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January 2018
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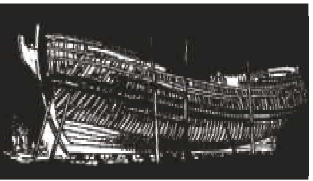


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contents

Regular Features



6 COMPASS 360

Latest news from the model boating world including a report from the 'M' Class ranking event and some changes to the mag

10 TEST BENCH

A round-up of all the latest kits, books and blingy bits



28 OSA 2 MISSILE BOAT

It's all hands on deck as master builder Dave Wooley prepares to tackle the plating

32 FLOTSAM & JETSAM

Join John Parker for a peek into the past, then take back everything you said about the price of that brushless motor you've just bought



43 MOORING POST

Dreading that last minute Christmas shop? Glynn Guest suggests a way to brighten the occasion



44 RANGE FINDER

A trip to the 2017 Model Boat Convention gives Dave Wooley a pleasant surprise or two



66 BOILER ROOM

Fretting about pipe bending? Take Richard Simpson's advice and relax, it's all in the preparation

69 MARKETPLACE

Shift it quick or bag a bargain with our FREE readers' ads

78 NEXT ISSUE

Keep the winter blues at bay with an issue full of all your favourite features, not to mention another FREE plan and a sublime sub

82 PARTING SHOT

Scale 'n' sail, through the lens



48 SMIT NEDERLAND

Phil Scales takes a Graupner demonstrator and treats it to a touch of cosmetic surgery

Special Features

12 FALCONBROOK

Inspired by a Model Boats free plan of the Blackboys Thames tug, Dave Brumstead dug deeper and settled on the MBD semi-kit. Let the build begin...

22 S.S. MULLOCH

With the basic hull construction of his scratch-built steam-sailer reaching the concluding stages, Phil Button turns his attention to planking and deck fittings



38 MOUNT STEWART

Neville Wade recreates the majestic lines of Mount Stewart, one of the last wool clippers to ply the Southern Ocean

50 SUBSCRIBE...

...and save 30% off the cover price. It doesn't get much better than that. Happy days!

52 HMS DREADNOUGHT

As Dr Marcus Rooks quickly finds, in 1906 the Royal Navy was still rigging its ships like a man-o'-war

59 DANA 200

Kenneth Ruxton craves a bit of light relief in the form of Billing's quick-build North Zealand fishing cutter



62 SEA BREEZE

Casting around for something traditional to build, Graham Ashby claps eyes on the VMBC range and the memories come flooding back...

72 WATERLINE - PT.10

Chris Drage uses his 1:700 scale dioramas to tell the tale of two Arctic convoys

76 SCRAPHEAP CHALLENGE

In the spirit of the recycling, Roger Stollery and crew gather gaffer tape, pop bottles and bin liners, then turn them into a grand day out!



Let's face it, the UK model trade has weathered some pretty nasty storms over the last 40 or 50 years and, in parts, not weathered them terribly well. Traditional wooden model boat kits seemed to suffer quite badly, with names like Keil Kraft, Aerokits, Nor-Star and Veron slipping below the surface many moons ago. Of course, the reasons for the demise of these great British institutions will be many and varied, encompassing everything, I suspect, from a poor appreciation of the changing market, through quality control to the rise of far eastern manufacturing and cheap imports. Whatever the cause, disappear they did, in the most part never to be seen again.

But wait. Can that really be the end of the story? I'd like to think not. You see, unlike other R/C disciplines – cars and aircraft, for example – the traditional model boat hobby hasn't been subjected to cheap mass-produced, Ready-to-Run Chinese imports on anywhere near the same scale. Sure, there are some quite superb RTR model boats available and some genuinely impressive scale subjects too, but on the whole the marine ready-built market has been dominated by racing sailboats, fast electric powerboats or cartoon-scale tugs that teeter precariously on the fence between toy and semi-convincing miniature. A number of companies have, of course, dabbled in the scale RTR market over the years. Thunder Tiger was one such and Horizon has given it a go too. However, success in this arena must surely be measured by the variety of RTR scale boats in a given company's range and, if you look closely, you won't find many. The reasons for this seem pretty clear. At least, they do to me. Traditional model boat building, whether it be scale, semi-scale, or just flight-of-fancy, is as much about the creation of the subject as it is the display and the running. Take away the creative element and you kill much of the enjoyment, not least the satisfaction and the pride of ownership.

What I find encouraging about recent events is the sign of life I see in the UK's withered and battered traditional wooden R/C boat industry. If you want proof of this you need look no further than the Vintage Model Boat Company range that, having recently been rejuvenated by SLEC Ltd., is selling rather well thank you very much. How can we tell? Simple, the growth of the range and investment in the development of new 'traditional' products. Allied to this is the fact that model boat plan sales are particularly buoyant at the moment, all of which points to the notion that RTR model boats haven't made an impact on the hobby that we know and love and that a swing back to tradition may be on the way. Okay, we might not have come full circle just yet, and I'm sure we never will, but there's definitely some turning going on.

If you've not come across SLEC's VMBC range, then you're in for a treat. Make a point of visiting www.slecuk.com, but before you do, check out our Sea Breeze build on page 62.

From me and all the crew here at Model Boats, we wish you a very happy Christmas and a prosperous new year.

Graham Ashby

Compass 360

Our news round-up from the model boating world

Editorial Contact: You can reach the Editor, Graham Ashby, via email to editor@modelboats.co.uk. The editorial postal address is: Graham Ashby, Model Boats, MyTimeMedia Ltd., Suite 25, Eden House, Enterprise Way, Edenbridge, Kent. TN8 6HF. Tel. 01689 869840.



SAILING IN KENT

We gave the newly-formed East Kent Radio Sailing Club a brief mention last month, however please take this as official notice of the club's desire to swell its ranks. Headed by Andy Gower with a membership that's now comfortably into double figures the club sails DF95 yachts on a Tuesday afternoon and Saturday

morning from Conningbrook Lakes near Ashford in Kent.

A good 80% of the members are relative newcomers to yacht racing and they're a friendly bunch too, so you certainly won't feel intimidated and you'll definitely be made very welcome. Say's Andy with a wry smile: "Experienced R/C yachtsmen

need not apply... unless they can help my boat go faster." If you're in the area – or even outside – have been considering getting into racing, or are already proficient and looking to sail more regularly, you really should drop Andy a line. Heck, our editor's even joined so you can bend his ear about the magazine while he's parked in irons and pacing about.

Now, given that a rescue boat has already been purchased, there's been a training day from Mike Weston (www.radiosailing.co.uk) and bushes have been cleared to improve wind consistency over the water, this, we feel, is a club that's going places. If you're interested in joining and would like to know more, contact Andy Gower at andygower7@btinternet.com.

COVER COMPETITION

If you haven't already found us on Facebook then you really should, you're missing out. Our recent Facebook cover shot competition has been judged and the winning entry, by Christian Kamp, is currently up there in lights, so to speak. Anyway, since we're acutely aware that the vast majority of you haven't yet found us on Facebook we've made Christian's winning image the subject of our new Parting Shot feature in this issue. Parting Shot will run for the foreseeable future and you can expect to see some terrific model boat images over the coming months. Meanwhile, here's a few of the runner up images which are equally superb. Alas, there could be only one winner. Christian, incidentally, has won himself a 12 month subscription, and deservedly so.



'M' CLASS RANKING

The final Marblehead ranking of the season took place at Watermead MBC, who kindly stepped in after the original scheduled venue at Chelmsford became unavailable.

Racing started with the 19 skippers on the west bank of the lake, sailing in two heats, but it became apparent before the end of the second seeding race that the forecast wind was filling in from the NW and a change in control area and course was necessary. As a result, everyone moved over to the South bank and the regular Sunday morning Watermead scale model section kindly made way for the Marblehead skippers.

With wind speeds generally below 10 knots, the RO started with all 19 boats in one fleet, but with a full fleet in the fickle conditions causing heavy congestion at the windward mark, he quickly reverted to two heats soliciting the help of observers from non-acing skippers.

The swirling winds did have a certain consistency about them with the better skippers soon getting to grips with the conditions and starting to log some consistent results. To think it was easy at the front end would be a mistake with the event seeing six different skippers taking a heat win with no fewer than 11 skippers having a 4th place or better during the day. This is testament to the strength

and depth of the Marblehead fleet currently in the UK. After nine completed races, Race 10 failed to get underway by the scheduled cut off time of 1700 as the wind was dying, so everyone adjourned to the impressive new car park for the prize giving.

New boats were launched on the day by both Colin Goodman and Phil Holliday. There was a special welcome for a new skipper to the fleet, Sue Parkington, who completed all her heats sailing husband Mike's 'Starkers Cubed' and we



Results:

Tony Edwards	Grunge 16
Peter Stollery	Uproar 19
Colin Goodman	Grunge 29
Tony Guerrier	Quark 30
John Shorrocks	Quark 31
John Smith	Quark 32
Bill Culshaw	Grunge 37
Roger Stollery	Uproar 42
Trevor Binks	Prime Number 43
Roy Stevens	Quark 52

look forward to seeing her at future events. All incidents were amicably resolved on the water and skippers agreed that it had been an enjoyable day's racing.

Overall, the most consistent skipper and deserved winner was Tony Edwards sailing his Grunge with Peter Stollery second sailing his Uproar, Colin Goodman third with his Grunge and then a very close battle for the next three places between Tony Guerrier, John Shorrocks and John Smith, all sailing Quarks and with only two points separating them.

COMING SOON

In an attempt to build on the magazine's established strengths you'll notice a few small changes to the way Model Boats is designed and presented over the coming months and a wee tweak to the content here and there. This, we sincerely hope, will find favour with you and enhance your enjoyment of the magazine. Already, our editorial and design departments (that'll be Steve and Graham) have

been mulling over styles, fonts and page layouts with a view to giving the magazine a fresh look and we'll be adding some new regular features here and there too. One such will be a readers' letters page to which we'd love you to contribute. As long as it's model boat related, no subject is off limits so do feel free to air your views, seek a solution, or simply tell us what you've been up to.

Letters can be sent by email to: editor@modelboats.co.uk or by post to: Mail Room, Model Boats Magazine, My Time Media Ltd., Suite 25, Eden House, Enterprise Way, Edenbridge, Kent, TN8 6HF.

BOATS AT BEALE

"Get on the water and try something new!" is what the organisers of the Beale Park Boat & Outdoor Show are telling us to do and, in truth, it's a reasonable suggestion. Wooden boats, steam boats, electric boats, canoes, kayaks and much more will be on show and on the water, along with a varied programme of land events. Scribble the 1st, 2nd and 3rd of June on your calendar and take the family, they'll love it.

While we're on the subject of Beale Park, don't forget the arguably more important Spring Model Boat Show on the 5th and 6th May. By all accounts this is shaping up to be a good one. More news when we have it.

Beale Park is located at Lower Basildon, Reading, Berkshire, RG8 9NW. Visit www.bealeparkboatandoutdoorshow.co.uk.

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River Queen

a steam towing launch

Built by Lobnitz & Co. Ltd, Renfrew, Scotland with the yard No. 478. Launched in 1895, originally named Clive, she disappeared from mercantile navy lists after 1935.

A typical river tug of her time, she had a compound engine and coal fired boiler. Used mainly for light towing, soundings and the transportation of people. She had only limited accommodation aft, and a forward saloon fitted with bench seats, lockers, fold down wash basin and earth closet.

Scale: 1:24
L.O.A. 27 1/2" (698mm)
Beam: 6" (152mm)



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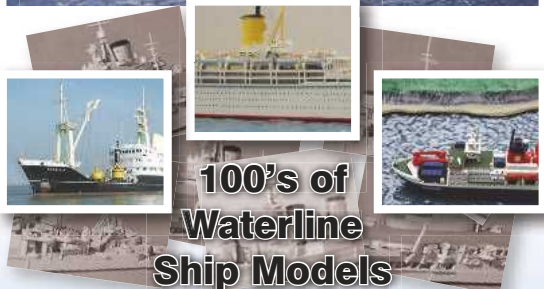
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Mantua's wooden kit is of HMS President, typical of the British early 18th century frigates that helped achieve supremacy and were often employed on roving or scouting for the fleet. Great value!

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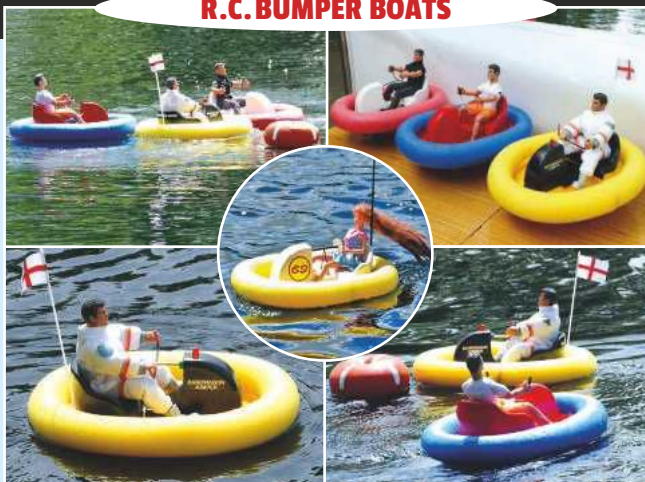
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COMING SOON!
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- Displacement: 18 lbs

The 44 ft Waveney class of lifeboat was a development of the US coast guard surf class of boat, the Waveney was introduced into service in the early 1960's as the RNLI first fast boat.

They had a top speed of 15 knots and cruised at 12 knots. Many were built for Canadian & European services.

Our model is based on archives builder's drawings and contemporary photo's of the Hartlepool lifeboat "RNLB THE SCOUT".

She entered service in 1977, after 20 years' service she was sold to the "ADES" the Uruguay service.

There was a class total of 22 Waveney's built for the RNLI.

Eian & Bill purchased the business of D METCALFE MOULDINGS in 2015 and continue to manufacture model boat kits to a very high standard. There are currently six boats in the range with a new model to follow very soon!

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New from Sea Watch Books

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Text, plans and CD by Edward Tosti



VOLUME 2: Deck Fittings and Pre Rigging

SEAWATCH BOOKS presents the second book on Ed Tosti's incredible model of the extreme clipper *Young America* 1853. Volume II, subtitled *Deck Fittings and Pre Rigging*, includes chapters entitled *Weather Deck Enclosures, Rails, Capstans, Bilge Pumps, Windlass, Helm, Anchors, Fore-castle and Poop Detail, Boats, Outer Hull, Preparing for Mast and Rigging* and a color section.

Ed goes into great detail on the materials, tools and techniques for every part. His text is accompanied by hundreds of photos. Every

modeler and student of 19th century construction can benefit from this detailed work, and modelers of any century craft can learn from Ed's methods of construction. This is truly a master class in ship modeling.

The package for book two contains a 224 page, 9"x12" hard cover book with hundreds of photos, 8 pages of color, one sheet of plans and a CD.

Volume III will be on mast and rigging the model and will follow in 2018-19.

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Test Bench

A round-up of all the latest kits, books and blingy bits

FREE LUNCH!

Test Bench is a service that we provide free of charge to manufacturers, distributors and retailers of model boat-related product. Covering all disciplines, anything from books to balsa is accepted for these pages. To submit material,

email the editor via editor@modelboats.co.uk and make sure to include all relevant text and pricing information along with high resolution images. That's all there is to it. Don't let anyone tell you there's no such thing as a free lunch.

Duplex II

Hot on the heels of the Radiant Quartex (four output charger) is this far more affordable, yet equally capable, two output, multi chemistry device. It's absolutely perfect for those of us who regularly use LiPo, lead acid, NiMH and even LiHV, Lilon or LiFe packs and it really is a feature-packed little unit.

With two outputs, two batteries can be independently charged at the same time, using completely separate charge or discharge routines. With a choice of mains power or 11 – 15V DC input, the Duplex II is ideal for use at home or at the lakeside. The twin backlit LCD screens make it simple to select all of your charge parameters while also monitoring your battery's status in any light. Compatible with

today's latest cell technologies, the Duplex II promises to be a good choice for charging, discharging and general battery management.

Supplied with two balance boards, two HCT-equipped charge leads, an XT60 external power lead (with 4mm bullet connectors and crocodile clips), a mains power lead and a comprehensive instruction

manual there's little else to buy and for £69.99 well worth a look, we think. We've been using the larger four output Quartex for some time now and it comes highly recommended.

Key Features

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- Micro Processor controlled
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- AC or DC input power

Supplied by J. Perkins Distribution Ltd. the Duplex II is available now from your local model shop. Visit www.jperkins.com for further information or call 01622 854300.



IKONNIK KA-6

Those of you who still mourn the loss of the Planet 2.4GHz budget radio system, but haven't clocked that a worthy alternative is available, will be delighted to note that J. Perkins Distribution long ago replaced the Planet with something much, much better. Enter the IKONNIK KA-6 full range 2.4GHz, 6-channel combo. Simple to use it offers all the basic features



you'll ever need for 90% of your fleet – servo reversing, digital trims, switched 5th and 6th channels, a mode change option, metal carry handle, etc., etc. – and wraps them in a stylish, lightweight case with neck strap eye and bright LED status light. But that's just the fluff, the jewel in the crown of the KA-6 lies in its use of Hitec's acclaimed bullet-proof radio protocol, Hitec Red. Not to be sniffed at, especially when you consider that the supplied KA-6 receiver is compatible with any Hitec 2.4GHz air transmitter, including the Optic 5, Optic 6 and Flash 7.

