of the pipe and cutting both ends to length as you still have the option of correcting bends if you work this way to ensure that you have got the best fit possible. The ends of the pipe can then be marked again with a soft pencil before getting the pipe cutter ready, **Photo 8**. The pipe should then be placed in the pipe cutter and the cutting wheel screwed down until it just touches the pipe. It is then screwed a little bit more to apply some pressure to the cutting edge. Then the tool is



rotated around the pipe, creating a sharp crease in the pipe. When the rotation feels slack, the cutter can be screwed in slightly more to increase the pressure again, and then rotated once more around the pipe. After a few adjustments of the cutter the pipe should simply part leaving a nice neat chamfered edge. The cut left by this type of cutter is perfect for fitting brass soldered fittings to the end of a pipe, however if the cut pipe is to be slid over a smaller diameter pipe to create a sleeve, then the inside of the end of the pipe may require 'dressing' to open it up again.

Photo 8. This is about the smallest cutter you can get and very fine pipe will not be cut so rolling beneath a Stanley blade might have to be used. However, this cutter is perfect for the pipe sizes it covers.

Conclusion

Cutting copper pipe with any tool such as a hacksaw or Stanley knife will almost certainly leave you with a damaged and difficult tube end to trim and. A proper cutter is by far and above the best tool to use, unless you get to the really small diameter pipes, when I find that gently rolling the pipe under a Stanley knife will leave a similar finish to a proper cutting tool.

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HMS Jalouse, 1794 ex French 18 gun brig 1:64 815mm.....	£204.99

RIGHT: The TF72
twenty year medal.



Task Force 72 Scale Model Ship Association

Scott Rice reports from their 20th Anniversary Regatta



ABOVE: Craig Taylor's unique mooring buoy and attendant workers.



The first 1995 Regatta. The same reviewing officer attended in 2015.



ABOVE: HMAS Vendetta at speed.

BELOW: A very nice WW2 armed trawler.



A Brief History of Task Force 72 will be useful before getting started. In 1994 two gentlemen got this group started. One was Russ French who at the time was a Senior NCO in the Royal Australian Navy and he had been building models of warships for some time, and the other was Allan Pew, a master pattern maker who was producing GRP hulls and resin fittings for various model ships. These two men did not know each other until a chance meeting at the Maritime Model Club of New South Wales where Russ had put his model of HMAS Adelaide, a guided missile frigate next to Allan's HMAS Torrens, a River class destroyer escort.

At this point they had both looked at each other and said '1:72 scale'? They discussed the pros and cons of this scale and found they had similar reasons for building such models and from this chance meeting have been mates ever since. Still in 1994, Allan asked Russ if he could help with a display of models for a major reunion of Royal Australian Navy members who had served in the Vietnam conflict and while having a great time talking with everybody, the two started talking

about how many models were being built at that time and how good it would be to see all of them on display at the same place. Over a few beers, they talked about the lack of a scale based themed clubs and that it could be an idea to start an association solely for this 1:72 scale. With the drink still flowing, the name Task Force 72 came about with a suitable logo as naval vessels sail in groups known as Task Groups and even larger groups are known as Task Forces.

With a fixed scale of 1:72, this all made perfect sense, so by February 1995 Task Force 72 had their first gathering at a lake in Wentworth Falls with about 20 models on that day, together with a BBQ lunch and the group deciding that this gathering should happen again. So, with much planning the first regatta was set for the 25th/26th November 1995, again at Wentworth Falls in the picturesque Blue Mountains of New South Wales. A couple of reviewing officers attended, the first being the Governor of NSW, Rear-Admiral Peter Sinclair RAN, Rtd. and the other was Rear Admiral David Campbell RAN. These officers would review the models and pick a craft that they thought deserved to be the 'Best Model of the Regatta'. This award was based on the Gloucester Cup which is awarded to the best RAN vessel each year, but our version is known as the Wentworth Shield named after our home sailing water. In 1997 it was decided to officially form the group and it was registered as an Incorporated Association, this meaning that it needed a proper constitution and office bearers including a President, Vice President, Secretary, Treasurer and committee members.

Eighteen years later in 2015, the club has evolved to now having around 150 members and approximately 450 models between them. The membership now have 'Fleet Bases' around



Australia in each State. For example there is Fleet Base Perth; Fleet Base Greater Sydney, Fleet Base Gulf Waters and so on, all sharing the burden of running this growing national association. These bases (groups of members) have representatives who are part of the committee and help members with any questions that may arise. Task Force 72 have also introduced some different awards, one being the Bravo Zulu Award (also known as 'BZ Award', this meaning 'well done' as a naval signal. The best Newbie Award (first time model), Best Non-Warship Award and the Homer Award (given to an individual for an incident that may have occurred throughout the day) are also now the global prizes we present.

As these regattas have now been running for 20 years or so, this is an achievement that I'm sure most of the guys didn't think could happen at that initial regatta in 1995.

2015 20th Anniversary Regatta

Being the 20th year of the club, Russ French thought it would be a great opportunity to have Rear-Admiral David Campbell RAN Rtd. to be the reviewing officer once again. So members travelled from all over Australia to be part of this very special event on Saturday 28th and Sunday 29th November 2015. Saturday started foggy and wet, at times there being steady rain and this was on and off most of the morning with heavier showers terminating the sailing in the afternoon, but around 40 models hit the water and braved the conditions with another 40 models or so under cover. Sadly, as a net result of this adverse weather, the Fleet Review did not take place on this day, but the Task Force 72 crew did later head to a local hotel for food and drink. Sunday was a better day and the majority of pictures are from then.

Sunday

After everybody had recharged their batteries with food, drink and a good sleep, it was time for the Sunday sailing with the weather being much better and low winds, sunshine and smooth water. A lot of members took advantage of this with numerous models taking to the water. Bearing in mind the huge distances that some members have to travel, inevitably as the day wore on many of them started to pack for their long drive home.

Awards

The Bravo Zulu Award was given to Bruce Stevens for his model of USS Long Beach CGN9 and he also took the Homer Award, for a incident that had happened with his model that day. The Best Warship Award was won by Herbert Hamson with his scratch built model of IJN Yamato as well as

the Newbie Award for the Best First Model and the Best Non-Warship Award went to Rob Lee for his tug Respond. The major prize, the Wentworth Shield, was awarded to Mark Buttsworth for his outstanding model of HMAS Melbourne FFG 05. He has had this model for quite some time, but this highly detailed example of an Australian FFG has been one of the best in the country, so well deserving of the Wentworth Shield.

Russ French presented Michael Brown with life membership. He is our long-serving treasurer (actually from the association's conception) and something that was much appreciated.

Conclusion

A big THANK YOU to Dave and Karen Pearce, plus Craig Taylor for all their efforts running the BBQ for two days and a big thanks to everyone that gave a helping hand over the weekend and to those that travelled long and far to make this 20th Anniversary Regatta a great weekend of companionable sailing. The 2016 event is planned for Naracoorte in South Australia, over the weekend of 19/20th November.

ABOVE: Warner Van Laatum's IJN Yamato battleship.

ABOVE LEFT: John Konda's Russian Krivak class frigate Dzerzhinsky, named after a KGB chief.



ABOVE: Rob Lee's Respond naval tug.



Allan Pew's Indian Navy Taragiri and Geoff Eastwood's HMCS Annapolis.



USS Long Beach, HMAS Melbourne, HMAS Hobart and USS Winston Churchill.