With an RRP of £59.99 for the Tx / Rx combo and £17.99 for a



stand-alone KA-6 receiver, prices are keen. Take a closer look at your local J. Perkins stockist or visit www.jperkins.com.



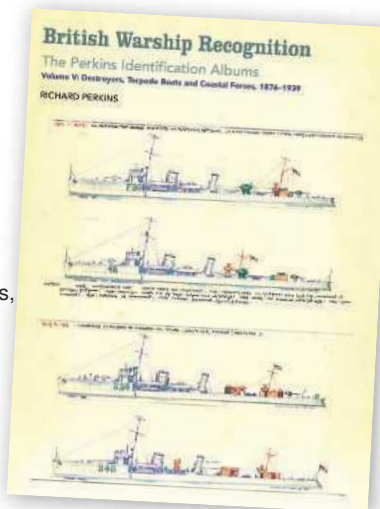
British Warship Recognition

The Perkins Identification Albums – Volume V: Destroyers, Torpedo Boats and Coastal Forces 1876 – 1939

The Identification Albums compiled by naval photographer and collector, Richard Perkins, comprise more than 5,000 exquisitely detailed coloured drawings of every major warship built between 1860 and 1939. One of the greatest treasures of the National Maritime Museum, they are bound in eight large

volumes and have, over the years, offered an unparalleled source of information for the Museum's staff. Although conceived for the purpose of identifying ship images, what Perkins' albums actually provide is the most thorough and comprehensive record of British warship appearance ever created.

A full review of Volumes I & II was featured in the December 2016 issue of *Model Boats* (Crow's Nest, page 64). This new



Volume V: Destroyers, Torpedo Boats and Coastal Forces 1876 – 1939 is now available. Volume VI: Submarines, Gunboats, Sloops and Minesweepers 1860

– 1939, is due for release in February 2018.

Written and illustrated by Richard Perkins. Hardback, 190 pages, 403 x 311mm (a large coffee table book). ISBN: 9781526711120. RRP: £56.00. Published by Seaforth Publishing, an imprint of Pen & Sword Books Limited, 47 Church Street, Barnsley, South Yorkshire, S70 2AS. Tel: 01226 734222, website: www.seaforthpublishing.com. Available direct from the publisher or through the usual retail outlets – **John Deamer**.

USN Battleship vs IJN Battleship

The Pacific 1942 – 44

In the build-up World War II both the United States and Japan believed their battleships would play a central role in combat, but after the Pacific War began in December 1941, the role of the battleship proved to be much more limited than either side expected.

There would only be two battleship vs battleship actions in the Pacific during World War II, both of which are assessed in this study. The first was at Guadalcanal in 1942 when IJN battleship *Kirishima* faced two modern USN battleships, *Washington* and *South Dakota*.

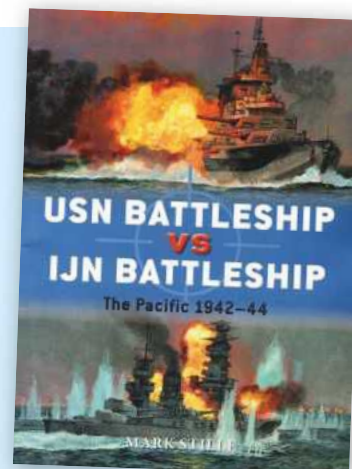
The second was in the Surigao Strait in 1944 when two World War I-era Japanese battleships, *Yamashiro* and *Fusō*, faced six American battleships supported by four heavy cruisers in history's last ever engagement between such vessels.

In this book the author, Mark Stille, examines the 'Design and Development' and 'Technical Specifications' (including armaments) of the battleships in both fleets. There are also chapters on the 'combatants' themselves, the United States and Japanese navy crews, their commanders, and the combat itself, analysing the two head-

to-head clashes between the mighty ships.

Fully illustrated with full colour artwork, archive photographs, drawings, diagrams, maps, and expert analysis, this fascinating new addition to the Osprey 'Duel' series will interest many, not least maritime historians and, of course, warship modellers.

Written by Mark Stille, illustrated by Alan Gilliland and Paul Wright. Softback, 80 pages, 247 x 185mm, over 60 photographs, drawings and maps in mono and colour. ISBN: 9781472817198, RRP: £12.99. Published by Osprey Publishing Ltd., PO Box 883, Oxford, OX1 9PL, UK. email: info@ospreypublishing.com Website: www.ospreypublishing.com



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Svitzer Tugs

Two new illustrated books by Bernard McCall

The story of Svitzer Tugs begins in 1833 when Emile Zeuthen Svitzer, a Danish entrepreneur, established a salvage business after noticing many losses occurring on trade routes to and from Denmark. In due course the business extended to harbour towage. With takeovers and partnerships the company has expanded rapidly over the last two decades and is now the global market leader for towage and rescue services with some 4,000 employees and over 430 vessels working in 100 locations throughout the world.

Svitzer Tugs (UK)

This first volume looks at the company's tugs working in ports, both large and small, around the UK. Svitzer entered the UK towage business when it took over the Wijsmuller

towage fleet in 2001, only shortly after Wijsmuller had taken over Cory Towage. A further takeover in 2007 saw Svitzer assume control of the Adsteam fleet which had grown out of Alexandra Towing via the Howard Smith group.

Written by Bernard McCall. Softback, 88 pages, 235 x 157mm, 90 colour photographs. ISBN: 9781902953854. RRP: £9.95.

Svitzer Tugs (Worldwide)

The second volume looks at Svitzer tugs working in locations

around the world. Beginning in Denmark, the home of the company, the book covers other Scandinavian countries and northern Europe, together with tugs working in Canada, the Caribbean, the Far East and finally Australia where they have gained prominence over the last decade.

The captions for each photograph, in both volumes, gives the reader some insight into the specification and history of a particular tug, including the power output of the engine(s) (in bhp), the propulsion type, 'bollard pull' (in tonnes) and IMO number, together with where it was built, when

it was launched, any former names, location and date of the photograph. Also, where relevant, there are comments regarding the vessels' former owner(s).

Written by Bernard McCall. Softback, 112 pages, 235 x 157mm, 114 colour photos. ISBN: 9781902953861. RRP: £10.95.

These, reasonably priced, extremely interesting and informative little books are beautifully illustrated with full colour photographs, and are a 'must have' for both model tug builders and enthusiasts. Both are published by Bernard McCall, Coastal Shipping Publications, 400 Nore Road, Portishead,

Bristol, BS20 8EZ. Tel: +44(0)1275 84617, e-mail: bernard@coastalshipping.co.uk. Website: www.coastalshipping.co.uk. Available direct from the publisher or through the usual retail outlets – **John Deamer**.



Falconbrook

Inspired by a Model Boats free plan for the Blackboys Thames tug, **Dave Brumstead** dug deeper and settled on the MBD semi-kit. Let the build begin...

After completing the review of the Models By Design catamaran (published in MB January and February 2013) my next project was to build a smaller, more compact model. I did some research through back numbers of MB and the December 2007 free plan of Blackboys, a small Thames tug, looked just about right. The article (by James Pottinger) also gave a history of the vessel, showing that it changed hands, and name,

over the years ending up as the Falconbrook. Now, the Falconbrook had a conventional superstructure whereas the Blackboys had a more temporary looking shelter. Further enquiries revealed that Models By Design made a fibreglass hull and superstructure for the Blackboys / Falconbrook, in addition to supplying a suitable propshaft, plastic card sheet and strip material, as well as rubber fendering. A Kort nozzle with the appropriate

propeller and resin support was also available. So, all were duly ordered.

The hull size is approximately 718 x 219mm (28.25 x 8.63") and, as always, the first project was to build a suitable stand to hold the model securely with the waterline parallel to the bench. This, of course, makes it easier to check that upright surfaces are vertical. To this end, tracings were taken from sections 3 and 7 on the plan and transferred



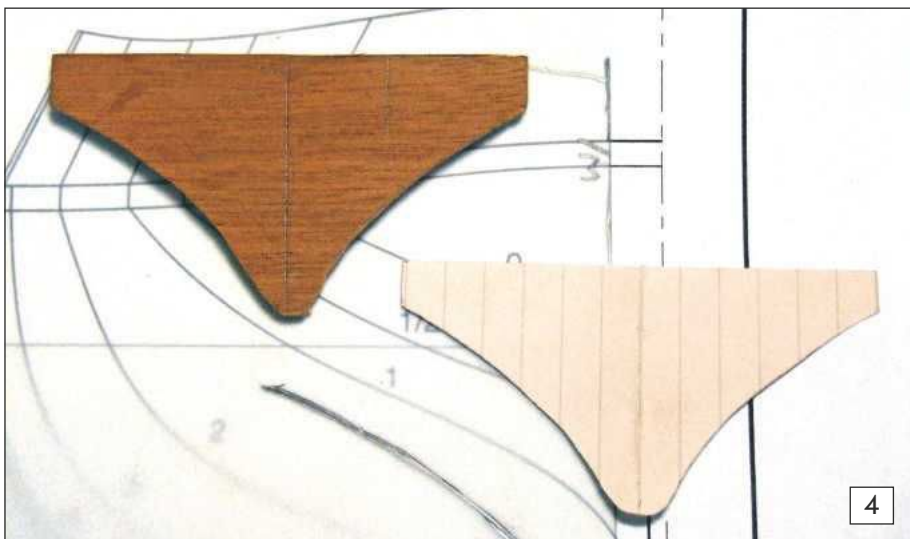
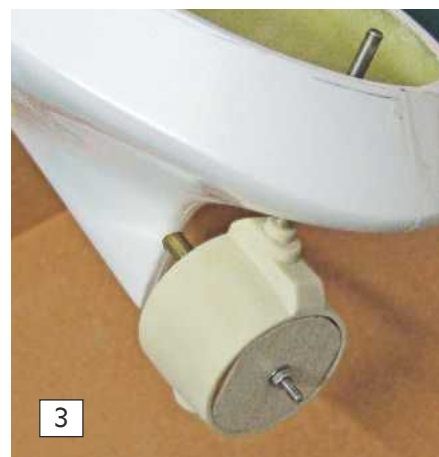


to 12mm MDF which was duly cut out and the two parts fitted to a base. The waterline was marked on the hull and the stand ends adjusted so the line was parallel to the bench. Meanwhile, the surplus fibreglass on the top edge of the hull was trimmed as it was slightly too wide (**Photo 1**).

Next, the position of the rudder (Kort nozzle) was marked out on the hull and a suitable hole drilled to take the bearing tube. A resin rudder tube support was then fashioned to fit inside the hull, however before it was glued in place the rudder assembly was offered up and a piece of scrap balsa used to determine the centreline of nozzle, i.e. the location of the propshaft (**Photo 2**). With the balsa template fitted in place the propshaft position could

be marked on the hull using the nozzle as a guide. Here, I always aim to get the angle between the propshaft and the rear of the Kort at 90 degrees to ensure that the prop runs central to the Kort.

The hull could now be drilled and opened up to prop tube size, allowing the tube and rudder assembly (with balsa template) to be fitted, whilst also ensuring the rudder assembly had a true, vertical shaft. Once satisfied, the rudder bearing was tacked in place (**Photo 3**). Note that the rudder shaft extends above the height of the deck and requires trimming to ensure that it eventually fits below deck level. After trimming, I replaced the rudder assembly and after checking everything was true, epoxy glue was used inside the hull to



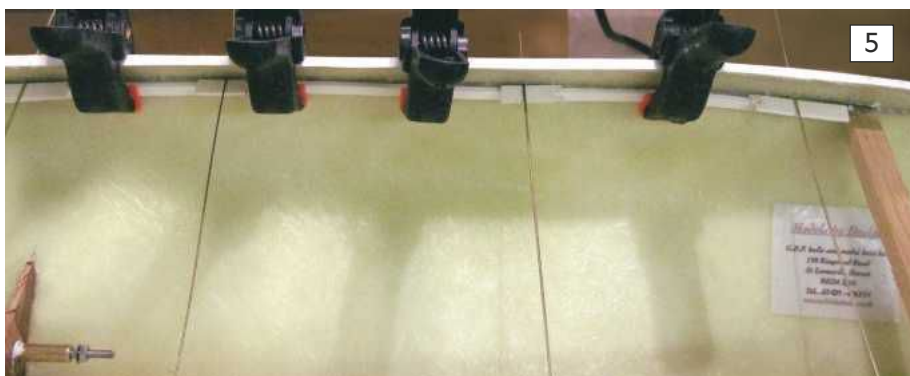
bond the rudder bearing and resin support permanently in place.

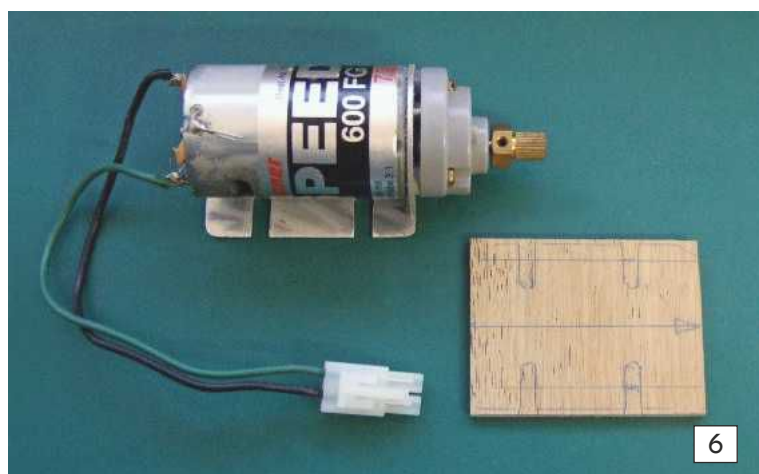
Using the plan lines to arrive at an approximate profile, I used scrap ply to fabricate the support for the prop tube inside the hull (**Photo 4**) and adjusted the position of the tube to ensure the prop could rotate freely in the Kort in all positions, without fouling. I also used a long rod to assist in centring the prop tube. This fits in the tube and extends along the centreline of the hull so it's easy to spot misalignment. When I was satisfied with it all the tube was tacked in place with superglue, the Kort checked for free movement, then the prop tube glued permanently with epoxy.

Deck fitting

To fit the deck supports, small 0.8mm holes were drilled in the bottom corners of the freeing port positions (see later) and rod threaded through from side to side. Using 5 x 3mm plasticard strips as deck supports, 2mm plasticard was temporarily added to the top edge (to represent the thickness of the deck) and the 5 x 3mm glued in place under the cross rods (**Photo 5**). Two wooden cross beams were also added at this time.

A paper template the same size as the deck was cut and trimmed and when satisfied with the fit, this was transferred to 2mm plastic sheet which was cut in two across the beam to assist fitting. A degree of trimming and adjusting followed and in





doing so a section was removed at the stern to allow access to the rudder linkage. Final fitting of the deck took place later.

Motor Installation

With the deck put to one side it was time to work on the motor installation. Here, I'd chosen a suitably suppressed Speed 600 driving a reduction gearbox with a double coupling to help with accurate motor alignment (**Photo 6**). A double coupling, incidentally, is not designed to compensate for poor alignment!

The motor was mounted on 4mm ply using captive nuts, paying particular attention to ensuring the mounting screws did not protrude, as they could easily damage the hull. Aluminium tube, of the same length as the flexible coupling and a close fit over the motor coupling and the shaft coupling, was used as a rigid alignment tool and the ply base bonded to the hull with two part epoxy (**Photo 7**). When set the motor and rigid coupler could be removed and the standard Huco double coupling fitted.



Servo mounting

Wooden blocks, drilled to take captive nuts, were glued and bolted on each side of the propshaft support (**Photo 8**), whereupon a ply sheet, cut to shape, could be screwed in place. Pieces of aluminium angle offcut were then used as mounting brackets for the servo. (**Photo 9**). Note that the pushrod and clevis are soldered at the bearing end but threaded at the servo end, to allow adjustment. You may also spot that the mounting board is in plasticard, however this early version was changed to the ply mentioned above.

Made to suit a standard 6 volt 4.5 amp lead-acid cell, the battery tray was fashioned from 4mm ply sheet with square section wood for edging. This was glued in place with epoxy immediately in front of the motor on the model's centreline (**Photo 10**).

With the propshaft removed the prop tube could be drilled and suitable diameter



tubing glued in place to act as an oil reservoir. You may note that the inside of the hull was painted at this stage to tidy it up and to help bind down any loose fibreglass 'spikes'.