A Lighthouse with

Andy Cope's
radio controlled
version - and it's
not a floating traffic
cone!



Sometimes inspiration for a project will come from nowhere in particular, and I arrived at this lighthouse project without any forethought at all, but whilst shopping I found myself in one of those hobby type shops that seem to have appeared in most retail parks these days. Whilst unfortunately they do not stock model boat kits, they do seem to have all sorts of random stock that can be utilised for the type of daft projects that we might enjoy from time to time

On this particular occasion, it came in the form of a large solid polystyrene cone that caught my eye, which immediately struck me as the obvious starting point for a lighthouse model, it being roughly 60cm high. So, having parted with £5, which seemed a lot for this piece of polystyrene and committed myself in the process to providing Buxton MBC with a new and opulent accessory, this being a radio controlled lighthouse which would be a particularly useful item for our club's annual Venetian Lights night sailing event.

To tell the truth, just a static floating platform lighthouse was initially all that was planned, but one could already foresee the; 'Pity it doesn't move' comments floating my way, so the project was begun, by making a simple base unit 'boat' platform with enough room for standard model boat running

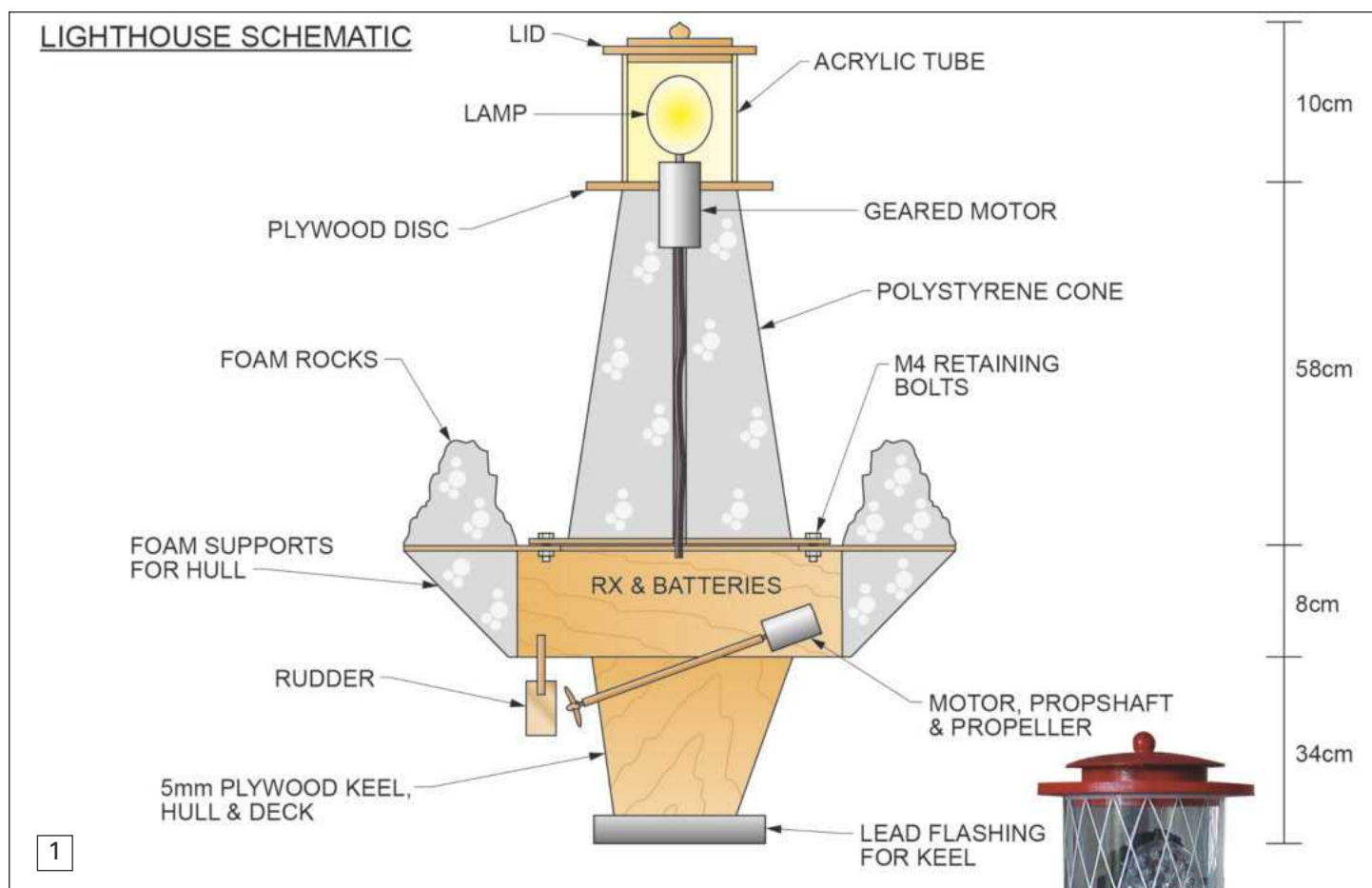
gear inside of it. Regrettably, no photos of this construction were taken as the hull only took half a day to assemble, but the plan will hopefully provide enough detail to show its basic components,

Photo 1.

Construction

This 'hull' is a plywood box, 50 x 50cm and 8cm deep, with a weighted plywood keel for stability. There is also foam insulation board on the inside for added rigidity and 'unsinkability'. Two-part resin was used throughout the construction as an adhesive, which sticks plywood, foam and polystyrene components together very securely and without unpleasant reactions. The rocky outcrops on the hull were cut with a hot wire from foam insulation board before painting. Water based acrylic paints applied by brush were used to decorate the model, as they don't react with foam or polystyrene. As an addendum here, even the solvent propellants in acrylic sprays might have melted some parts, so 'Caution' was the watchword and **Photo 2** is of the lighthouse, aka the £5 Cone.

The 'light' in the lighthouse is just a partly dismantled Rolson Torch from a local store. This torch has 24 super bright LED lights all powered by



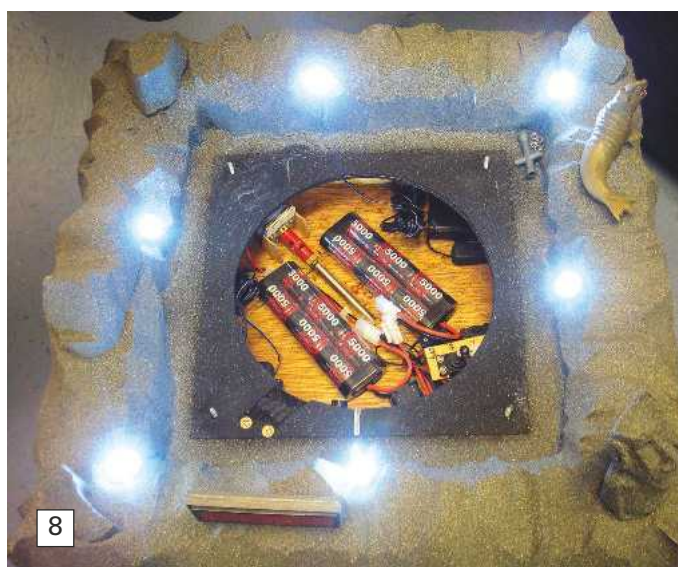
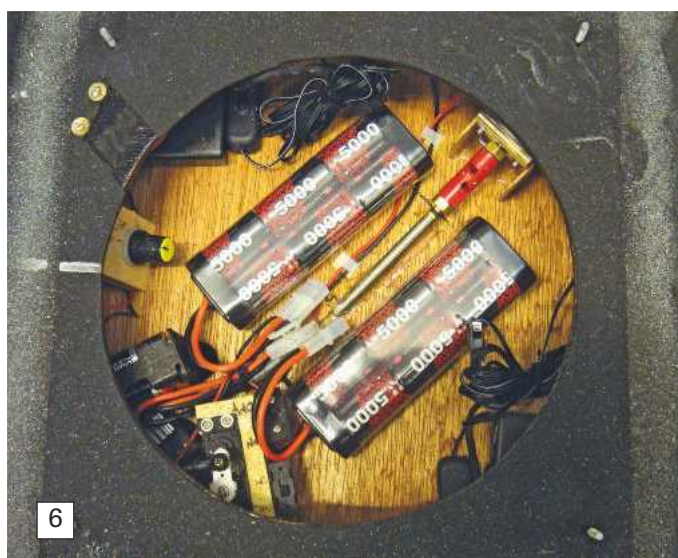
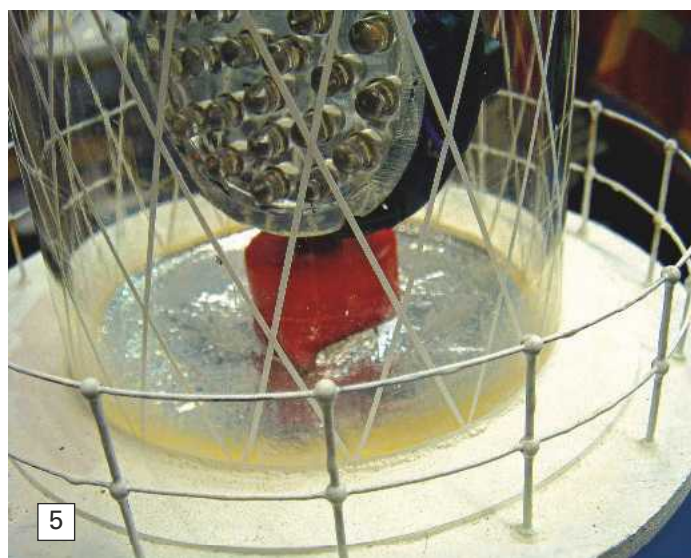
a difference

3 AAA batteries within the back of it, **Photo 3.**

This torch slots on top of an MFA geared motor that rotates the lamp at about 60 rpm, **Photo 4.** This is a little too fast, so its speed has subsequently been slowed a bit more with a potentiometer. Yes, I know that a lower geared motor in the first place would have been the obvious solution, but this was all a bit of an experiment.

Of all the areas of this project you might have expected to be difficult, in fact the only tricky problem was running the power cables to the





lamp's geared motor straight down through 58cm of the solid polystyrene cone to the floating hull beneath it.

I guess the cables could have been run down the outside of the cone, but hiding them was a better idea. Lacking a 600mm long drill bit, a metal fireplace poker was heated, this having been forged by my own fair hand in a school metalwork class in 1984. It was pushed through the cone from top to bottom, creating a channel for the motor wiring. This worked a treat, but I don't recommend anyone else tries this method, as the combination of hot metal, fumes, melting polystyrene and the potential fire hazard is probably more than enough to invalidate your health and house insurance.

The observation deck at the top of the lighthouse was formed from a disk of plywood, which also supports the lamp motor, and it has been edged with model boat style railings to form a safety rail, **Photo 5**. The light glazing is an offcut of clear acrylic tube, criss-crossed with thin strips of white tape to give it a panelled appearance. To top it off, the red domed light top is a disk of plywood stuck to an old tin lid, creating a removable roof for access to the Rolson light and its batteries.

In order to keep the centre of gravity as low as possible, the lamp drive motor batteries are inside the lower rocky outcrop hull, along with all the rest of the 'boat' running gear, **Photo 6**.

The lighthouse itself is detachable from its rocky outcrop 'hull', forming the lid to this with simple electrical contacts made from drawing pins connecting the lighthouse lamp motor to the batteries in the hull, **Photo 7**. These contacts connect when the lighthouse is bolted into place, setting the lamp spinning until the lid is physically removed.

Some additional waterproof LED lights were added around the fake rocky outcrops to provide some effective up-lighting to the base of the lighthouse when it is on the move and whilst sailing in darkness. These lights can be purchased from Maplins (a UK high street electrical shop) and are supposed to be used for illuminating tents whilst camping, **Photo 8**. A couple of fish tank ornaments were also added to the rocky outcrop base of the lighthouse and the foam rocks etc. were all painted with acrylic stone effect paint. The Easter Island Head sculpture found in a local pet shop was another artistic addition to the rocky base unit, **Photo 9**.



On the water?

The lighthouse performs really well, with its flat hull and keel keeping the model rock solid and upright, with **Photo 10** of it ready to sail. It isn't too heavy at all, due to the super-light polystyrene lighthouse cone main superstructure and has a surprising turn of speed and direction when driven by its 40mm three bladed brass propeller and Johnson 600 brushed motor, with a large rudder for steering.

Photo 11 is of it all on the move, suitably decorated with tinsel for the recent festive season. However, far from warding off model boats from its rocky outcrops, the lighthouse seems to attract our r/c shipping like a magnet when it's on the lake, as other club members like to try and moor their craft alongside. That is at least until they realise the lighthouse can also move and chase them away!

Alternative top

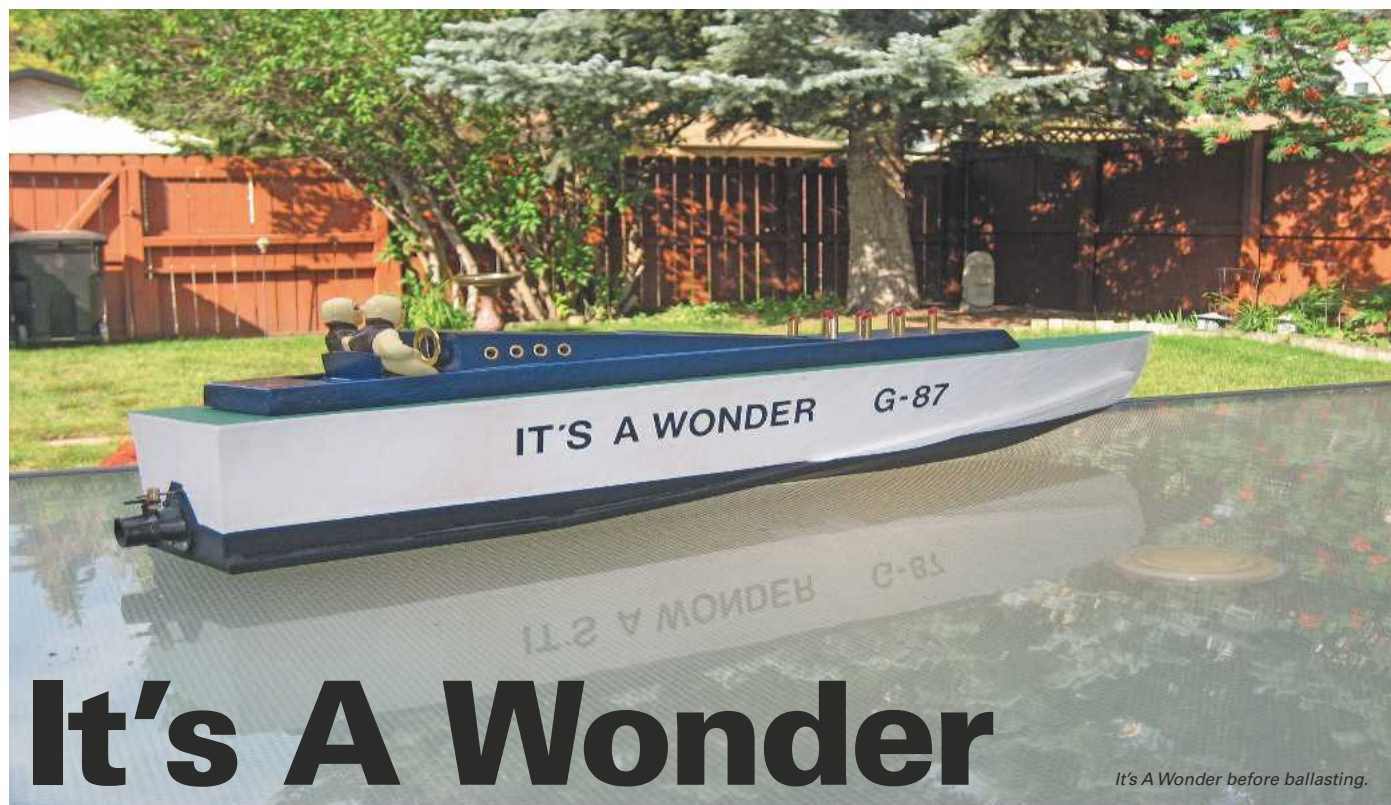
The basic rocky outcrop platform has proved quite