Deck level

The Blackboys plan shows eight (four per side) small freeing ports toward the stern of the boat. Photos of the Falconbrook, meanwhile, show four at the forward part of the hull plus five larger freeing ports towards the rear on

each side of the vessel. I chose this second, more labour intensive, option which meant cutting four small and five large ports per side. These had been marked out earlier by using masking tape and measuring the spacing using a dressmakers tape which readily follows the curvature of the hull and makes marking out on a curved surface much easier. I also made a metal template to aid cutting out accurately (**Photo 11**). This was used for the small forward ports first, then enlarged for the large ports (**Photo 12**).

11



10



12



13



14



Returning to the previously cut deck parts, these were offered into place and the position of the main access marked out and removed. Finally, they were glued in place (**Photo 13**), using wedges through the freeing ports to hold the edges down. With this, the inside of the bulwarks could be finished off with a thin coat of fibreglass car filler.

The bulwark capping rail was made from 3mm ply in six sections – two bow; two stern; two middle – in an attempt to economise on the use of materials. After any gaps were filled the rail was rubbed down and treated with Deluxe Materials Eze Kote. Bulwark supports were cut from 1.5mm plasticard and glued with equal spacing (40mm) to the bulwarks, this time with Deluxe thick Rocket Max cyano, ensuring, of course, that they were upright (**Photo 14**).

My attention turned to the coaming next, where 2mm plastic card was cut into 25mm wide strips to fit inside the superstructure. The four pieces (two sides, two ends) were glued together with corner supports to form a comfortable fit. A wooden frame was also fitted under the deck for the coaming material to rest on (**Photo 15**).

Since the rear part of the deck was still open, a cover had to be made. Here, a spruce cross beam was used in conjunction with



Rest assured, we'll take a closer look at the detailing in the February issue.



a shaped balsa lip that follows the contour of the stern (**Photo 16**). To this, a simple plasticard cover was screwed in place to keep water out (**Photo 17**). Finally, to finish the detail, a further decorative cover was made to represent the rear of the Falconbrook. As can be seen, said cover rests partly on the bulwarks (**Photo 18**) and constitutes the rope drying grid on the full-size vessel (**Photo 19**).

A closer look

At this point, the whole hull (less the drying rack) was given three coats of Halfords Red Primer and any blemishes corrected. Seeking further information online I found some images of the Falconbrook that I hadn't seen before. Closer examination showed that the hull had what appeared to be an extension to the bow and stern, as well as a rear entrance (by the tow hook) to the wheelhouse. As far as the wheelhouse was concerned I was not going to cut parts away at this stage. However, I did decide to add the bow and stern extensions. With this in mind I shaped some laminated (to 15mm) layers of balsa and offered it up to the bow before trimming, fitting and adjusting as necessary (**Photo 20**). When deemed a good fit the dimensions were transferred to 15mm pine board which was cut and sanded to shape, then similarly



adjusted as necessary. Having satisfied myself of the fit, it was tacked in place with thick cyano, suitably masked, then treated to Deluxe Materials 1 hour epoxy, which I applied (pouring from the mixing stick) to the gap between hull and bow fender extension. When the epoxy had set the masking was removed and any gaps filled from underneath. To finish, the bow extension was given a plastic card topping to achieve a good finish. Having repeated the process for the stern extension both would eventually be treated to a round rubber fender from Models By Design.

Further examination of the images revealed a pronounced rubbing strip on the hull, which I decided to replicate by adding a 3mm square strip of plasticard, this from the Evergreen Scale Models range. The strip was secured with 1mm brass pins and glued in position, (**Photo 21**). Below this strip was a less noticeable ditto which doesn't run the full length of the hull and was replicated each side by a strip of plasticard from the same supplier but 25mm below the previously fitted stake (**Photo 22**).

At the stern two pieces of tube were attached for the stern fendering to fit into and with these additional details in place the hull was given another few coats of primer before being masked for spraying in the final colours.

The photos I had revealed a red band of even width under the lower rubbing stake

which continued below the waterline. Under this band was a white area at the bow and stern which, at the bow, tapers to a finish at the waterline. At the stern, however, the segment of white appears to taper below the waterline. **Photo 23** shows this area marked in pencil. With this, the hull was masked off in these locations and the remainder sprayed matt black. When the masking tape was removed the result was a black hull with a red primer band and two similar areas of red at the bow and stern which were to be white. These, then, were duly masked and hand painted (**Photo 24**).

...And to cap it all!

Having painted the final colours a method of retaining the bow fender was required. On the full-size vessel it looks as if this item passes through the hull, so I made two caps to anchor the fendering and give the impression that it was fixed as described (**Photo 25**). These caps were made by winding 0.5mm plasticard around a former and glued to form a tube. The tube was cut at an angle to form said cap, painted and fitted.

Right, that's about all my allocated space used up so I'll be back next month to build the superstructure, add some detailing and get her on the water. Until then...



An early bath! Falconbrook at my local water prior to adding the finishing touches – see next issue.



21



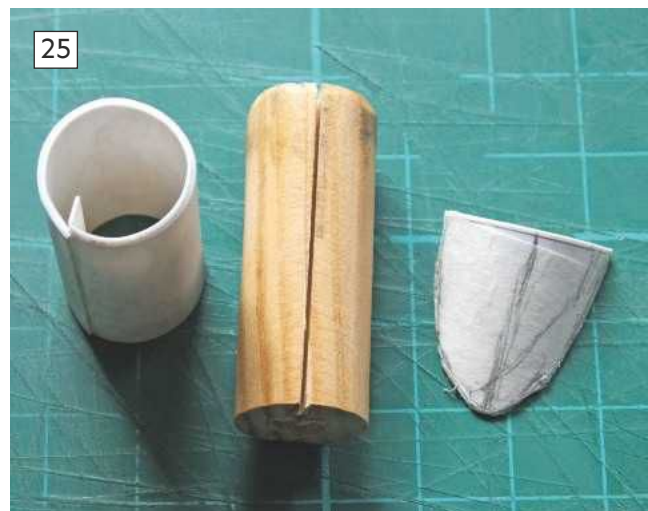
22



23



24



25

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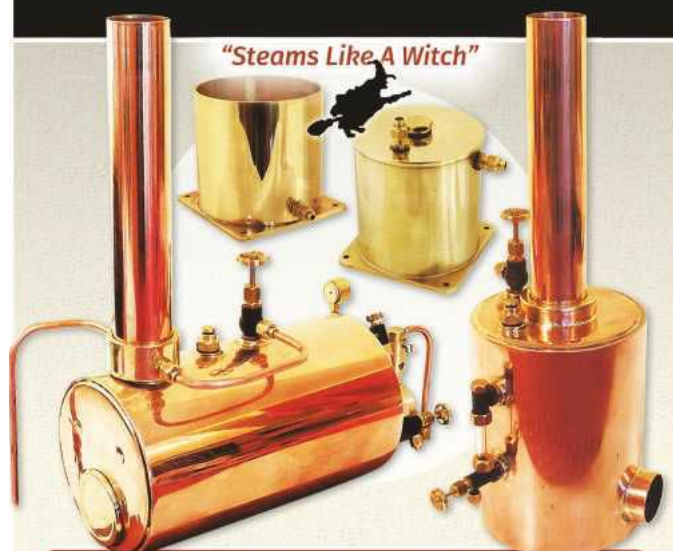
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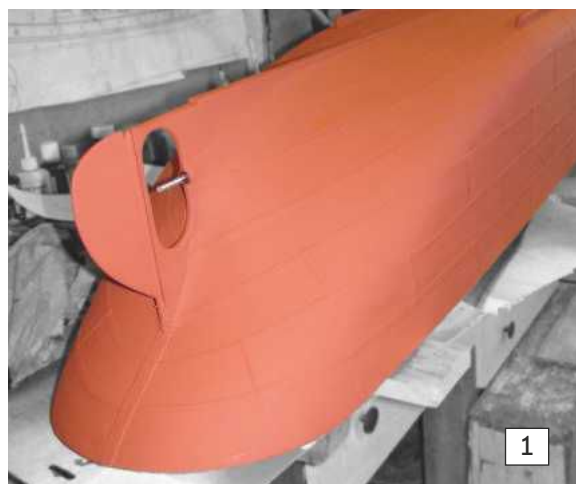
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S.S. Mullogh

With hull construction of his scratch-built steam-sailer reaching the concluding stages, **Phil Button** turns his attention to planking and deck fittings





Picking up where we left off in the December issue, the plan this time is to finalise the hull construction and make a start on the rigging. And so, with the sub-deck installation complete, the hull was fitted with its rudder, turned upside down and given several coats of red primer using Halfords spray cans (**Photo 1**). With the primer dry, the hull was marked with its waterline, masked-off and given several coats of satin black paint, to the top of the bulwarks, and a coat of white primer inside these and around the hatch coamings (**Photo 2**).

The freeing ports, which are openings at deck level that allow any shipped water to escape, were marked on the inside of the bulwarks and cut out by chain drilling and finishing with a file (**Photo 3**). At the same time, a hole was drilled through the fore-castle deck to the outside of the hull and fitted with a brass tube to create the hawse pipe for the anchor chain. To follow, a small piece of scrap 1.5mm plywood was cut and shaped to finish off the outer end of that pipe (**Photo 4**).

Since Mullogh needed an 80mm diameter four-blade propeller, I really didn't want to buy one at that size, so it was fabricated from a piece of 15mm diameter brass for the hub, threaded to fit the propeller shaft, with four

2mm thick brass blades silver soldered to it. The completed propeller was filed to shape, polished and screwed on to the propshaft, ready, eventually, to be secured with a purpose-made locknut (**Photo 5**).

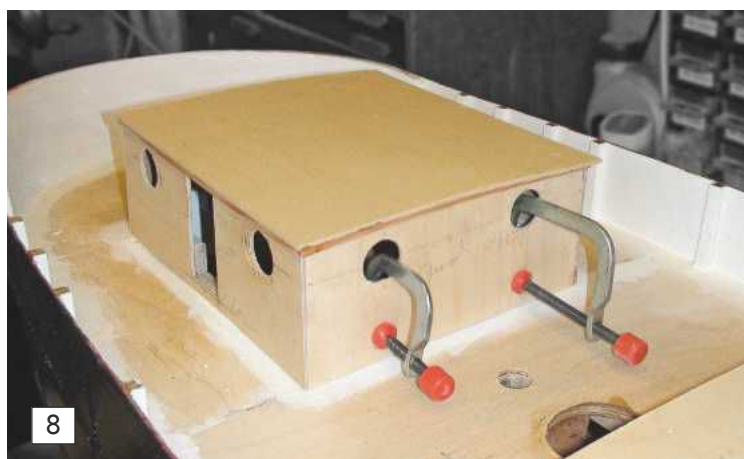
Returning to the working topside areas, the mast steps were installed, these being blocks of wood, drilled to carry the masts, and fitted in position inside the hull to hold them at the correct angle when later installed through pre-drilled holes in the deck. The step for the foremast was simply a block that was slotted to fit over the keel, inside the hull, and then glued in place (**Photo 6**). As mentioned earlier, the step for the mainmast could not be fitted at keel level as it would foul the steam engine, so it was fitted directly beneath the deck.

Installation of the mast steps was followed by building the removable engine room cover and the main hatch, both of which were assembled on the model to make sure they fitted properly. Plastic sheet from old carrier bags was used between the covers and the coamings to avoid the whole sticking together. The engine room cover took the form of a simple 1.5mm plywood box with square bracing pieces glued into each corner. With this, roof braces were added



and the top of the assembly sanded to shape before fitting the 1.5mm plywood top piece. **Photo 7** shows it part completed with the roof braces being fitted, whilst **Photo 8** shows the completed assembly.

The main hatch cover was a little more challenging in that it needed to be constructed as two removable sections, since the mainsheet for the sails on the foremast was to come out through the hatch near to one of



the bulkheads. Initially, two partial assemblies of shaped 6mm plywood formers – with cut-outs for the later addition of 6mm (1/4 inch) square braces – were made up on top of the hatch coaming as shown in **Photo 9**. A roof sheet of 1.5mm plywood was then glued to the top of both assemblies using as many heavy weights as would fit on, to make sure that it conformed to the curvature. After the glue had dried, the complete hatch cover was removed from the hull, inverted and fitted with internal bracing, plus its sides and ends (**Photo 10**), before being cut into its two sections using a band saw. With the hull now substantially completed, the insides of the bulwarks and the hatch coamings were rubbed down, primed and given a coat of white paint.

Fittings

Whilst the white paint dried, attention was directed towards some of the deck fittings, including the anchor winch, forecastle companionway, engine room cover, main hatch cover and bollards. Here I must admit to cheating (just a little) in that I bought a set of

commercially available white metal bollards and painted them satin black. The anchor winch, however, was made from all sorts of bits of wood, metal and plastic from the scrap box, which included some plastic gearwheels that had been salvaged from a defunct inkjet printer. **Photo 11** shows the winch as built, whilst **Photo 12** shows it after painting. The asbestos insulation around the steam pipes is simply string wrapped around the pipe, and painted with matt white emulsion.

To make the forecastle companionway, pieces of plywood from the scrap bin obliged here, glued together as in **Photo 13**, before being painted cream as in **Photo 14**. The door hinges and door catch are pieces of bent wire pushed into the plywood, whilst the portholes are suitable size brass eyelets.

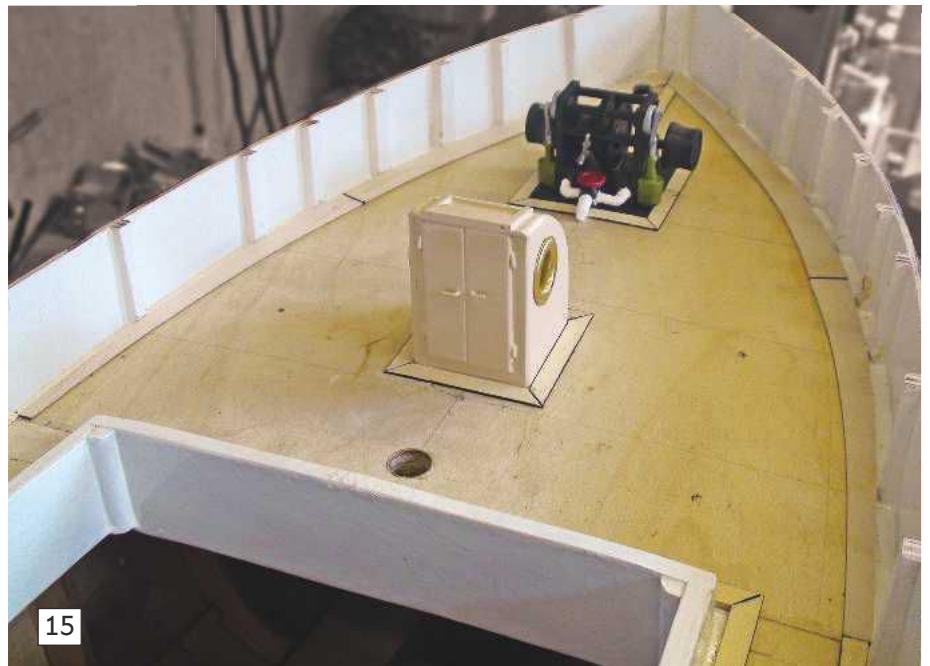
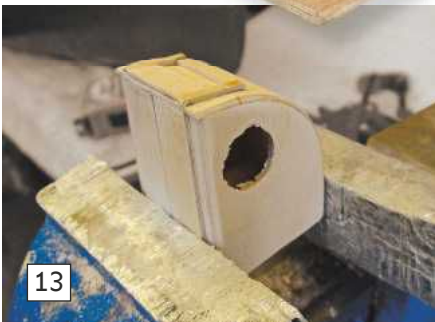
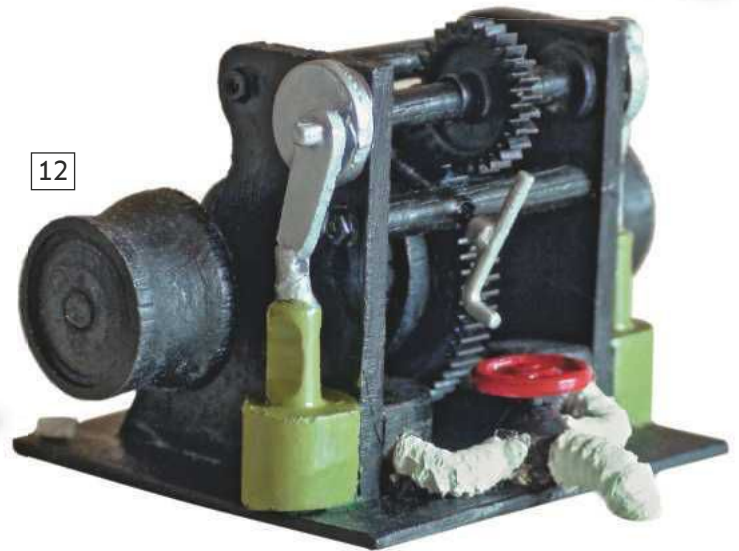
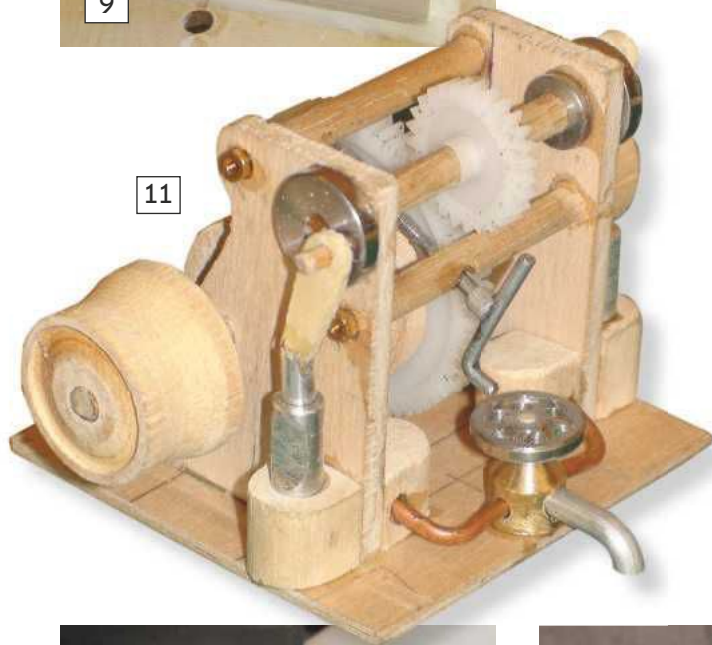
The engine room cover was given a 1.5mm thick door, again with hinges and a handle from bent wire as with the companionway. Finally, the cover was rubbed down, filled where required, primed and given a coat of cream paint. The door and portholes on the engine room cover were left open so as to provide as much ventilation as possible to the

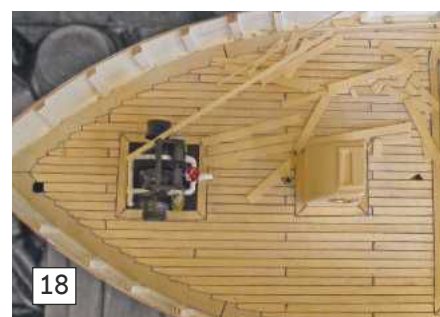
hot and steamy machinery spaces inside the model. Of course, these ventilation apertures not only provide cooling, they also facilitate a ready supply air to the burner.