versatile, because the lighthouse itself simply bolts on top of it. So, using insulation foam and another fish tank ornament, 'Skull Mountain' has been created, **Photo 12**, ready for the next Halloween night.

Finally, for a further bit of fun, a scrolling LED illuminated notice panel has now been added, **Photo 13**.

Conclusion

Yes, all a bit of fun, but it is all based around a simple foam cone from a retail park's so-called hobby shop and was quick to build and the rock outcrop base unit can have an alternative top section depending on what you want to do with it. To see some short videos of the lighthouse in action, both during the day and night, please search YouTube on the Internet for: Buxton Model Boat Club 20 Buxton Model Boat Club 31 *Enjoy your hobby - Andy*



It's A Wonder before ballasting.

Bill Burtwell
modifies the June 2015 Model Boats Free Plan for Vivace

Over the years Bill has built four of Glynn Guest's designs, including Empire Jubilee, MM1384; Dido, MM1278; Aircraft Carrier, MM2010 and the Ferry, MM2082. When he received the June 2015 MB he was immediately drawn to Glynn's Vivace and so online ordered the same motive unit deal as recommended in the supporting article.

Following Glynn's instructions, the hull took shape quickly without problems, but as Bill has an interest in classic speedboats and pre-WW2 racing boats, he set about designing a different top by using pictures

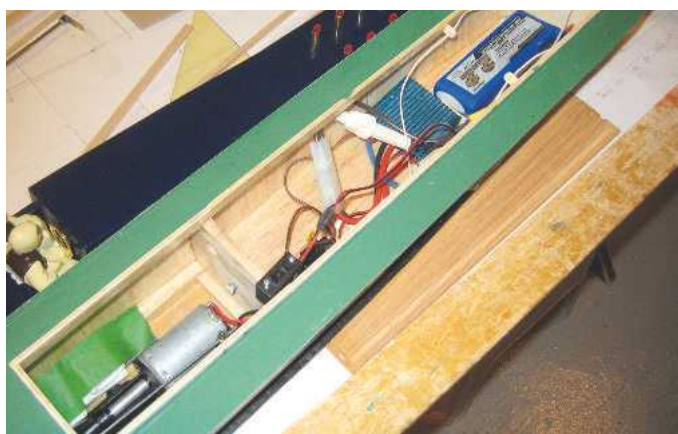
from books. The crew comes from a Lionel No. 34 Runabout purchased some years ago. They add top weight, so Bill was careful to initially test It's A Wonder without the crew, but after adding them and adjusting the ballast, all was well.

Bill comments that the model performs well and Glynn was right in that the steerable part of the drive unit must be properly secured as he suffered the same initial grief as Glynn by not following his well meant advice, but is now happy with the final result as hopefully the pictures show.

RIGHT: It's A Wonder at speed. The water-jet unit works well, if you follow Glynn's advice.



BELOW: The interior of It's A Wonder and please note the LiPo battery.



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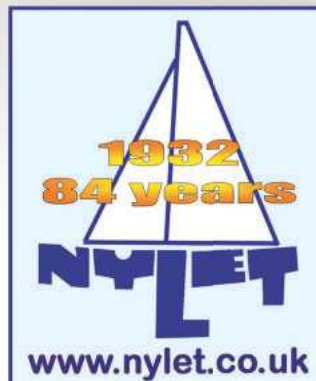
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Glynn Guest with advice and tips for modellers



A felt tip pen has been used to mark the cockpit canopy frames.

Felt tip pens

I was asked my thoughts on how to finish the cockpits on 1:144 scale model aircraft when they are installed on model aircraft carriers. Part of the problem is that at this scale little, if any, internal detail is supplied with the kit. The option of painting the cockpit transparency would hide the missing internal details, although to my mind this makes the aircraft look very toy-like and it can spoil any attempt to add realism to the whole model. To be honest at 1:144 scale the clear plastic cockpits are relatively thick and hide the lack of internal details.

This then led on to how best to paint the cockpit framing. At this scale they are fine lines and would require a steady hand, patience, skill and some very fine paint brushes. I'll confess to only having the brushes and so use an alternative method and it is in fact to draw the frames on with a fine tipped permanent marker pen. If the models are painted in dark colours then a black pen is usually okay. The results might not be perfect, but when viewed from a reasonable distance you can just make out the framing, which is more or less what you would

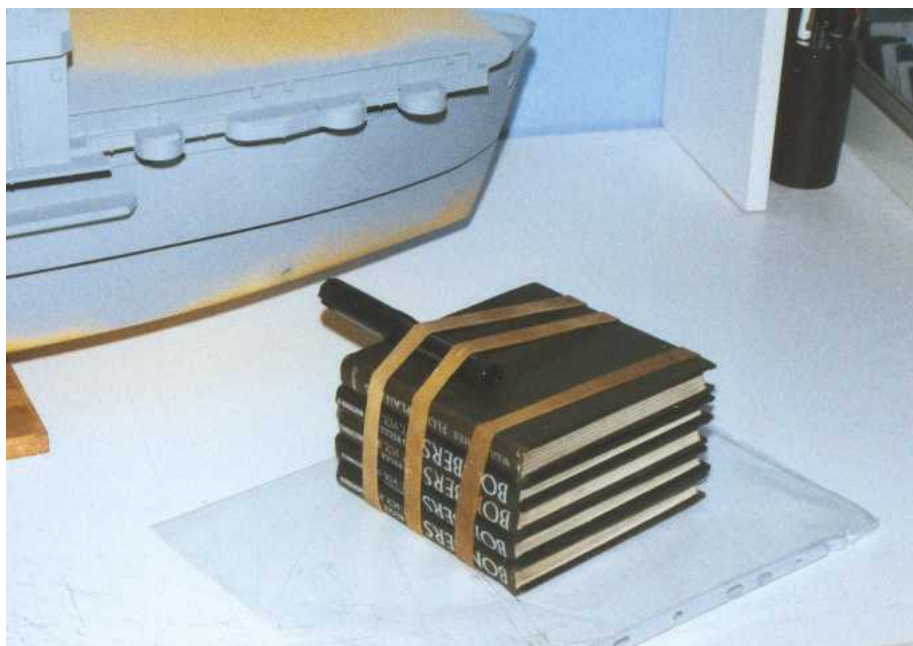
expect when viewing the full-size version over equivalent distances.

It then struck me that I do use these pens for other modelling jobs. One example being the black Boot Topping seen on many ships. This can be produced with careful masking and painting, but complex curves can be troublesome. My method is to place the model, sometimes in its stand if that is more convenient, on a flat surface so the desired Boot Topping will be parallel to the surface. A black pen, which will produce a line about 1/8 inch (3mm) wide, is then attached to some suitable packing so that its tip is at the same height above the surface as the boot topping or hull bottom colour needs to be. Carefully pushing the pen tip against the hull, it is drawn around the hull. This creates a good guide for painting and because of the line's width, it will also hide any wobbly edges when the black paint is applied.

Marker pens have been used to write the pennant numbers on the sides of model warships when the right size and style were not available in other forms. Pens can also be handy for temporary touch-up jobs to hide damaged paintwork, assuming you can match the colours. I am however not sure about their use for adding weathering effects on a model, as heavy-handed application is likely to produce a solid rust or stain colour rather than the subtle shades that realism demands.

So, permanent marker pens can be useful tools in the modeller's armoury, but when pondering about what to do next, do not put these pens in your mouth and suck on them!

BELOW: A basic waterline can be safely marked with a felt tip pen whilst the hull is supported with its proposed waterline parallel to the work surface.



With a fresh felt tip pen, a crisp line can be scribed.



Test Bench

Model Boats looks at new products

Attention - Manufacturers & Distributors

● 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. You cannot afford to miss this opportunity!



Expensive, but these are the right tools for dismantling an Iwata airbrush.

News from the Airbrush Company

Iwata Professional Airbrush Maintenance Tool Kit

Cleaning and maintaining our airbrushes, which can be expensive tools, is something that we should all do. The Airbrush Company have introduced this kit which makes the task easy and although part of the dedicated Iwata product range, the tools can be used on other brands of airbrush. The kit comes with a two-sided Iwata Air Valve Guide Wrench, Soft Jaw Pliers, Needle Packing Screwdrivers (for 1.2mm and 1.4mm diameter needles), Nozzle Wrench, a protective Needle Tube and easy-to-follow

instructions with diagrams. All of the items are within a soft-sided zippered case, which can hold up to three airbrushes and the soft jaw pliers are particularly useful when removing their nozzles etc. **Price is £69.95** (Ref: IWCL-500) which is quite expensive, but there again the airbrushes themselves may well have cost rather more.

Lifecolor Acrylic Hobby Colors

These are well established in the military modelling hobby, but some of these paints have uses on both static and functioning model boats. Recently received were:

Lifecolor Liquid Pigment

Rust Wizard Set (LC-LP02). This includes five differing rust colours and a remover. Applying rust to a model is never easy and these washes should make the task easier.

Lifecolor Rain and Dust Pigment Set (LC-LP03).

The ability to easily create rain streaks on model ship upperworks is of some interest, there being five varieties of colour and a remover included in the set.

Price for either set is £16.99.

Darkstar Molten Metals

A new resource, these are a

range of water based acrylic metallic paints which are permanent when dry and do not need varnishing as they stay bright and glossy. The range is large, with 26 different colours including the traditional silver, gold, bronze and brass, but also pewter, baroque, platinum and bright steel amongst the others. **Price is £3 per 17ml bottle.**

These products may be obtained direct online or by telephone from The Airbrush Company Ltd, 79 Marlborough Road (East), Lancing Business Park, Lancing, West Sussex, BN15 8UF, tel: +44 (0)1903 767800. Website: www.airbrushes.com

Review by Paul Freshney

The Battleship Tirpitz - Super Drawings in 3D

Written by Stefan Damiński. Softback, 98 pages, 297 x 210mm, over 170 Super 3D Colour images. ISBN: 978-83-64596-69-8. Published by Kagero and sold in the UK via Casemate UK Ltd. 10 Hythe Bridge Street, Oxford, OX1 2EW. Website: www.casematepublishing.co.uk. Tel: +44 (0)1865 241249. Price (rrp) £18.90. Printed in English this book is available direct from Casemate UK Ltd. or through the usual retail outlets.

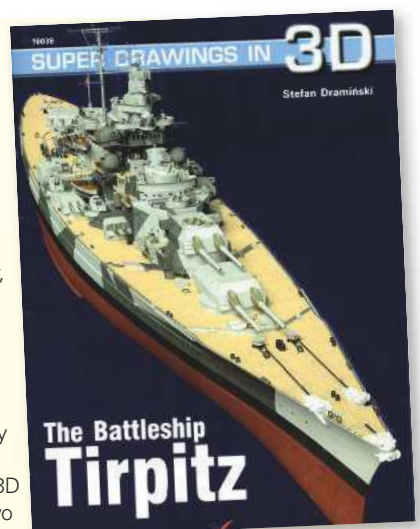
The battleship KM Tirpitz and her sister ship KM Bismarck were the two battleships of the Bismarck class, the largest capital ships ever built and completed in Germany.

Both ships enjoyed only a brief existence and though begun during peacetime, both were commissioned after the outbreak of WW2. Bismarck's fate embraced triumph and tragedy and over a limited period Tirpitz could do no more than prove her value simply by her existence. This for a warship of her dimensions and firepower was almost certainly too little, but sulking deep in Norwegian fjords, Tirpitz tied up huge Allied resources to keep her in check. Several attempts were made to sink this battleship but she finally met her end suddenly in November 1944 being destroyed by aerial bombing by the RAF and inadequate underwater surveying which allowed the ship to capsize completely.

This new book by Stefan Damiński is one the 'Super

Drawings in 3D' series that focus on the construction of famous warships from the First and Second World Wars. With outstanding 3D colour imagery every external aspect of the ship is visible. There are various close up views of her hull, superstructure, armament, radar, searchlights, deck layouts and axillary motor boats, all based on actual scale drawings and photographs.

Information on design, development and combat history is also included together with a separate double sided sheet of 3D colour images comparing the two battleships, all of which makes this book an excellent reference source for us ship model makers. For more information please check: www.shop.kagero.pl/lang/en where you can see the full range



of these books which include British, American, German and Japanese warships.