Once painted, and before they were finally fitted to the model, the main hatch covers were wrapped in stiff fabric, salvaged from a scrap roller blind that nicely simulates the canvas sheeting that would have adorned the full-size vessel.

Cautionary tale

After fixing the anchor winch and forecastle companionway to the plywood sub-deck, a start could be made on the planking. A sketch had already been drawn (on the PC) of the planking layout, based on the use of 7mm wide x 1mm thick lime wood strip, sourced via eBay. These strips had been cut to a guesstimated scale plank length of 280mm (11 inches). To help in the placement of the planking joints, lines giving the joint positions were drawn on the sub-deck. All one then had to remember was which plank was which and the joints would come out in the right places. But there's





hardwood was used as a sort of rubber to get all the air out from between the parts and ensure a close fit. This is the same piece of wood that was used with the card plating earlier on the hull, and it seems to work well.

Planking continued around the foremastle area with each strip cut to length in-situ on the deck and joggled in to the edge plank by laying it over the top and cutting both pieces together. After marking the edges with the black line, each piece was glued into place as it was made, **Photos 16, 17 and 18** showing several stages of this planking process.

Eventually, the stage was reached when all of the deck had been planked. At this point it looked a bit rough and dirty, and so it needed to be rubbed down with fine sandpaper. After this rubbing down, I followed my usual

practice of cleaning off the dust with white spirit on a soft cloth which resulted in? Well, disaster! Alas, the Magic Marker proved to be neither magic nor permanent, wherein the colour from the nice black caulking lines started to bleed into the wood. And to add insult to injury, the bleed was now not black but purple. So, what to do?

Once the initial panic and despair had subsided, I decided to try rubbing it down again with fine sandpaper as, after all, it couldn't get any worse. Somewhat to my surprise, this worked. The purple was reduced and the lines again looked black-ish. With a careful wipe over with wood stain and a finishing coat of water based satin varnish, the end result turned out as **Photo 19**. Okay, not perfect, but a good representation of a hard-worked tramp steamer deck, which was the aim anyway.

a cautionary tale to tell... You see, I had never planked a deck before, as my usual method to date has been to veneer the deck and draw the planking lines on it with a ballpoint pen. Reading as much information as could be found, both in books and on the internet, I discovered a variety of possible methods. One of these was to rub the edge of the planks with a soft pencil to give a dark line to represent the caulking between them. Anyway, I thought that I would do just as well to use a black permanent Magic Marker felt tip pen as it was on the bench anyway and it showed up good and black against the wood. Alas, this would come back to bite me with a vengeance, as will shortly become apparent.

The planking was started from the foremastle, the first step being to fit a mitred frame around the anchor winch and the companionway. With this, the deck edge planks were cut from 1mm plywood and fitted to both sides of the foremastle. Plywood was used for the edge planks as I found it difficult (read 'impossible') to get a strip of straight planking to adopt the required curve. All of these pieces were glued in place using Thixofix contact adhesive as it does not immediately grab the part and allows for some adjustment before finally sticking. **Photo 15** shows the start on the foremastle deck, together with the plank joint guide lines.

When finally pressing the planks into position on the adhesive, a piece of polished



Standing rigging

Bulwark capping rails, cut from 3mm plywood were fixed to the top of the bulwarks by glue and pin before being sanded to shape, stained and varnished as for the deck. These rails can be seen before finishing, in **Photo 19**.

As its name implies, standing rigging is fixed in place, does not normally move, and comprises the stays that brace the masts against sail loads. On this model there are two stays at the side of each mast (called shrouds) and a forestay on the foremast only.

Now that the capping rails were in place it was possible to fit the relevant external chainplates, which pass through them. Chainplates are metal fittings that are firmly fixed to the sides of a hull to carry the shrouds. Each chainplate comprised two parts made from brass strip, with a longer piece to go outside the hull and a shorter section, or strap, that fixes inside the bulwark. Holes were chain drilled and filed through the capping rails for the longer pieces to fit through them and both parts were then clamped, drilled right through and secured in place with aluminium rivets. **Photo 20** shows the straps inside a bulwark after painting.

To carry the forestay, a piece of brass strip was cut to length, drilled, twisted through 90 degrees at the top and then screwed inside the stem post at the bow. **Photo 21** shows this after fitting the forestay.

Join me next time when we'll continue with the rigging and get the hull wet. Until then...



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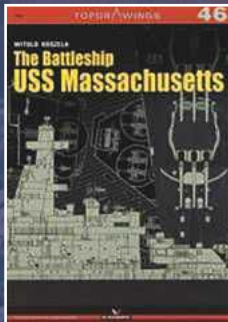
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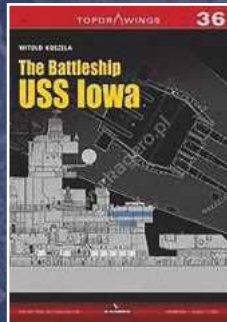
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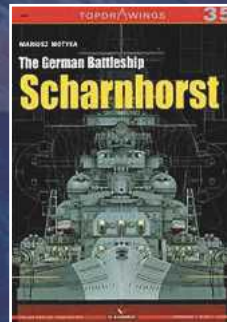
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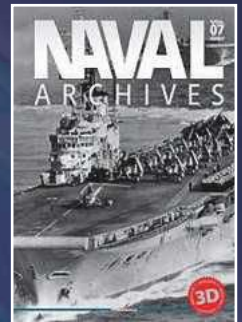
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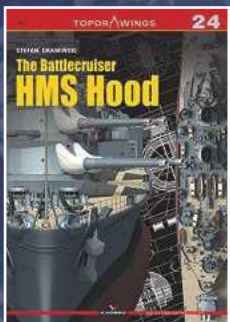
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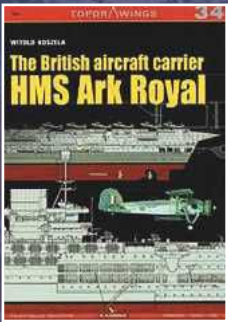
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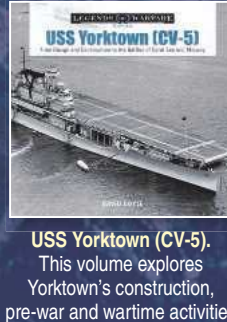
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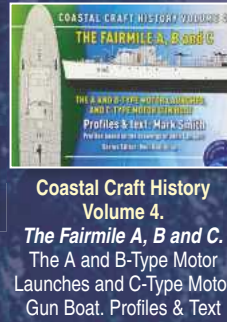
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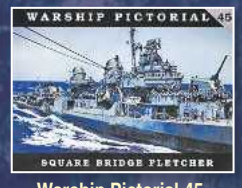
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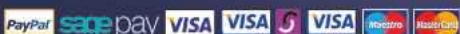
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Flying an Iraqi flag this 205U (export variant) of the OSA 2 would have been fitted with three 5000hp diesels. Note, too, the ribbed missile launch tubes – another characteristic of the later OSA 2.

PART 11

OSA 2 Fast Missile Boat

It's all hands on deck as **Dave Wooley** prepares to tackle the plating

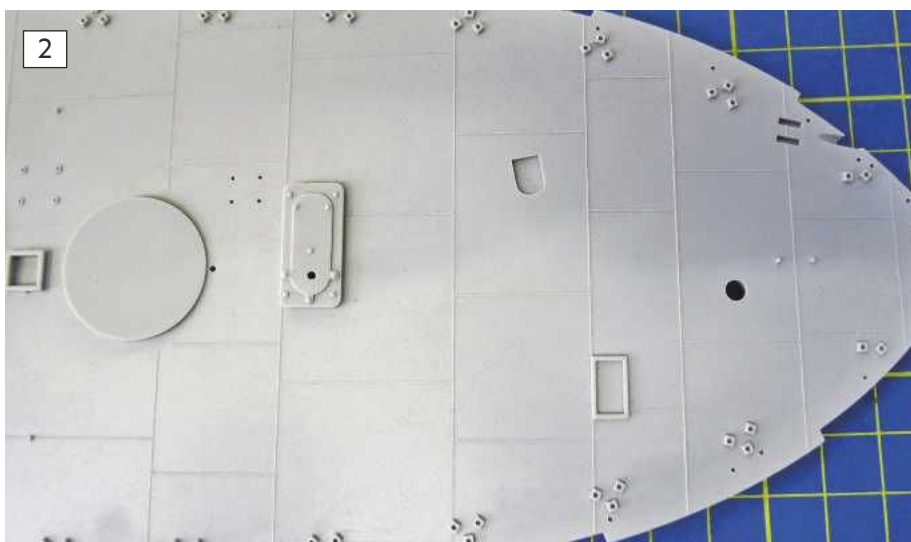
With the completion, in the last issue, of the SS-N-2 missile launcher tubes, the next stage of the project is to prepare and lay the deck plates. The OSA 1 drawing is devoid of any information relating to these, so I turned to the Merit injection-moulded kit of an OSA 2 where the deck plating is clearly shown. This, together with a number of pictures of the original vessel, enabled me to extrapolate the lines of deck plating.

Prelim' trials

Before plating and fixing the timber deck permanently into place some basic sea trials (**Photo 1**) had to be performed to ensure everything worked okay, particularly as access into the interior, although adequate, was going to be limited. As you can see, it does float and move. With on the water trials successfully completed the four overhangs attached to both port and starboard deck edges could be slotted into place and the deck permanently secured.

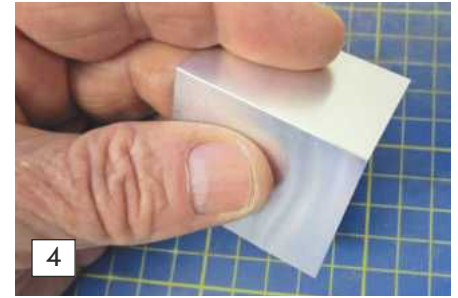
Photo 1. My OSA 2 takes to the water – albeit carefully – for the first time.

Photo 2. The deck plating arrangement on the Merit kit.

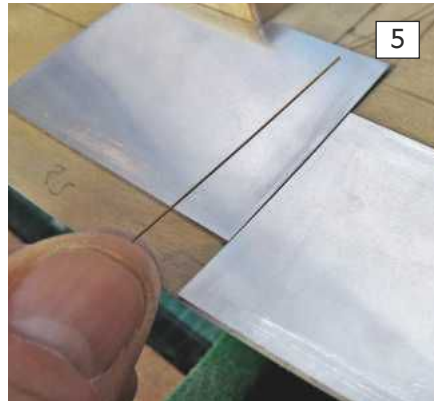




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Photo 3. This Litho plate is 0.5mm thick so it's very easy to mark and cut.

Photo 4. As with styrene, all that's required to cut this material is to mark, fold and separate.

Photo 5. 0.5mm brass wire is being used as the separator between each deck plate.

Photo 6. Deck plating was commenced forward to starboard, but, unlike traditional wood planking, there is no need to start from the centreline.



6

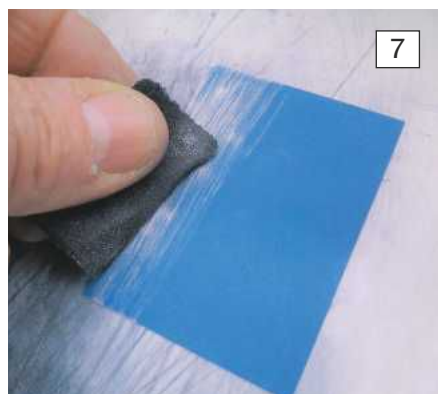
Litho plate preparation

Since the supporting beams and inwales are of timber, the deck was fixed using Cascamite, one of the best resin waterproof wood glues available. Preparation could then begin to mark the plate lines. The Merit 1:72 plastic kit provided plenty of information as to how each plate was positioned (**Photo 2**), the plate marks being duly transferred to the timber deck allowing, of course, for the increase in scale from 1:72 to 1:35. Allowance was also made for the width of

the weld – more on that later – however the research pictures confirmed said width to be surprisingly fine.

From the start of this project a decision was made to use litho plate which is an aluminium based metal used by offset-litho printers. Litho sheet is amazingly malleable, easily cut and copes well with compound curves. Moreover, when shaped it will maintain the new contours. I have a reasonably good supply of unused 0.5mm litho so didn't have my usual hunt for used

sheets, which can vary in size from A3 to A1. The print industry has moved on from its previous wide use of this material so acquiring used sheets can be tricky, although not impossible. As a point of interest this is the largest amount of litho I've ever used on a single model but, of course, the method of application remains the same. Cutting the material is just like cutting styrene, although the usual common-sense approach still needs to be taken. Beyond that the surface can be marked with a sharp blade whereupon



7

Photo 7. Litho plate usually comes with one side painted (printed) which needs to be removed to ensure a good key for the adhesive.

Photo 8. The plate is very malleable, indeed the late Ron Horabin made extensive use of it, his 1:96 scale USS Helena superstructure being one example.

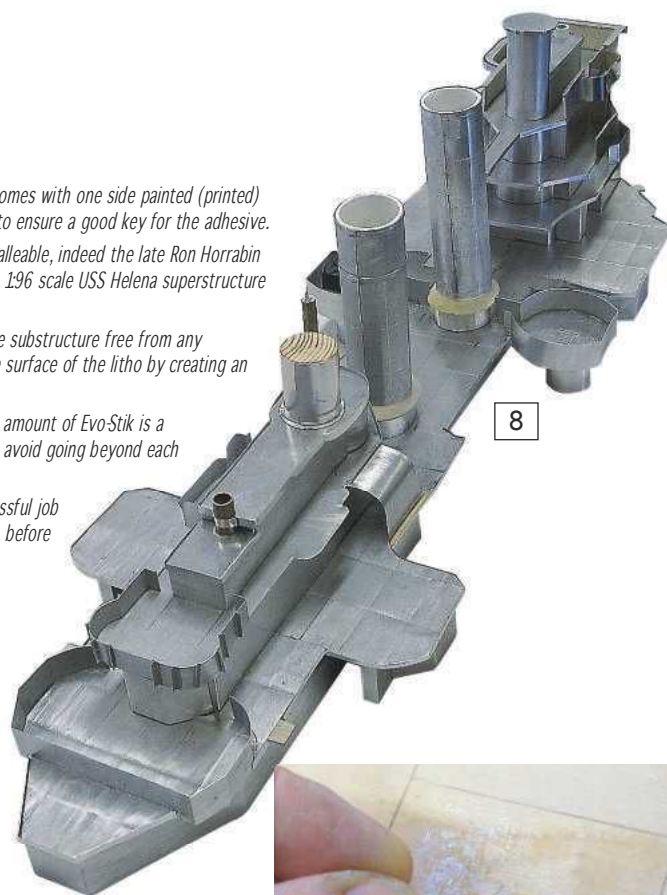
Photo 9. It is well to keep the substructure free from any particles that can deface the surface of the litho by creating an unsightly pimple.

Photo 10. Applying the right amount of Evo-Stik is a learning curve, but do try to avoid going beyond each plate line with the glue.

Photo 11. The key to a successful job is to check, and check again, before applying the adhesive.



9



8



11



10

The right adhesive

Litho is aluminium based, so getting the best adhesive to bond the plates to the timber sub-deck is essential. My quest was made easy, mind, as the late Ron Horabin was keen on using litho plate to clad entire models, such as the superstructure of his USS Helena (**Photo 8**). Given that Ron always recommended Evo-Stik contact adhesive, there was no need to run any sample tests as I was now confident of the result. Although the timber sub-deck was already sanded, it's best to ensure that the surface to which each plate is to be fixed, is clean and free from any tiny particles as these can also mark and spoil the upper surface (**Photo 9**).

Gluing the plates

When using Evo-Stik the suggestion is to coat just one surface, the timber sub-deck in this case, then apply the second surface, namely the litho plate, to this immediately, thus enabling a few seconds for adjustment. The key watchword before applying the adhesive is to check, and double check, using the spacer to give consistency. Applying the right quantity of Evo-stick to do the job is a learning curve as each space is of a different size. If using a spatula to even-out the adhesive, don't be tempted to double-back over the covered surface as the Evo-Stik will grab and immediately go

slight pressure applied to the marked joint will achieve a good clean bend or separation (**Photo 3 & 4**). Unlike cutting styrene sheet, blades used on litho plate become frequently blunt, so be prepared and have a good supply of them to hand.

The size of each deck plate is not determined by the lines on the timber deck but by the width of the welded joint. I use the words 'welded joint' but in reality the space between each plate is 1mm which will be covered with a narrow strip of litho to simulate

a weld line. This will be added later, however in the interim a length of 0.5mm wire was used to give an even space (**Photo 5**).

Plating commenced forward on the starboard side with a number of plates cut to size (**Photo 6**). The next stage was to remove the painted surface using 400 grade wet and dry sandpaper (**Photo 7**). Do note, if doing this yourself, that it doesn't take much to mark the exposed surface, especially when rubbing, so it's essential that you keep it clear of any tiny scrap metal particles.



into a semi-dry state (**Photo 10**). Once the surface is covered with glue, carefully place the deck plate in position applying an even but gentle pressure. All that is then required is to apply this same approach to each new plate, avoiding the temptation to accelerate the job (**Photo 11 & 12**).

The entire process of plating took about 15 hours, but no matter how diligent one is, some residue of adhesive will probably remain on the exposed top surface. This can be gently wiped free by applying fine wet and dry sandpaper with a touch of water for a tidy end result. Apart from adding the weld lines, all that was then required was the timber deck edge. For this, 2 x 3mm boxwood was used, secured in place with a waterproof epoxy glue. Apply the adhesive with care as this will avoid any residue seeping on to the now pristine litho plate deck (**Photo 13 & 14**).

Right, that's all for now. Join me again next month when we'll return to the main deck housing and its associated detail work.

Photo 12. Good progress here plating the forecabin.

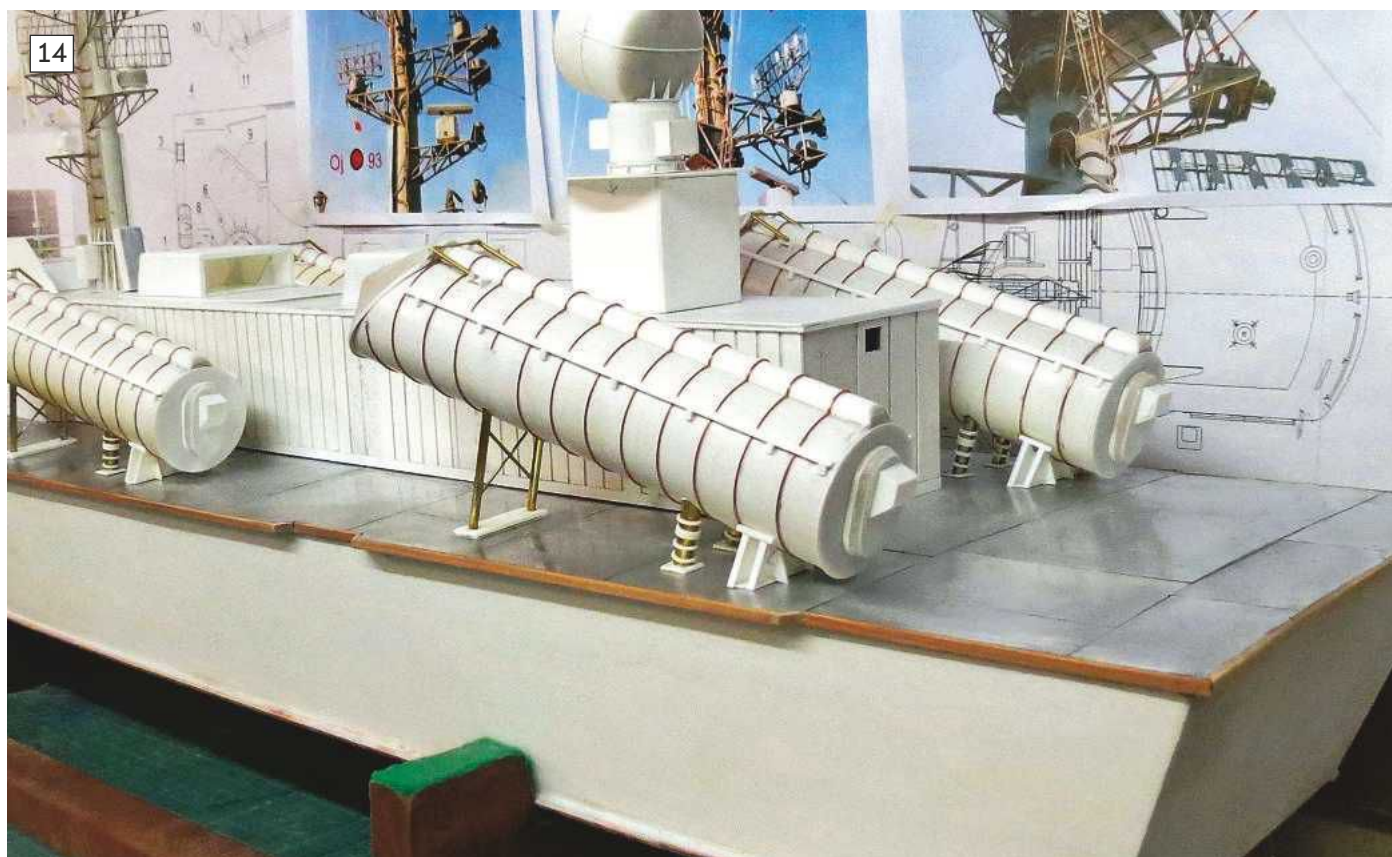
Photo 13 & 14 To complete the deck prior to adding the weld detail a strip of 2 x 3mm boxwood has been added to the deck/hull edge.



References and acknowledgements

MTB Hulls – OSA GRP hull – website: www.mtbhulls.co.uk

Albion Alloys – Aluminium, copper, brass and alloy tube – website: www.albionalloys.com



Flotsam & Jetsam

58: Motor technology

Join **John Parker** on a peek into the past, then take back everything you said about the price of that brushless motor you've just bought

Just as the battery has evolved over the last one hundred and fifty years to become a powerful source of energy for driving model boats (see the December 2017 issue), ever smaller, more powerful and more efficient electric motors have been developed to make use of this energy. For a 'cordless' portable application, such as a model boat, it was the battery technology of the day that tended to dictate the power of the motor, rather than any limitation of the motor technology itself. Increasing the power of the motor increased its energy demands, and it was all too easy to push these beyond the point of economic battery operation.

Wound field motors

Electric motor operation depends on the interaction of two sets of magnets. One set needs to be switched so that continuous rotation is achieved. This is done by making it an electromagnet that rotates with the output shaft and reversing its poles by means of the commutator, a type of rotary switch that spins with the shaft. The rotating assembly is known as the rotor or armature. The other magnets are called the field magnets and

BELOW: Motor castings from the 1928 Stevens's Model Dockyard catalogue.

don't need to have their polarity switched. The temptation, therefore, is to employ permanent magnets in this role as they can supply the necessary magnetism for motor operation without consuming any power themselves. The trouble in the early days, however, was

ABOVE: Boat motors from the 1928 Stevens's Model Dockyard catalogue.

that permanent magnets were anything but permanent. Often just magnetised strips of steel bent in a horseshoe shape, their magnetism was weak and their poles ill-defined and it was easily lost through time, high temperatures or overloading of the motor. As a result, they could only be used for small toy motors as any serious model boat motor would have to face the need for a wound electromagnetic field with its attendant greater size, weight and cost. Interestingly, the power consumption of the wound field didn't necessarily make the motor less efficient than a permanent magnet version, due to the far stronger and consistent nature of the magnetism which resulted in greater output.

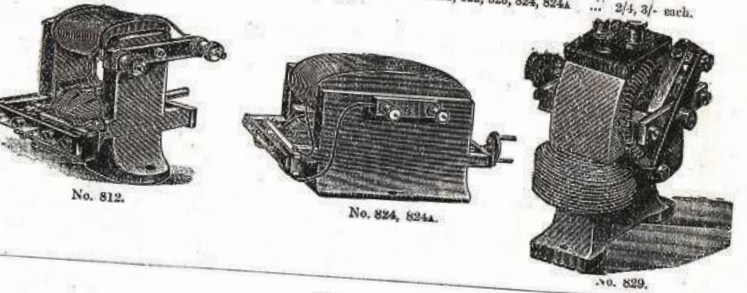
Stevens's Model Dockyard catalogue of 1927 to 1928 provides some good illustrations of what was available at the time. Firstly, 'Sets of Castings for Motors'

ELECTRIC BOAT MOTORS (English Make).
Motors 821 to 826 are our own make and design and are wound to give the greatest power at a low Amperage.



No.	Name	Size	Length	Height	Weight	Price	Postage
No. 818	The "Powerful"	Boat Motor, Size 1	3-in.	1 1/2-in.	4 1/2-oz.	15/6	
No. 819	The "Hoppe"	Size 2, 2 1/2-in.	3-in.	2 1/2-in.	6-oz.	13/6	
No. 819a	The "Piglet"	"	3-in.	2 1/2-in.	6-oz.	13/6	
No. 819b	The "Nipper"	"	2 1/2-in.	2 1/2-in.	16-oz.	11/6	
No. 820	The "Excepti"	"	2 1/2-in.	2 1/2-in.	16-oz.	12/6	
No. 821	The "Victoria"	"	3-in.	3-in.	14-lb.	22/6	9d.
No. 822	The "Royal"	"	3 1/2-in.	2 1/2-in.	14-lb.	15/-	9d.
No. 823	The "King"	"	4 1/2-in.	3 1/2-in.	24-lb.	16/6	1/-
No. 824	The "Queen"	"	4-in.	3-in.	24-lb.	22/6	1/-
No. 824a	The "Uneda"	"	6-in.	3-in.	24-lb.	20/6	1/3

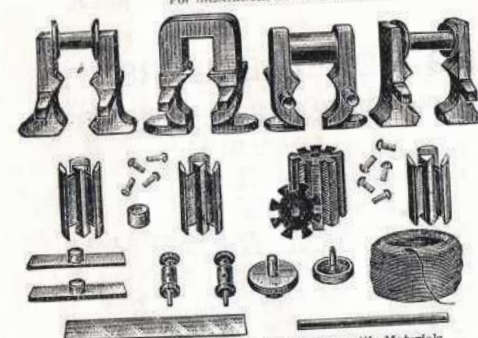
Shaft and Propeller for 819. No. 820, "The Viking", Tripolar, 25/6.
Nos 819a and 819b have a Shaft and Propeller included in the price.
Boat Motor Propeller Shafts, with flexible springs, to suit Nos. 821, 822, 823, 824, 824a ... 2/4, 3/- each.



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2.	4-in.	2 1/2-in.	1 1/2-lb.	30/-	1/-
3.	2-in.	3 1/2-in.	2 1/2-lb.	35/-	1/3

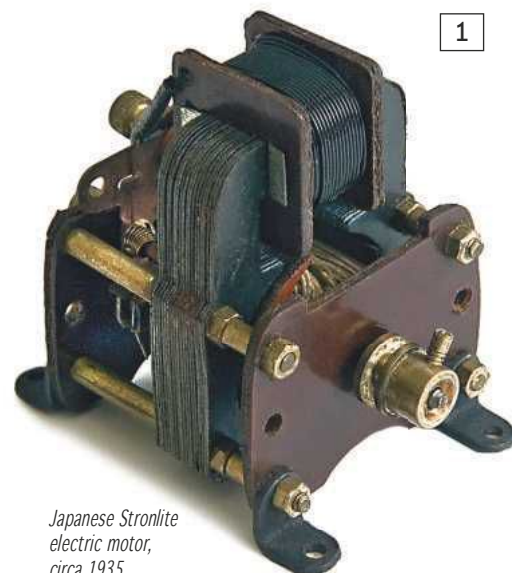
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The sets of Materials consist of the Wire for Field Magnets and Armatures, Terminals, Screws, Vulcanite Fritre, Brushes, Stampings for Cog-drum Sets, and everything necessary to make up a complete Machine.
For illustrations of these Motors made up, see pages 78 and 79 POSTAGE EXTRA, see page 73.



No.	Name	Size	Length	Height	Weight	Price	Postage
No. 727	THE "KING"	Tripolar 3-	3-in.	2 1/2-in.	4 Volts, 2 Amperes. Cogdrum 2 10	6/-	
No. 727A	THE "VICTA"	Tripolar 3-	3-in.	2 1/2-in.	4 Volts, 2 Amperes. Cogdrum 2 10	6/-	
No. 728	THE "ROYAL"	Tripolar 3-	3-in.	2 1/2-in.	4 Volts, 2 Amperes. Cogdrum 2 10	4/-	
No. 728A	THE "VIKING"	Tripolar 4 6	3-in.	2 1/2-in.	4 Volts, 2 Amperes. Cogdrum 3 5	6/-	
No. 729	THE "QUEEN"	Tripolar 3 9	3-in.	2 1/2-in.	4 Volts, 2 Amperes. Cogdrum 3 9	3 9	
No. 730	THE "UNEDA"	Set of Castings, 4 6	Set of Materials and Stampings, 15/-				

A group of Dynamo and Motor Castings with Materials.

1



Japanese Stronlite electric motor, circa 1935.

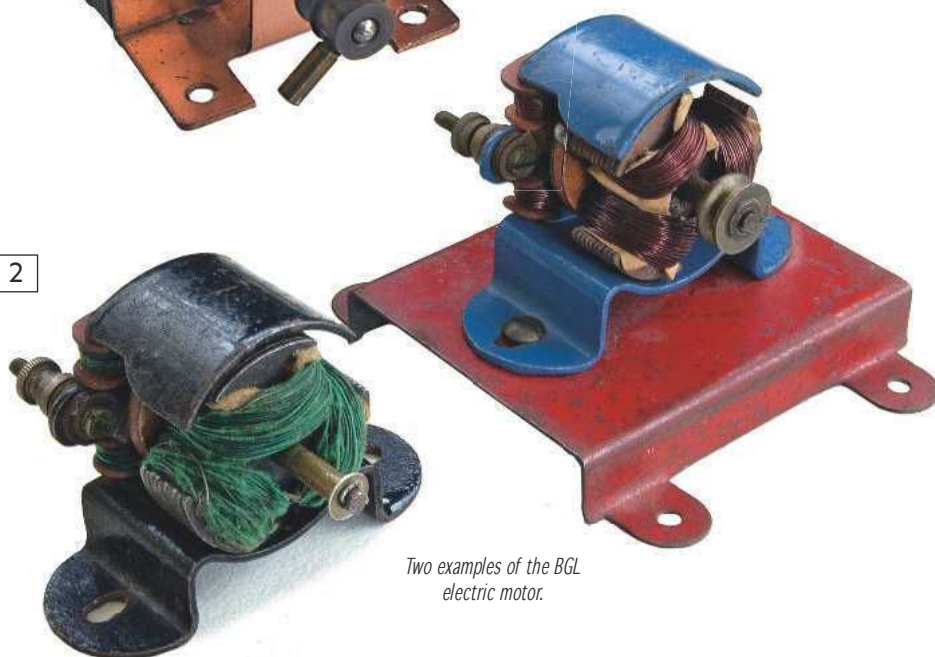


Examples of post-war motors using twin rectangular field magnets. Top: Japanese Kako. Left: Frog Revmaster. Above: Marx Duoperm.

4



2



Two examples of the BGL electric motor.

and field cores along with the winding wire and other parts for the modeller who preferred to make his own motor (or perhaps more likely, was forced to because he couldn't afford a ready-made one). Alternative three pole or slotted armatures are shown for the various designs which go by majestic names such as the 'Uneda', 'Royal' and 'Viking'.