Book Review by John Deamer

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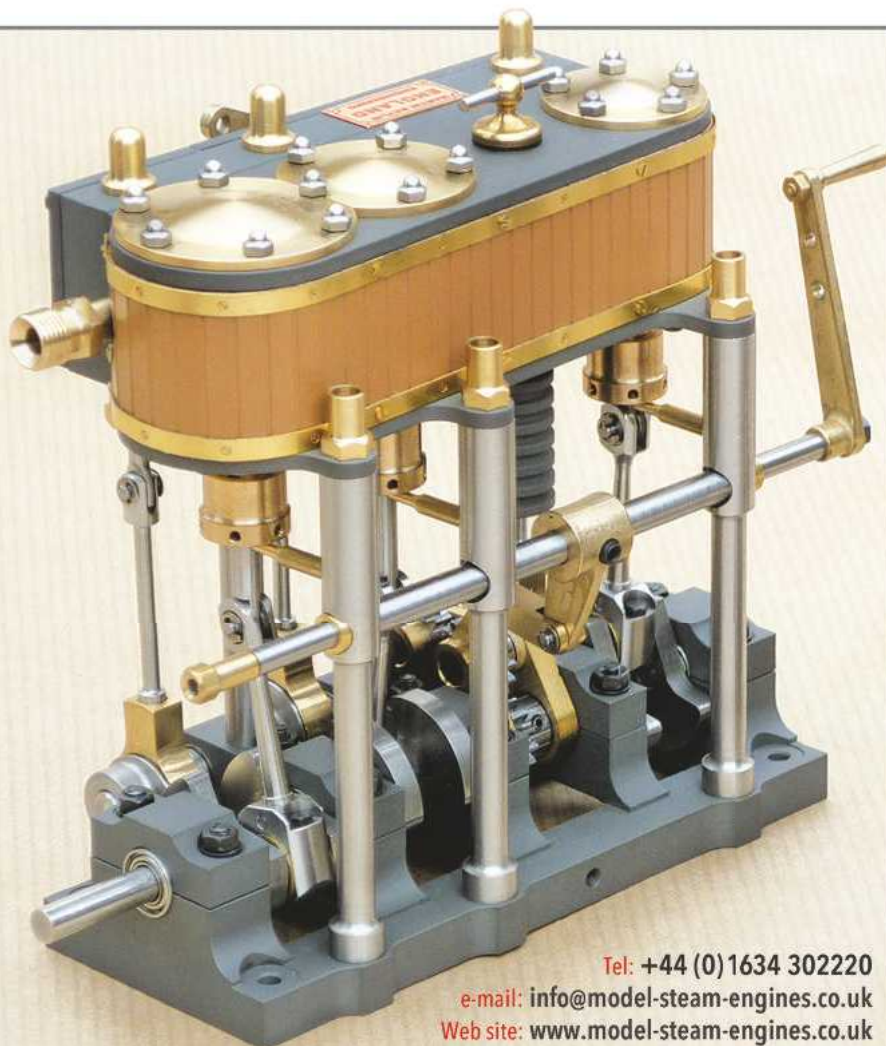
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GERMAN S(E) BOAT, 1500mm (59ins) ABCO hull, 3 Buhler motors, propshafts, rudders, A frames, needs electronics. Deck, superstructure, drawings etc., £150. Also GRP Huntsman, needs slight repair and motor, £10. Photos if reqd. Mr. I. W. Russ, tel: 01823 277962 (Taunton, Somerset).

ELDERLY MARBLEHEAD YACHT. GRP 50in hull, two suits of swing rig sails, servos. £50. Also, Mk. 5 Sweet A yacht with top suit of sails, radial jib fitting, servos, £450. Ill health forces sale. Mike Gay, tel: 07971 064023, evenings please, (Exeter, Devon).

WOODEN BROADS SAILING CRUISER. Display model, 38cm long on heavy black stand. Hull in good condition with mast and boom, but rigging damaged. Photo available, offers? Kenneth Goddard, tel: 01332 521168 (Derby).

WYEFORCE 1:24 TUG, 840mm long. As new with bow thruster, working lights, radar, reinforced towing bollards. Twin motors, batteries & ready to sail, £350 plus £50 for Tx & Rx if required. David Mellors, email: davidmellors@gmail.com, tel: 07443 038038 (Chesterfield).

TAMIYA R/C SHERMAN TANK as new, in box with r/c suitable for landing craft. W.H. Shaw, tel: 01539 535704 (Cumbria).

LLOYDSMAN TUG. 48 inches, GRP hull, Kort nozzle steering, esc, 12v motor, lights, sound effects all in excellent condition, £250. Ill health forces sale. Mike Gay, tel: 07971 064023, evenings please, (Exeter, Devon).

BLUEBIRD OF CHELSEA pleasure boat, single prop', GRP hull, 36ins long, superb detail, 9.6v, Planet Rx, £300 ono. Also: Victorian style canal boat, 32ins, 7.2v, Planet Rx, £200 ono. Buyer collects. Gordon Cosgrove, tel: 01728 832131 (Suffolk).

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Robin Butler launching boat D9.

BMPRS News

Website: www.bmprs.co.uk



Craig Dickson
reports from
Branston Water
Park

BELOW: D127: Ian Searle's smart looking Phantom.



Race ten, out of the eleven scheduled for the 2015 season, was originally planned to be at Nottingham, but just before the booking office opened to accept entries, reports from our host club at that venue warned us that the usual lake upon which we race was substantially weeded, making it unsuitable for racing.

This presented a dilemma for Mark Wild who had already volunteered to be OOD (Officer of the Day), because unless he could find an alternative at short notice, this event would have to be cancelled. His pro-active approach immediately had him putting feelers out for an alternative venue, and thanks to Peter Dimberline of the Burton & District MBC we were given the thumbs-up, despite the short notice, to race at Branston Water Park. Peter and Alan (of Burton & District MBC), once again kindly gave up their Sunday to attend the event and help out by supplying and manning the rescue boat and we are extremely grateful for their efforts on our behalf.

On the day, the turnout was below what we

would normally expect, although that may have been due to the last minute change of venue. However there were still enough members and boats present to set the scene for another day packed full of fun and excitement. The water level of the lake had dropped even further than when we had previously raced here, meaning that all the boats had to be launched once again from the lake bed, wellies and waders coming in very useful for this. Mark Wild called the usual Driver's Meeting, warning us to take particular care when launching the boats, because the lake bed, within a few steps out into the water, fell away substantially to deep water.

With everyone being happy with the good-sized rectangular course, it was time to get racing started with the usual format of two 15 minute heats in each class to decide the final placing's based upon the total number of laps scored. It is worth mentioning that even at this late stage of the 2015 calendar, several of the classes still had everything to play for in respect of establishing the final championship positions, although sadly there were no entries for the C Class this day

AA Class

This smallest mono hull class for nitro engines of up to 4.5cc capacity had five boats entered, my West 28 powered Magnet achieving 68 laps in total for first place. The second heat though proved slightly frustrating, because the engine was blowing glow plugs prematurely and it had to be restarted on two occasions after fitting a new glow plug.

Robin Butler's Hyper 21 powered Sea Spirit had a total of 62 laps for second place with him as usual displaying his excellent driving skills, keeping very close to the buoys. The Hyper 21 engine in Robin's



LEFT: The big cats in action, No. 44 of Garry Dickson leading the race to eventually win.

BELOW LEFT Mark Beesley's Conquest cat' running very fast in the ideal conditions on this day. (Photo courtesy of Judith Beesley)

BELOW: Inside Mike Barnes' winning A Class Challenger.



boat has only three quarters of the capacity of the 28 sized engine in the Magnet, but with this engine mounted on a reduction drive gearbox it enables the boat to turn a larger propeller, which is more efficient than using conventional straight drive and a smaller propeller. The rules however stipulate that in this class if opting for a gearbox then you are limited to an engine size capacity of 0.21 cubic inches (3.5 cubic centimetres). Junior member Kian Searle enjoyed some really good driving with his Picco powered Challenger and clocked up 46 laps for third place. The boat was impressively quick, but Kian did suffer an unexplained stop in Heat One which could have been caused by picking up stray weed. Then in Heat Two the brass connecting clamps of the throttle linkage rod came loose causing a further stop, but upon recovery, the errant brass clamp was found safe and sound in the bottom of the hull.