If you could afford a ready-made motor, 'Electric Boat Motors' shows some of the types available, such as the 'Powerful' priced from 15s/6d (fifteen shillings and sixpence) in Size 1 to 32s/6d for the Size 4, fitted with reversing gear. These prices are equivalent to about £43.50 and £91 today, but perhaps the 'Hoppon' at 13s/6d or the 'Excepti' at 22s/6d was more to your liking? All these have a single field winding, however a better arrangement was to have a winding of each leg of the field yoke, as displayed by No. 829. Motor No. 818 the 'Powerful' and No. 815 the 'Marina Horizontal Boat Motor' (!) are of interest for being early adopters of a configuration having the field winding carried past the end of the armature shaft for a more compact unit with a lower centre of gravity. This arrangement was to become very popular much later, in permanent magnet form, with locomotive and slot-car racing motors.

Photo 1 shows a motor of more modern construction that may look like it comes from the Taycol stable but, in fact, is a Japanese Stronlite motor from the 1930s. It is a very neat little design for its time, measuring just 50mm high and showing how steel stampings had largely replaced cast iron for the magnetic cores. Production ceased in 1937 as the company went over to making weapons in preparation for the coming Pacific War.

A pre-war Trix motor with crude field magnet. (Thanks are due to Roy Verden for this photo).

3



Permanent magnet motors

Pre-World War Two permanent magnet motors were generally crude and low-powered, such as the Trix motor (**Photo 3**) with its very basic horseshoe field magnet and poor control of the armature-magnet gap, but magnet technology was slowly improving. The geared Bassett-Lowke pre-war motor employed cobalt steel alloy for its permanent magnet which was quite thick and shaped to the armature. Elsewhere the crudity remained, with wooden blocks used to insulate the brush gear. I have an example (not shown) which is dismantled and awaiting someone who can restore its magnet.



7

World War Two brought rapid advances in the performance of magnetic alloys and from about 1947 motors appeared on the market that used the new Alnico (aluminium, nickel and cobalt) series of alloys. These had a greater flux density and enabled the motor to be made smaller, lighter, and cheaper, broadening its range of applications. They were also more resistant to loss of their magnetism. Some motors used the arrangement of two side-mounted slugs of magnet material joined by a saddle of iron forming the pole pieces and enclosing the armature. Examples are the Japanese Kako motors and the Frog Revmaster (**Photo 4**). Many others used a ring or tubular magnet, with its poles appearing on opposite sides of the inside circumference, examples being the Frog Tornado and Whirlwind, Eveready TG18, Mighty Midget and most of the Marx family of motors, such as the Monoperm, Decaperm and Hectoperm (Flotsam and Jetsam No.28, July 2015 and **Photo 5**). An enclosed cylindrical casing was becoming the preferred style of motor and the ring

Taycol Double Special versus a modern brushless motor, the latter being considerably more powerful!

magnet facilitated this, though it could also be achieved by mounting a pair of curved magnets in a cylindrical housing or 'can' as Mabuchi did.

From this point, the permanent magnet became the dominant type of model motor. Further improvements came with the incorporation of sintered bearings (to retain the oil lubrication), machine wound armatures, plastic casings and better brush gear. The latter was always the weak point of these small electric motors as the need to sell for an affordable price precluded a sophisticated design of brush gear. The bigger and better motors used sprung copper-carbon brushes which were longer lasting, but caused a greater voltage drop. Cheaper or lower voltage motors tended to use simple sprung strips of brass or phosphor-bronze.

There is an exception to every rule, and when it comes to model motors that exception is Taycol (Flotsam and Jetsam No. 11, February 2014). Despite producing a couple of permanent magnet motors with horseshoe magnets (the Star and Comet) the focus of its attention was on the design and production of wound-field motors. This could be justified, I think, in the 1950s, but by the middle of the 1960s they were looking very



6

ABOVE RIGHT: A ring of Neodymium magnets in a typical outrunner brushless motor.

bulky, heavy and expensive compared to the better permanent magnet motors. By the 1970s when the company closed, they were well past their use-by date.

Brushless motors

The 1970s saw the development of rapid-charge Nickel Cadmium batteries capable of supplying a hefty current, and this in turn triggered the development of higher-powered motors for cordless appliances and their subsequent wholesale application in radio controlled racing vehicles, aircraft and boats. In the '90s, 'super magnets' using rare earth elements such as Neodymium and Samarium became available. Neodymium N52 is currently the strongest magnet alloy, with Samarium Cobalt not far behind and able to withstand higher temperatures. Furthermore, both may be considered truly permanent magnets, in that their magnetism is not susceptible to significant loss over time. I have seen the figure of just one percentage point per century quoted. Their performance even enables them to be used in full-size motors for submarine propulsion.

Model motors made with these magnets, ball bearings and gearboxes, represent the pinnacle of stand-alone motor design (**Photo 6**). I use the qualification stand-alone because a new technology was to appear that soon stole their limelight, namely the brushless motor. The innovation here was to use separate electronic circuitry to provide the function of commutation and thus free the motor from the need for brush gear and a commutator; constant sources of wear, friction and radio interference. It enabled the resulting three-phase brushless motor to achieve unprecedented performance in a small package and work without the need for a gearbox. The price to pay was the need for the electronic circuitry without which the motor could not work, i.e. it was no longer stand-alone, but this circuitry could be combined with an electronic speed controller to make a brushless speed controller, and in the nature of electronic goods, the price has tumbled.

Perhaps the best way to illustrate the progress made in model motor technology is with a comparison I have made once before. Pictured above (**Photo 7**) is a Taycol Double Special from 1961, the most powerful motor it made, with its enormous twin field coils. Weighing in at 1.275kg, it is comprehensively outperformed by the small brushless motor that is perched alongside and is half the weight of the cardboard box the Taycol motor came in!



5

Examples of post-war motors using ring magnets. From left: Marland motor; Frog Tornado; Marx Monoperm.





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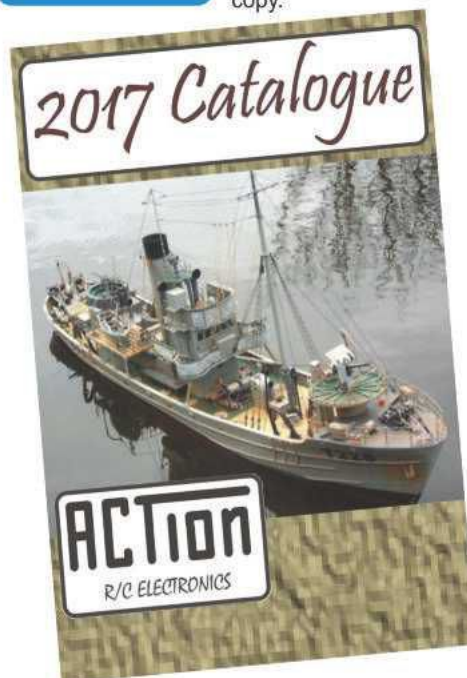


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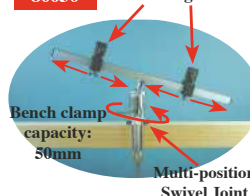
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In 1869, the Suez Canal was opened and not long after that the carriage of tea at high speed to the London markets passed to steamships, whereupon famous clippers like the Cutty Sark had to move to other trades. Another trade which still required a degree of speed was the carriage of wool from Australia to the UK to meet dedicated auction times, and so it was that some of the clippers found a new role.

The last sailing ships ever built for the wool trade were launched in 1891 and named Cromdale and Mount Stewart. They were built of iron by Barclay Curle & Co. of Glasgow, were 290ft long and were among the last big sailing ships to be built with an eye to speed, as well as cargo capacity. They had good lines and as befits the intention that they should be fast, they were given a large sail plan. Their masts were of steel tube, as were most of the yards. Both ships were owned by Donaldson Rose & Co., but eventually they had to yield the wool trade to steamers and reverted to the trades left to tramping sailing ships. Cromdale ran aground in fog at Bass Point near the Lizard in 1913 and broke up, but Mount Stewart continued service until 1924, by which time she was unprofitable and was then broken up at Nantes in France.

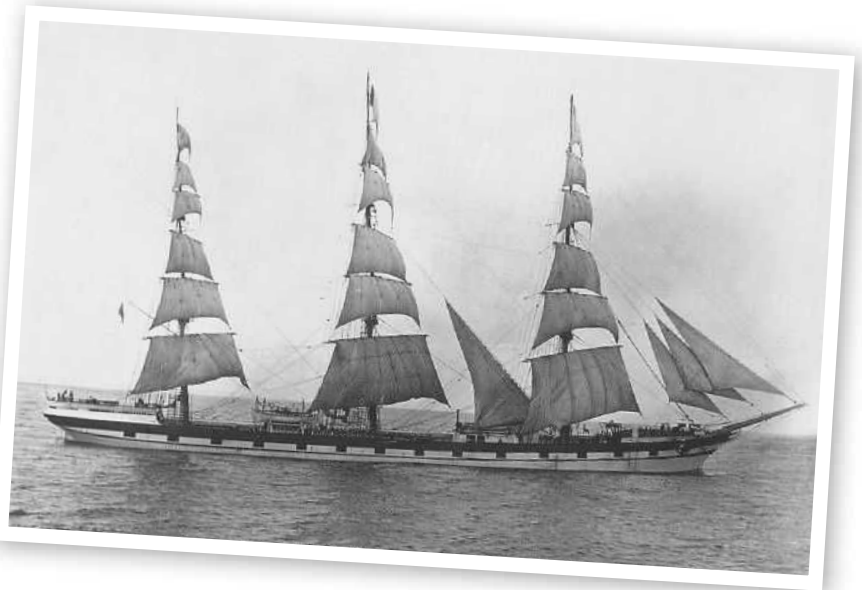
Their lines and appearance, plus the large sail plan made me think that either ship would make an excellent subject for an R/C sailing model, especially as they still had a colourful and old fashioned colour scheme.

Basic research

The Underhill drawings for Mount Stewart are available from Brown, Son & Ferguson and after obtaining them, thoughts turned to how to make a functioning R/C model. On previous similar models, the yards on the after two masts have been operated together, as there is only room for one sail arm between those masts. This works, but such an arrangement means that those yards don't brace round as far as they would if they were operated independently. I now wanted to make a model on which all three masts and their sails were controlled separately, meaning that there would need to be sufficient space for two sail arm servos between the main and the mizzen masts. Mount Stewart looked like it would fit the bill, but that meant it would have to be quite large, albeit with a suitable (non-scale) keel.

Datafile

Scale:	1:73
Overall length:	1360mm
Beam:	170mm
Height (keel to main mast truck):	860mm
Keel weight:	7kg
Basic model weight:	5kg
Reference material:	Deep-Water Sail, by Harold Underhill. Square-Riggers - The Final Epoch 1921 to 1958, by Alex Hurst.



ABOVE: Mount Stewart photographed later in life having lost her main skysail. Note the turtleback poop.

My model, then, is to 1:73 scale, and 1220mm from stern rail to the top of the bow. The drawings were copied to this size and paper templates of the sail arms tested against the side elevation, to make sure that they would actually fit between the masts and under the deck. They did, so that was one problem out of the way. The second minor issue was that Mount Stewart has a turtleback poop, or in other words, the deck of the poop doesn't extend to the full width of the hull at the stern. Seen from side on, the steel plating is shaped so as to make the poop horizontal, despite the sheer line of the stern. Reference to the pictures will help you to understand this building conundrum.

Building the model

I'm not going to take you through the planking and framing process, suffice to say that the hull was built, painted and fibreglassed inside. I will, however, dwell briefly on the creation of the turtleback poop. This was easier than first anticipated, as the shape of the half-round for the poop was cut into the top outer edges of the appropriate frames. Then, after the rest of the hull was planked, some thin plywood bent over a candle, was used to make the half-round section on each side, as far aft as possible. The remainder of the half-round part, at the stern, was made by bending and cutting more plywood in small sections, and gluing in place. It was then a simple job to fill and rub

down to make the whole area smooth, then fibreglass inside, before painting it all.

At this point the electrics were temporarily inserted into the hull and the model tested on water using an existing 'stock' external 7kg keel which, in the event, proved to be the best one to use.

Sail control

The yards are controlled using sail arm servos, with centrally pivoted arms. The braces for the yards on each side of the ship are fastened to hull frames next to an adjacent mast, on the appropriate side. They are then led forward, or aft, to their servo arm, where they go around a pulley. After that, they are led to a fairlead, which takes them up

Balclutha (1886) is moored in San Francisco Bay and wears the same traditional colour scheme as Mount Stewart.





ABOVE LEFT: The turtleback poop. The complex, bent plates of the original have been recreated in wood by shaping to the lines of the frames.

ABOVE RIGHT: The plank-on-frame hull nearing its time for removal from the building board.



through the deck and then up the adjacent mast. At the appropriate height, they are led around pulleys and across to the yards that they are to operate. Braces for the port side are on the port side of the model, those for the starboard side obviously being on that side. As the sail arm rotates, the braces on one side are pulled in as those on the opposite side are let out, thus moving the yards from one tack to the other, or to any position in between. All the sail arm servos work in the same way, be they for the foremast or the other two masts and their sails.

The sail arm for the foremast is positioned between the fore and main masts. Note that at the foremast yards, the braces go around pulleys and are sent half way back across to the main mast, where they are attached to bowsies, which give the ability to adjust the length of each brace. The pulleys at the servo arm and at the yards are fishermen's swivels, which are a kind of small snap-link, making the braces easy to disconnect at either end. Meanwhile, the pulleys on the masts are simple screw eyes. The reason for the pulleys on the servo output arms is to give a degree of multiplication to the movement of the braces, to get as much movement of the yards as possible for a given servo travel.

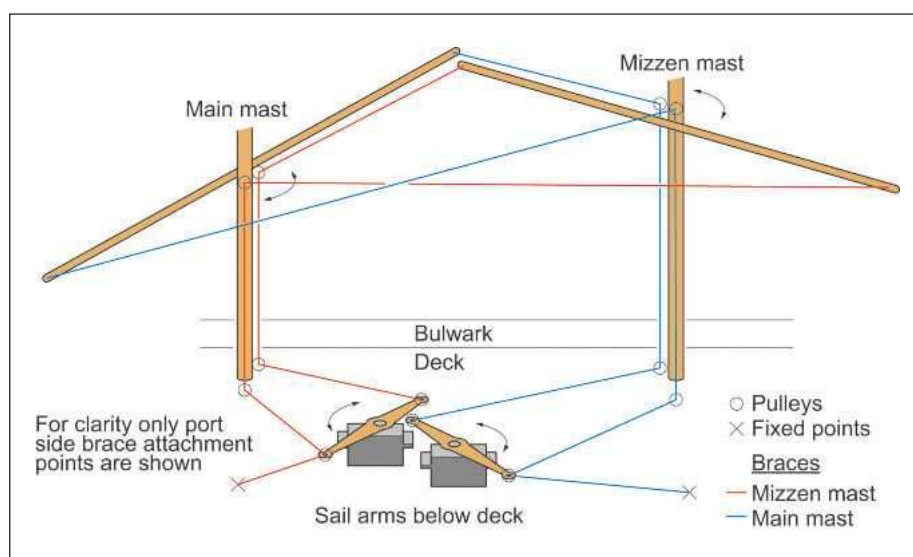
ABOVE: The turtleback stern area after decking. Note the fairleads, sticking well up above the deck, at either side of the mizzen mast. The lines through them are the braces for the main mast yards.

BELOW: Starting to look like the real thing with Underhill's drawing behind. Note the oversize rudder which is at least ten times the scale size of the original!



The braces on the other masts operate in exactly the same way, except for an important difference in the case of the mizzen mast. Full-riggers are sailing ships which carry a square-rig on all their masts and they usually have three or more masts. On each mast, the braces run aft from their yards, to the adjacent mast, except on the aftermost mizzen mast, where they have to run forward, because there is no mast astern of it. Thus, on Mount Stewart, the mizzen mast braces ran forward from the yards, to the main mast and so it is with this model. There, they are led down through fairleads in the deck and then aft to their servo's sail arm and not forward as with the foremast. The braces for the main mast are led from the yards aft to the mizzen, where they are fed down through the deck and forward to their servo arm. There are, therefore, two sail control servos between the main and the mizzen masts, one to operate each set of sails.

There is a sketch (opposite) of the layout of the braces to these yards which are



ABOVE: Note the closely spaced, overlapping sail arm servos, which allow independent control of the main and mizzen masts. The coloured lines show their operation, with only the starboard side brace attachment points omitted. The braces for the course (lowest) yards are shown, but there is another set on each mast for the lower topgallant yards.

superimposed, one over the other, in order to get them into the available space and still be far enough from their dedicated mast to allow effective movement of the braces. One servo sail arm was mounted about 15mm lower than the other and this overlapping works because the braces are always tight and there is no slack in them. Any slack means certain entanglement, and that is definitely not wanted. Once it all looked good and practical, the control systems were secured within the hull and at the same time the final position of the keel was determined. So, back to the bath!