What happened to Andy Rennie and Mark Wild, whose boats were retired after the first heat for fourth and fifth places respectively? Andy's Challenger 43 caught a clump of weed at the far end of the course causing it to lose steering control and taking it into the pond's side. Although the boat was quickly recovered and re-started, when eventually it was brought in, it came in a bit too fast, catching rocks on the lake bed as Luke struggled to grab it. This pulled the propshaft out, leaving the boat stranded just out of reach of the edge, its engine wildly over revving with zero load and causing it to seize. Not a good day at the office! Mark Wild's CMB21 engine suffered a broken con' rod, so he too had to retire his boat.

A Class

This class had five entries and saw some good racing and consistent lap scores in both the morning



and afternoon heats. Mike Barnes' Challenger 43 powered by an inexpensive ASP46 engine was on great form and achieved first place with a total of 81 laps. This heat for Mike though was far from certain at the halfway point, because just before the end of the first race, the boat collided with Robin Butler's Cavalier, damaging the propshaft of his boat and splitting the front seam of the hull. Thankfully Mike fixed the damage sufficiently to have a good run in the second heat and securing first place.

Sally Dickson's SC46 powered Crusader 3, scored a total of 74 laps with consistent driving to give her second place. She didn't quite keep out of trouble

ABOVE: The D Class in action, note the huge amount of spray from the surface drive propellers. (Photo courtesy of Judith Beesley)

RIGHT: A great launch off from the lake bed. At normal water levels we would be neck deep in water if standing here.

BELOW: Mike Barnes' vibrant coloured race winning A Class Challenger. (Photo courtesy of Judith Beesley)



ABOVE RIGHT: Malcolm Pratt's big cat' at speed.



though, because at the end of the first heat whilst battling for position towards Buoy 4, the boat came into contact with Kian's Challenger and bounced off in a spin. Luke's Challenger was rapidly following the two of them and Luke could not avoid his boat running straight into Sally's, leaving a nice clean cut hole in the hull's side! Thankfully some black duct tape temporarily patched it up for Sally to continue later in her second race.

Robin Butler had a total of 72 laps which gave him third place, being consistent in both heats. His Cavalier is powered by the smaller capacity SC40 engine, which perhaps left him at a slight disadvantage over the other four that were running slightly larger and more powerful engines.

Junior member Luke Bramwell enjoyed some good racing with his Challenger and 67 laps for fourth place. Luke could have done better if it were not for the boat picking up weed causing the engine to have intermittent cooling problems. Kian Searle's

Crusader 3 achieved a respectable 39 laps, but on this occasion this was only enough for fifth place. In the first heat, the engine was alternating between slowing down and surging flat-out, and really just not running properly. Dad Ian suspected a sticking float chamber valve and so this was bypassed during the lunch break. However bypassing the float chamber caused the engine to stop shortly when in to the second heat, needing adjustment of the carburettor's fuel needle. These types of problem are very difficult to correct in racing conditions with every minute off the water costing valuable laps, so Kian did well to achieve the 39 laps in such circumstances.

B Class

With only three entries in this mono-hulled nitro (glow) fuelled class, Garry Dickson's West 52 powered Challenger was on top form and easily won with 77 laps. If it wasn't for him over-stretching the boat in Heat One and the resultant 'flip' at Buoy 3, he would have scored even more laps. Robin Butler's Magnum powered by a CMB 67 engine took second place with 39 laps, giving Robin twelve important championship points. This boat/engine combination is capable of a lot more though, and I thought that his engine was not showing its usual form on this occasion. The unnamed boat that we refer to as the Triple-X of Mark Beesley settled for third place with 24 laps in total, all gained in the second heat, so what went wrong in Heat One for him?

The ASP 61 engine initially refused to run despite repeated attempts at starting it, but in the lunch break, Mark replaced the carburettor and to his relief, managed to get the boat going in Heat Two. A new carburettor though always needs some time to find the correct fuel needle settings and 15 minute race heats are not the ideal environment to do that. Ten out of ten though to Mark, for persevering and getting those laps.

BELOW: The AA Class boats getting a bit bunched up. (Photo courtesy of Judith Beesley)





D Class

Just five entries in this popular s.i. (spark Ignition) mono-hulled class was unusual to say the least, as normally two separate sets of heats are needed to accommodate them all. However the five who turned out, delivered a spectacular display of racing at its best with some substantial lap scores. This class delivered the second win of the day for Mike Barnes, his Patriot achieving a massive 106 laps. When watching Mike driving, it never fails to astonish me how he manages to drive such a big fast boat so close to the buoys without clouting them, so 'well done' Mike.

Garry Dickson's Saturn was narrowly behind Mike's winning score taking second place with 105 laps. In the second heat though, Mike's boat was so close behind Garry's at one point that it ingested propwash spray stalling the engine. Mike frantically restarted the engine boat following a speedy rescue and was back on the water and still just quick enough to secure the class win, by one lap.

Malcolm Pratt's Tiger King powered Sigma had a cracking good first heat, but encountered some problems with the engine stalling for no apparent reason. He suspected that the electronic failsafe mechanism was misbehaving and so disconnected it. However, in doing so, this left a couple of un-insulated stray wires which shorted, causing the engine to stop with the spark ignition circuit failing. However, Malcolm still achieved a respectable 73 laps and a well deserved third place in the class.

With 67 laps scored, Ian Searle's RCMK powered Phantom ended in fourth place. The Phantom was impressively fast and capable on the day, so why only fourth? In the first heat, the engine stopped suddenly for no obvious reason. After re-starting it ran for a couple of laps then suddenly stopped again, all so frustrating, but he quickly realised that the source coil of the engine's spark ignition system was at fault. With Ian not having a spare, a fellow racer kindly lent him one to enable the boat to be back up and running for Heat Two. Mark Beesley had to settle for fifth with 36 laps in total, but all scored in Heat One as the rudder servo failed after the morning's race and so the boat had to then be retired.

Catamaran T1 Class

This small catamaran class has increasingly turned out to be a bit of a 'two horse race', with seasoned racer Andy Rennie versus junior member Luke Bramwell. During recent events all of us have enjoyed watching these two battling it out for a win and this occasion was no exception, so who had the edge? Both boats are X-Cats, each powered by ASP 46 nitro fuelled engines. Both racers' drove their boats really well keeping a tight line to the buoys, but Luke had a slight speed advantage and used it



ABOVE LEFT: Kian Searle's Crusader (A128) holding the racing line against Robin Butler (A10) in the A Class. (Photo courtesy of Judith Beesley)

ABOVE: Luke Bramwell's X-Cat (the white boat) had the edge over Andy's yellow X-Cat.

BMPRS Branston 3 Results - 4th October 2015

Position	Name	No.	Hull	Engine	Heat 1	Heat 2	Total
AA Class							
1	Craig Dickson	55	Magnet	West 28	38	30	68
2	Robin Butler	10	Sea Spirit	Hyper 21	37	25	62
3	Kian Searle	128	Challenger 43	Picco	29	17	46
4	Andy Rennie	11	Challenger 43	CMB 21	18	0	18
5	Mark Wild	5	MHZ Lizard	CMB 21	15	0	15
A Class							
1	Mike Barnes	4	Challenger	ASP 46	45	36	81
2	Sally Dickson	77	Crusader 3	SC 46	38	36	74
3	Robin Butler	10	Cavalier	SC 40	37	35	72
4	Luke Bramwell	6	Challenger 43	ASP 46	36	31	67
5	Kian Searle	128	Crusader 3	ASP 46	25	14	39
B Class							
1	Garry Dickson	44	Challenger 43	West 52	32	45	77
2	Robin Butler	10	Magnum	CMB 67	21	18	39
3	Mark Beesley	176	XXX	ASP 61	24	0	24
D Class							
1	Mike Barnes	4	Patriot	Gizmo	56	50	106
2	Garry Dickson	44	Saturn	MPM 31	52	53	105
3	Malcolm Pratt	9	Sigma	Tiger King	51	22	73
4	Ian Searle	127	Phantom	RCMK	29	38	67
5	Mark Beesley	176	W/Rider Apache	Zen 26	36	0	36
Catamaran T1 Class (Heat One - 15 mins: Heat Two -10 mins)							
1	Luke Bramwell	6	X-Cat 38 6	ASP 46	44	31	75
2	Andy Rennie	11	X-Cat 11	ASP 46	41	27	68
Catamaran T2 Class							
1	Garry Dickson	44	Mercury	MPM 31	57	54	111
2	Malcolm Pratt	9	Aero Marine	CMB91 RS	56	52	108
3	Mark Beesley	176	Conquest	RCMK 26	55	52	107

The Mercury cat' of Garry Dickson going flat out on its way to victory. (Photo courtesy of Judith Beesley)



to best effect, taking the win with 75 laps against the 68 laps scored by Andy.

Catamaran T2 Class

This furiously fast class of the larger sized catamarans, perhaps scored a first ever within a BMPRS event, as although there were only three entries, each of them gained lap totals exceeding 100 resulting in some fantastic racing. Garry Dickson's MPM 31 powered Mercury achieved a remarkable 111 laps for first place and the well deserved accolade of Highest Laps of the Day. Close behind Garry was Malcolm Pratt, whose CMB 91RS powered Aeromarine took second with 108 laps and Mark Beesley's Conquest achieved 107 laps.

Conclusion

This event delivered possibly the best weather so far in 2015, with flat calm water that was ideal for the catamarans to truly show how they could perform as their 100+ laps confirm. Everyone present enjoyed the day and these near perfect

Starting an internal combustion engine?

Craig Dickson with some advice and comment

When it comes to propulsive power for model boats, these days electric is often the preferred choice for many enthusiasts. For some, the process of actually firing-up or starting an internal combustion (i.c.) engine can seem a bit daunting and off-putting, whereas with electric power, you just flick a switch and you are away - hopefully. For scale models, electric (or steam) is the current preferred choice, but it was not always like this as going back 60 years or so in the hobby, i.c. engines were much more common, even in 'scale' boats, because they did not need the big heavy rechargeable 'car style' batteries that preceded the NiCd and LiPo batteries with which we are so familiar with today.

However, it is easy to start a nitro fuelled glow plug engine or a spark ignition (s.i.) motor and I would like to explain the process here, noting the differences between the former and latter. Yes, they may not be as 'clean' as electric power, but still get the adrenaline going in a way that perhaps is lacking with battery driven high speed models.

The glow plug, nitro fuelled engine

This is commonly known just as a 'nitro engine' because its fuel often has a proportion of



nitromethane included in the mixture, thus the term 'nitro'. The key point about these engines is that the source of the ignition for the fuel charge in the cylinder is by way of a glow plug inserted in the cylinder head of it. This little device has a coil of wire in its centre which glows red hot causing the fuel charge to ignite during the compression cycle of the piston moving upwards and **Photo 1** shows a typical glow plug. Prior to starting the engine which of course is usually initially stone cold, it is necessary to apply an electrical current through the glow plug to make the wire heating element 'glow' red hot. A popular easy way to achieve this is to use an inexpensive glow plug heater which is self-contained rechargeable battery, with an attachment that simply clips on to the top of the glow plug during the starting process, **Photo 2**.

Once the engine starts, the heat generated internally, combined with the catalytic effect of the platinum wire, keeps the element 'glowing', so the glow plug heater can then be removed and put aside. Assuming that we have remembered to put some fuel in the tank (don't laugh please as I have seen this essential ingredient forgotten) the only other thing we need is a means of spinning the engine over. This is most commonly achieved by using a hand-held electric starter motor with a separate battery to power it, and



racing conditions, the good fun and friendly banter. The presentation of the winners' certificates along with thanks given to all present, was the icing on the cake. Two people who didn't race but deserve special mention, are Sue Butler for managing the lap counting desk and keeping us all in check and Judith Beesley who captured some of the best photos we have ever had from these BMPRS events.

Cheers for now - **Craig**



Craig Dickson launching Sally Dickson's Crusader. (Photo courtesy of Judith Beesley)



The lake bed doubled-up as the boat prep' and launching area.



4

Photo 3 shows the three main starting components with a starter motor connected to a lead acid 12 volt battery and the aforementioned glow plug heating clip. A flexible belt connecting the starter motor's pulley to the engine flywheel enables the engine's crankshaft to be spun over during the starting process. With the boat fuelled and glow plug heater clipped in place and starter motor to hand, the engine is spun until the carburettor sucks in fuel and hey presto, the engine fires-up and runs of its own accord, **Photo 4**. As part of this short process it is often necessary to 'choke' the carburettor by placing a finger over its air intake hole, to force some fuel to be drawn into the engine.

Starting a Spark Ignition (S.I.) engine

The petrol fuelled engine employs a slightly different mechanism of supplying the help to ignite the fuel charge during the compression cycle of the two stroke motor. Spark ignition engines, such as the popular Zenoah brand, incorporate a spark plug and integral components (magnets and ignition coils) to provide an electronically generated high voltage spark, not much different to your average petrol

engined motor mower. During each revolution of the crankshaft, a spark is generated automatically just at the correct instant to ignite the fuel charge and start and then keep the engine running.

It is a very simple but clever system, because unlike the glow (nitro) engine, there is no need for a supplementary ignition power supply to get the engine started, but as with the glow engine, it still requires a mechanism for initially spinning the crankshaft. Many of these engines come complete with very well made pull-start mechanisms, removing the need for the separate starter motor, battery and connecting belt, but some folks prefer to remove the pull start mechanisms and use the hand-held starter motor with a connecting belt going into a vee-grooved flywheel, as here in the engine compartment of Malcolm Pratt's D Class Sigma, **Photo 5**. It is a matter of personal preference and both methods work well. So, how do we get a petrol engine running?

Two or three pulls on the pull-start, if fitted, should be all that is needed, or turning the engine over in the same way as with the nitro engines. If it is the first run of the day (engine and carburettor dry of petrol), a finger placed over the carburettor (choking the carb') and yanking the pull-start cord just enough for one or two turns of the engine, should send a splash of petrol into the engine's internals. Care is needed though when choking s.i. engines, because if too much fuel goes through, these engines are very sensitive to being 'flooded' when too much fuel prevents ignition, making it difficult to get the engine going.

In summary

Whether running a glow or s.i. petrol internal combustion engine, both are easy to start so long as the boat and engine have been decently put together, the powerplant is properly maintained and the basics of it all well understood. Give it a try if your boating pond allows i.c craft.



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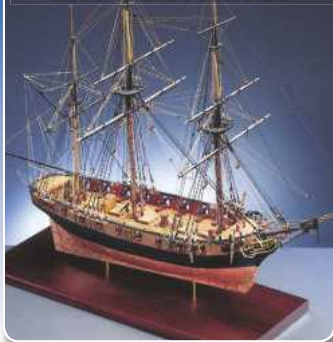
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