Old meets new

In terms of the electronics, a 7.2V 4500mAh battery is used with a 7-channel Futaba 2.4GHz receiver (and matching transmitter) connected via a UBEC (Universal Battery Eliminator Circuit). The receiver has a fail-safe mode which allows a default position to be set for channel 3 should there be a power failure or loss of radio signal. The UBEC is a sort of voltage regulator to ensure that the receiver and the servos get an adequate supply, in this case 5V and 8A. The three sail servos are Hitec HS-765HBs for the yards of the fore, main and mizzen masts, with two Futaba S3003 servos for the rudder and to pull in (and let out), the spanker, which is the small fore and aft sail on the after side of the mizzen mast. I aim never to go inside my models at the

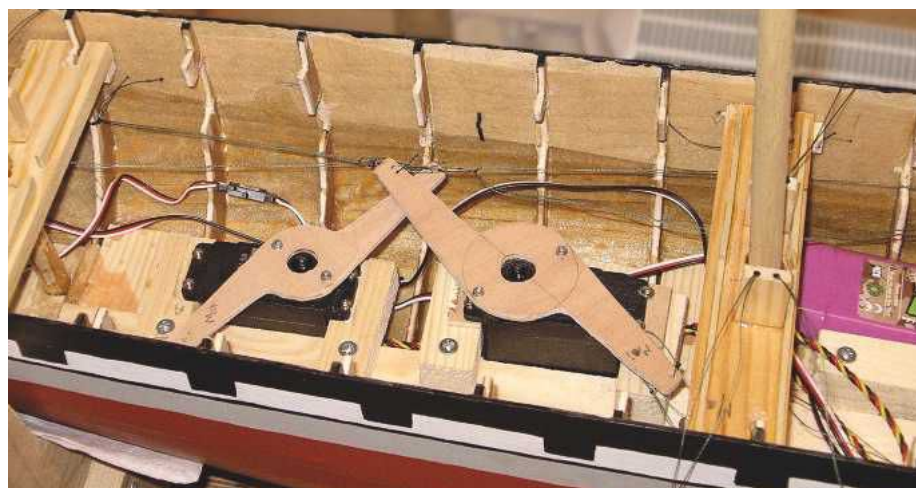
RIGHT: The overlapping sail winch servos in the hull between the main and mizzen masts – stern to the left of the photo. Note the braces going around their pulleys at the ends of the sail arms and then up through their fairleads by the masts.

“Not enough speed and tardy moving of the sails can leave you in irons”

pond, so a switch and accompanying charging harness is installed within an inner hatch cover, enabling it all to be turned on and off without actually venturing inside the hull.

Decks, masts and rigging

False sub-decks of thin plywood cover the hull, with coamed access hatch openings to suit the electrics below. The sub-decks have been overlaid with planking using 8 x 2mm Limewood strip. Resin has been run around the edges of the deck and around each coaming, to fully seal and waterproof it all. With the decks varnished the hull was once again tested in the bath, but with its scuppers under the surface to make sure no water got inside it. Inner hatch covers fit



ABOVE: Mount Stewart with the wind from astern sailing quietly. In this classic photograph the model could almost be the full-size vessel.

within the coamings, hidden by the outer decorative hatch covers, the former (sealed with tape) being the ultimate line of defence against water ingress. The fairleads for the braces are set in wooden blocks, which are well above deck level and these can be seen beside the masts.

Dowel wood is used for the masts, their lower parts being set into blocks on the keel after passing through thwarters across the hull, beneath the deck. The various sections of the masts are fixed together using doublings, which is where one part of a mast overlaps its lower neighbour. All the spars (yards) are from dowel, connected to the masts using pivots made from brass wire, tube and strip. Each square sail yard can be pivoted to within 30 degrees of the centreline of the hull. The sails are of Ripstop Nylon, a material from which tents, kites and cagoules are made, my wife doing the seamstress bit – thank you.

Each sail is laced to its spar, the topmost sails on each mast being removable, so that in heavy weather one can operate with a reduced rig, much like a real sailing ship. The courses are the large bottom sail on each mast and have no yard beneath them, so cannot be connected to one. The solution to



Sailing in perfect conditions, such as this, is a joy.

LEFT: This shows the full sail winch installation, bows to the left of the photo. The servo arm for the foremast sails is at the bottom of the picture, the overlapping ones beyond, in this view looking aft. The thwart across the hull, which support the deck and masts, can be clearly seen in this picture.

this problem is an endless sheet attached to one bottom corner of the sail and run aft through two eye screws set into the deck ahead of, and at either side, of the next mast astern. The sheet is then led back forward, to the other bottom corner of the sail. Thus, the sails are held back, into the wind from astern, and continue to be even while they are being braced round, from one tack to the other. To cope with the wind from ahead, a piece of stiff brass wire has been sewn into each course, down each side and across the bottom, so that when the sails take the wind from ahead, as in tacking, they do not wrap themselves around their masts.

The masts are supported by standing rigging, imitating the original, with the bottom ends of the shrouds and backstays attached robustly to the deck. One can even lift this model by gripping the masts, so yes, they are strong!

On the water

In order to make progress to windward with a square-rigger, it is necessary to get the yards to brace round (rotate) to within 30 degrees of the centreline of the hull. All the yards on the model easily move through the

required angles because of the multiplying effect of the pulley sheet system. On the transmitter, channel 1 (left / right, right-hand stick) controls the rudder in the normal way. All the other channels have had their return springs removed, so that the sticks simply stay wherever they are left. Channel 2 (up / down, right-hand stick) controls the yards on the mizzen mast. Channel 3 (up / down, left-hand stick) controls the yards on the main mast and Channel 4, (left / right, left-hand stick) controls the yards on the foremast. Channel 6 (a toggle switch) controls the spanker (the fore and aft sail on the mizzen mast) to be simply in or out. The intuitive bit is the way in which the stick movements control motion and its best to imagine one is onboard the vessel when sailing it. This is by far the easiest way to control a sailing model, indeed any model, because left (port) is left and right (starboard) is right and the stick movements should become instinctive. If the control sticks are used like computer joysticks, the yards can be placed anywhere and left there, without reliance on a hand keeping them in position.

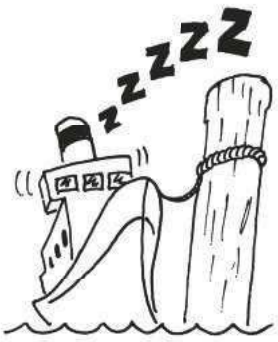
The most difficult and complicated manoeuvre is going about by tacking into the wind. The model must have enough

momentum to turn into the wind and go across its eye, without losing forward progress, something that is not that easy even on full-size square-riggers. Not enough speed, and tardy moving of the sails, can leave you in 'irons', i.e. not going anywhere. This is just the same with a model, indeed the same actions are required, which is why it is best to have one's transmitter set up to operate as intuitively as possible. As already mentioned, the operator (you) will find it all so much easier to imagine you are actually aboard, at the helm.

A model square-rigger will only come to about 65 degrees to the wind, so lots of tacking is required to make progress to windward, but it will tack with assurance, carrying her way well as she goes through the wind. Mount Stewart has been built to an almost fully loaded waterline and is responsive to the (oversize) rudder. In strong winds, it will heel well over, so after initial sailing trials the skysail is now removable to take out some of the leverage. Mount Stewart can do all the square-rigger tricks too, even sailing backwards, and with individual control of the yards on each mast can be partially hoisted.

Conclusion

This model sails well, was a pleasure to build and is a fabulous living reminder of yesteryear. If you'd like to see more, you can see it on YouTube sailing at Killingworth in North Tyneside: www.youtube.com/watch?v=xuygS5vfJc. If you search: 'Nev Wade' on YouTube, videos of my other sailing ship models can be found, whilst other models from other builders can be found at: www.cocatrez.net/Water/RC_SquareRiggers/RC_SquareRiggers.html.



MOORING POST

Dreading that last minute Christmas shopping spree? **Glynn Guest** suggests a way to brighten the occasion

A Christmas cracker

LEDs (Light Emitting Diodes) are a popular means by which lighting effects can be added to a scale model. Compared with a filament bulb they have the advantages of greater efficiency, robustness and longer life. Indeed, they're not far off being 'fit and forget' items, which is something we generally ought to aim for. If these lights have a drawback it must surely be that they usually operate on a lower voltage than the 6 to 12V usually employed in our models. Add to this that different colours and sizes of LEDs can require different currents and the internal wiring of a model can become full of resistors, one for each LED. Of course, this is only a minor problem for people who can work both neatly and accurately when planning and installing electrical circuits, and have the space available inside their models, but for others, it can be a real pain and can take the fun out of what ought to be a relaxing hobby. For my own part, a couple of my models have been fitted with

sailing lights using LEDs, but only after some serious head scratching.

So, the thought that there has to be a simpler way to do this, has been in the back of my mind for some time. Luckily it popped back into my consciousness during a shopping trip with my wife as we passed a display of Christmas decorations. Amongst the numerous Christmas lights were small packs containing twenty LEDs. They were prewired into a chain some 80 inches (200 cm) long with a small battery box, and even included the two AA cells to power them. The price was about £1.50. Cheap enough to take a risk was my thought, and a pack was bought.

Back home the batteries were promptly installed, switched on and twenty bright white lights illuminated my untidy workbench. The individual LEDs were spaced about 4 inches (10 cm) apart and looked ideal for adding inside a model's detachable superstructure. Pushing the LEDs from the inside through suitable holes could make effective deck



and passageway lights on the model. A few LEDs left inside the superstructure would also illuminate windows and portholes. As a bonus, the small battery box could be fixed inside the superstructure to make a neat installation and avoid having wires running between it and the hull. The current drawn was found to be around 100mA. If you do not like the idea of using primary cells then a couple of rechargeable AAs could give you more than a long night's sailing.

There were other packs of lights containing different coloured LEDs which could no doubt find profitable use in our hobby but, like too many of my ideas, I need to build a new model to take full advantage of it. Unless, of course, I hang strings of multi-coloured lights up and down the masts of my last model and claim I'm just getting into the Christmas spirit whilst sailing on winter nights?

Teach a man to fish...

Internet forums have become a valuable place for modellers to get help with problems encountered when building and operating their craft. There is, however, a worrying feature to the help offered. It's not the questions that are asked and quite often promptly responded too, but that far too many times what is being requested and usually supplied is just a solution to a single problem.

Now, although supplying the solution to a specific problem seems to solve the immediate difficulty, it often fails to address the underlying issue, which is an understanding of what caused the problem in the first place. The act of offering an isolated method to get around a problem can often result in someone making even more mistakes. This may not necessarily be the same one again, but could be a similar one caused by the same lack of understanding of the principles involved.

Take electrical circuits, a common source of difficulty for model boaters. The basic principles are not too hard to grasp – electrical charge flows out of one battery terminal and back into the other terminal. Our task is to see that this flow of charge goes where we want it to and does some useful work in this process. From this idea

we can introduce the concepts like insulators, conductors, current, voltage, resistance, often using analogies that are easier to visualise, such as water flowing around a central heating circuit. Admittedly electrical circuits can become more complex when they involve combinations of EMFs and resistances. This, often associated with little understanding of the relationships between work, energy and power, is where a modeller can drift into dangerous territory.

A similar situation can arise when the modeller lacks an understanding of the properties of the materials we use for construction. Combine this with little, if any idea of the forces that can act on a model and it can easily lead to problems. For example, getting the wood grain of a part in the right direction can catch the best of us out at times. Likewise, it is not always easy to avoid building 'stress raisers' into a model's structure. Luckily, such problems rarely cause a headache simply because we tend to 'over engineer' our creations, but this ought not to be an excuse for failing to recognise such bad practices.

This over-building was bought home to me one day when I decided to discard a fast electric model which had a hull built from balsa. Rather than just throwing the hull in the

trash, I placed it on the floor and stood on it. Much to my amazement it supported my weight, in fact vigorous jumping upon the hull was required before it was flat enough to go in the rubbish bin!

What I am suggesting is that before offering a solution to a problem, you ought to check that the person requesting help understands the cause of the problem. From this they ought to then see how the offered solution(s) can overcome the difficulty they encountered. The net result being that the modeller has gained knowledge and understanding that should, or more likely will, help them when a similar problem arises later.

Of course, there are some people who feel more comfortable in believing that the solution to their problems is a form of magic which is beyond their understanding. There is little anyone can do to help them, except maybe hope that competent help is always going to be nearby when they have problems. Also in fairness, there are a few purveyors of advice who prefer to keep their solutions on the arcane magical level, i.e. much too clever for the likes of other mere mortals to understand. I've always had a suspicion that this tells you that there's something seriously worrying about their knowledge and / or character. How does that saying go? 'If you give a man a fish, you feed him for a day, but teach him how to fish and you feed him for life.'



ABOVE: Offering a helping hand to warship modellers, Allan Derham of the Surface Warship Association provided advice on fittings and constructional work, in this instance to fellow warship modeller Malcolm Baily. Allan had also brought along his latest model of the AA cruiser HMS Sirius, seen in the foreground.

Range Finder

A trip to the 2017 Model Boat Convention gives **Dave Wooley** a pleasant surprise or two

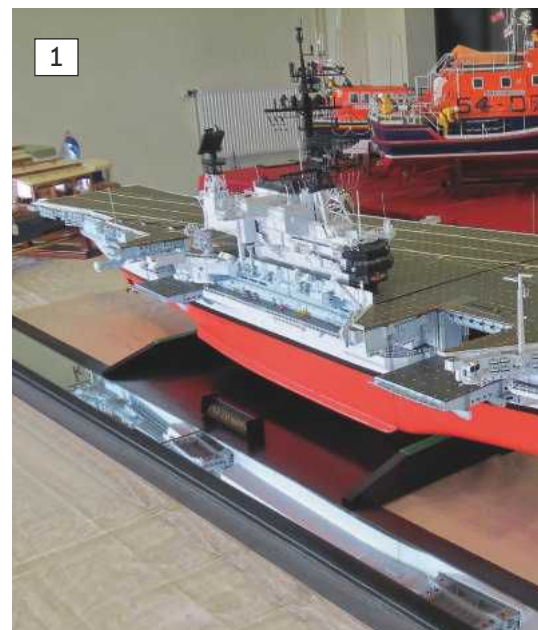
This was a vintage year for warships at Haydock Park. I've never seen so many varied, high quality models, even though the theme of the event was lifeboats! Looking big, and I mean BIG, was Paul Bannon's magnificent USS Midway CV41. This model (Photo 1 & 2) is totally scratch-built using plank on frame construction for the hull and plastic (styrene) card for the island superstructure, and all of it with a host of working features. The side elevators function using a cable system similar to that of the full-size warship, together with working radar scanners, cranes and lighting. The air group was absent, mind, as this in the process of being scratch-built from masters and moulds prepared by Paul. This USS Midway has taken four years to build thus far and it gained the Best in Show award.

HMS Crichton M1124 – From a personal point of view, I was pleased to see that Garry

Miles had submitted his scratch-built 1:24 scale model of the Ton Class HMS Crichton (Photo 3, 4 & 5). Although not completed, it is a superbly built model thus far and requires a close look to appreciate the level of superb detail incorporated into it.

USS Hornet CV8 – R/C conversion of the current 1:200 scale high-quality injection moulded plastic kits, particularly those from Italeri and Trumpeter, is becoming more accepted of late. Apart from Trumpeter's latest addition to this product line – HMS Hood – there's also the iconic W.W.II aircraft carrier USS Hornet, famous for the Doolittle raid on mainland Japan in April 1942. The kit comes complete with the air group of B-25 bombers, each having its own number and nose art. There's plenty of space for R/C installation and lighting, and the model is large enough to perform reasonably well on water. Bill MacGowan was only four weeks

USS Midway CV41 has been built by Paul Bannon to a scale of 1:144. The air group is on its way!





3



4



5

2. An example of the detailing on the outboard side of Midway's island superstructure.

3. The superb 1:24 scratch-built model of HMS Crichton, a Ton Class mine sweeper built by Garry Mills of the Scottish Model Warship Association.

4. The volume of detail on the forecastle of HMS Crichton is exemplary, and it's all from scratch.

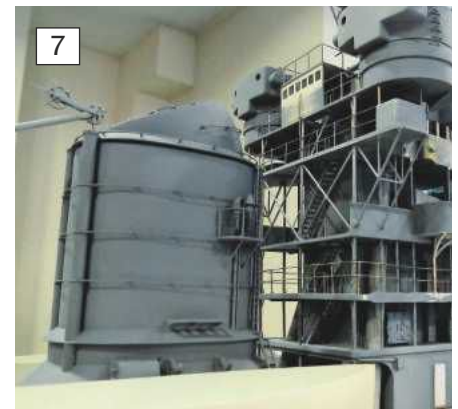
5. HMS Crichton was not entered into a competition class because it's far from complete, although looking fantastic already!

6. 1:200 scale injection-moulded kits such as this USS Hornet are ideal for conversion to radio control.

7. Still under construction, the main control tower of Zara.



6



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into the project at the end of August, with much still to do before final completion, (Photo 6), but as you can see it's already shaping-up to be a superb working model.

Italian heavy cruiser Zara – Twelve months has passed since I last had a chance to see this latest 1:72 scale project by Colin Vass. It's an ambitious build – not one for the faint hearted – and follows his fabulous HMS Warspite. Colin, with the assistance of fellow 1:72 scale warship builder Josef Slydlowski, recently conducted an impromptu ballast trial at Haydock Park and it was good to see how the ship has progressed. Displaying a model whilst in the process of construction reveals so much about the methods and materials used. Colin was demonstrating how he approached the building of the complex forward superstructure using the (unusual) quad tubular mast as the core for it all (Photo 7). In the shot of the foredeck (Photo 8), you can see the materials used

Ro.43 single float reconnaissance seaplane, which is a 1:72 scale much-modified injection moulded kit.

Three Kings FY918 – The 1:24 scale model of the Three Kings (Photo 9), represents one of the huge number of W.W.II requisitioned trawlers and has been painstakingly built by Garry Mills of the Scottish Model Warship Association. The model is based on a GRP hull but the remainder of the superstructure and many of the fittings are made from scratch. A close look reveals a huge amount of detail including the chain linkage to the rudder tiller and the rigging blocks hanging on the rear of the deck housing (Photo 10).

HMS Ramillies – There are so many clubs and display areas for the Model Boat Convention at Haydock Park that you might be forgiven if you missed something. On the Etherow MBC stand was a very attractive 1:96 scale model of the battleship HMS

8. Also under construction, the forecastle catapult on Zara.

9. Garry Mills has built this fine 1:24th scale model of the Three Kings.

10. The deck detail aft on the Three Kings is superb.

11. A 1:96 scale HMS Ramillies as of 1943 and 1944, and still under construction.

12. Super detailing around the bridge of the HM Trawler Artifice. Note that there are even navigation charts laid out.

Ramillies, being built by Mark Stevens and Allan Breese (Photo 11). This class of battleship is seldom modelled, which is a great pity as it gave superb naval service. Beardmore & Cammell Laird at Birkenhead built HMS Ramillies, so I share a degree of personal nostalgia for this one.

HM Trawler Artifice – Displaying exceptional detail and workmanship this delightful model (Photo 12 and 13) from the hands of Brian Cowell uses a GRP hull and is based on a typical requisitioned and armed W.W.II trawler.

LCIs 538 – New off the stocks is this unusual model, totally scratch-built by David Jack of the Edinburgh MBC (Photo 14). David has, for many years now, dedicated his time to modelling small assault vessels. The original 110 ton 105 feet long craft were powered by two Hall Scott petrol engines and could reach a top speed of just under 15 knots. Described as the Fairmile H Class Infantry Landing Craft, they could carry 102 troops and were normally armed with two 20mm Oerlikons, plus light machine guns.

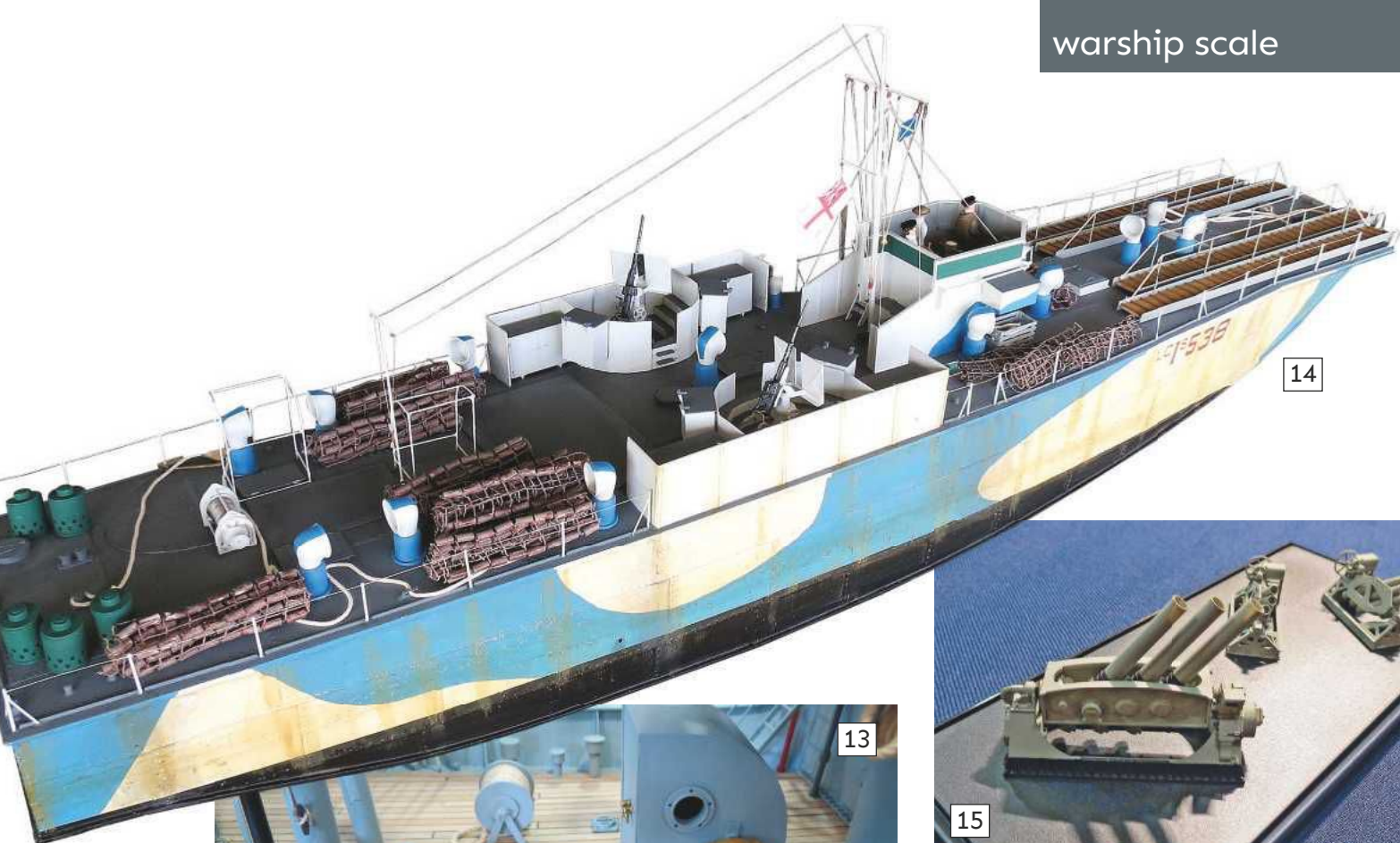


Photo 13. As you can see, Artifice has outstanding deck detail work and planking.

Photo 14. This LCIs - Landing Craft Infantry (s) - is 100% scratch-built by David Jack.

Photo 15. 3D printed fittings produced by Mark Hawkins and Shapeways are becoming incredibly detailed.

Photo 16. The 100% scratch-built fittings displayed here by Paul Blyth for his new model of USS Canberra.



On a recent visit to the USS Arizona Memorial Josef Slydlowski was honoured by the veterans with a certificate for the outstanding work on his 1:72 scale model of the famous Pennsylvania-class battleship.

A fitting end

Heading off on a tangent for a minute, it's clear that 3D printed fittings are now being taken to fantastically high levels of detail that's only usually attained by the most skilful of model makers. A wide range of said fittings, prepared by Mark Hawkins, were on display at the Convention and are now available through Shapeways (**Photo 15**). This picture brings home just how the development in 3D printing has evolved in such a short time to allow fittings such as this AS Limbo and Squid mortar to be made, both of which have moving parts, available

at a price not much more than that of polyurethane resin cast items.

That said, tucked away on the Etherow MBC stand were some handmade fittings (**Photo 16**) produced by Paul Blyth for his latest project, a 1:96 scale recreation of the first generation missile cruiser USS Canberra. In the centre of the picture is the Mk.25 Mod 7 fire control radar and to the right is the SPQ5 Terrier missile guidance and tracking radar. These and many more are all made from scratch, either using moulds prepared by Paul or fabricated from styrene and brass etc. 3D printing still has a long way to go then.

References and acknowledgements

Heavy Cruiser Zara – reference: Italian Warships of World War Two by Aldo Fraccaroli; page 29.

Three Kings – reference: Mine Warfare Vessels of the Royal Navy, 1908 to date, by MP Cocker.

HMS Ramillies – ref: British Battleships by R.A. Burt; pages 148 to 202.

LCIs 538 – ref: Warships of World War Two, Lenton and Colledge; page 596.

Mark Hawkins & Shapeways – 3D printed fittings – website: www.shapeways.com

Phil Scales takes a Graupner demonstrator and books it in for a dose of rejuvenating cosmetic surgery

Smit Nederland

For many years I successfully operated a Billings kit model of Smit Nederland and it stood up to all the rigours of tug towing and regatta work, despite its so-called weak ABS plastic hull. However, the model had shortcomings as the Kort nozzles were incorrect and too small, the deck opening too large and leaky, and the wood used for smaller parts, such as the navigation light holders, was too thick. Having said that, some of the Billings brass fittings were excellent, and still are to this day.

Salvation came when Ron Dean of Dean's Marine offered me a second-hand so-called demonstrator, a Graupner ARTR model of the Smit Nederland. Complete with GRP hull it was an easy decision to purchase it with a view to building a well-detailed model of the tug, especially as I possessed lots of photos. Having said that, if one uses Google correctly there's also an abundance of

images and drawings available on the web. Anyway, the Graupner model was basically rebuilt from the hull upwards, with the various alterations described here.

Upgrade work

Dimensionally, and in terms of its shape, the hull was excellent. Inside, however, I decided to change the running gear, which involved replacing the plastic Graupner Becker rudders with those from the now defunct Billings model and swapping out the Kort nozzles with a pair of the correct size and shape, these having been obtained from Mobile Marine Models. The non-existent stern and bow fenders were fitted, made of proper segmented rubber

ABOVE: My much modified Graupner Smit Nederland based on an unwanted ARTR ex-demonstrator.

sheet, and faired into the hull with their correct end boxes.

D-shape bar lengths were added to the lower hull sides and the freeing ports opened-out as the ARTR model's hull had solid bulwarks. Meanwhile the original triangular bulwark stanchions were removed and replaced with something that better represented the correct shape and form and that also had feet. Other interior and exterior bulwark detail was added before the hull was repainted in the correct Smit colour scheme, but in matt, as the original finish of the Graupner demonstrator was far too shiny and quite gaudy.



LEFT: The starboard superstructure with its new life rafts, a scratch built towing winch, wooden wheelhouse doors and improved detail steel doors.



RIGHT: The foredeck now has the Billings (brass) anchor winch and capstan rollers. The remaining fittings were all scratch-built.



LEFT: The correct style bulwark supports with a deck light and fire hydrant.



ABOVE: The business end! A stern view showing the revised drivetrain with correct size and shape of Kort nozzles plus the Billings brass Becker rudders. Why buy new, when you can recycle?

BELOW: Port side of the superstructure showing the scratch-built winch, life rafts in their launching arms, detailed doors and door handles, plus the stored (and looped) shore power cable and its plug.

RIGHT: The towing deck showing its fittings remade as accurately as possible. Figures emphasise the 'scale' of the whole thing and give a sense of proportion.

The original main superstructure unit was part used, but substantially rebuilt with a new higher deck coaming and wooden sliding doors for the bridge, to replace the horrible plastic versions. Some of the Billings fittings were cannibalised from that earlier defunct model, examples being the anchor winch, capstan heads and ventilators. Other parts, including the main winch and the mast were completely built from scratch, as were the bollards, tow bows and deck hatches.

There then followed a session of super-detailing from close-up photos. This included fitting windscreen wipers, the folding mast hoisting apparatus and superstructure lights. The tinted glass from the original was reused and hence no interior bridge detail was required as you cannot see inside.

Conclusion

The final result is as close to the real tug as one can get, without building everything from scratch. This tug is one of my all-time favourites as a general-purpose R/C model not least because I once had the opportunity to go aboard her (and her sisters) in Rotterdam and photograph them when towing, something they all did very well.

All-in-all this has been a very pleasing project. Note the new segmented rubber fenders, bow and stern.



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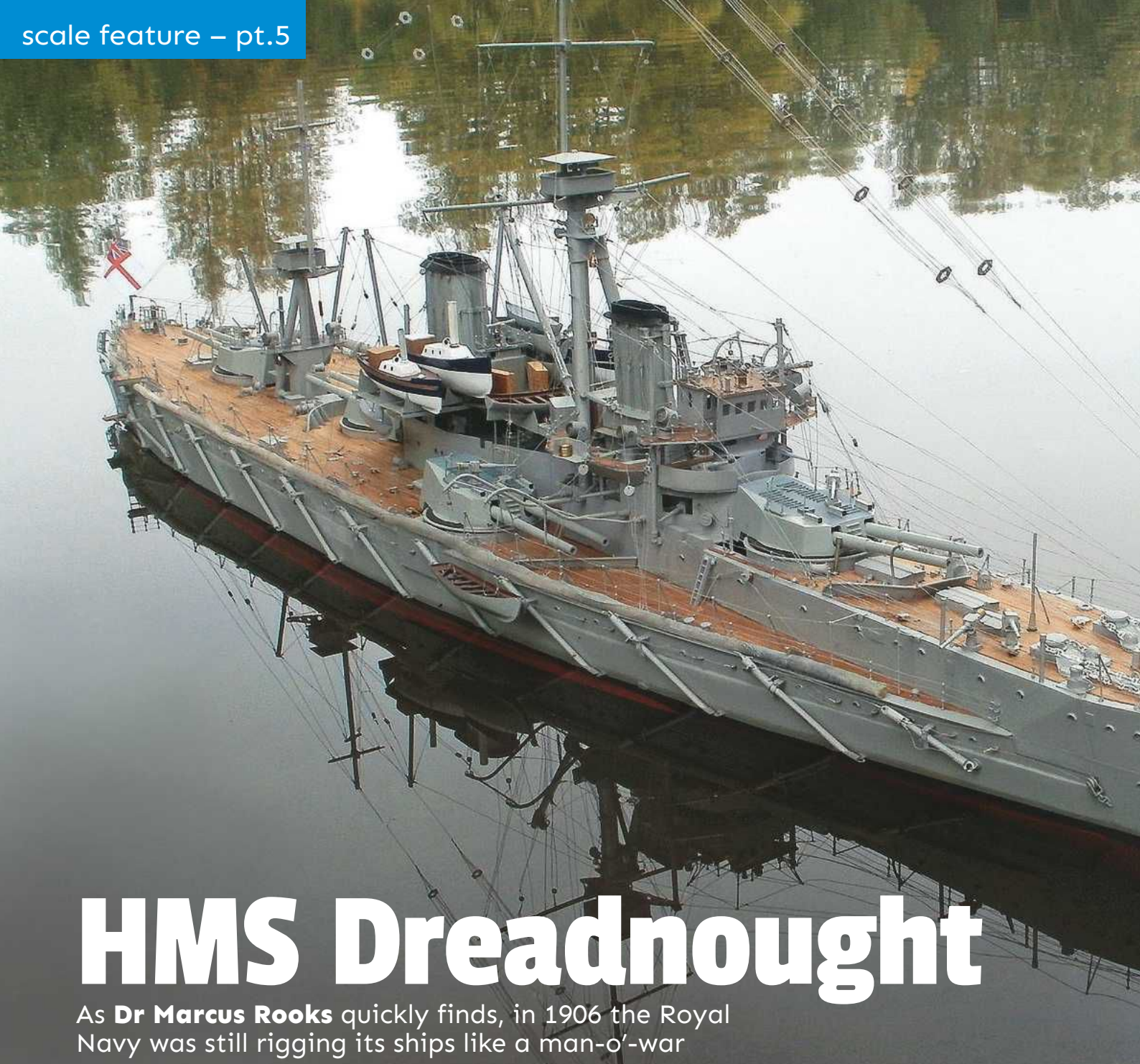


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HMS Dreadnought

As **Dr Marcus Rooks** quickly finds, in 1906 the Royal Navy was still rigging its ships like a man-o'-war

This is the fifth in an occasional series of construction articles covering the 1906 steam turbine powered British battleship HMS Dreadnought. The first part was featured in our May 2016 issue, the second in September 2016, the third in December 2016 and the fourth in May 2017. In the series Marcus has been endeavouring to show that it is possible to build an aluminium hulled R/C model that uses miniature steam turbines, and that such a project need not be overly daunting. Alas, because of unexpected boiler and burner problems described in the recent previous issues, four electric motors have temporarily been fitted in order to see the model perform on the water - Ed.

This instalment of HMS Dreadnought's construction, brings together all the bits and pieces that complete the model, for it is now finished. At least, it's finished as far as I want to take it, albeit temporarily without the steam turbines that I originally intended to fit, but more on that later. As is often the way with these things one could go on forever if it were not for defining a finishing point, which I did and have now reached from a construction point of view. The 'finishing work' has taken months, sticking rigidly to the 80/20 rule where 80% of the time seems to have been taken up with 20% of the work. I will not go into all the details of this, but will instead rely on the photographs to do most of the talking. I will, however, highlight one or two aspects of the work performed starting with what turned out to be one of the most challenging tasks of the build – the rigging.

Rigging madness

Given that this was a modern battleship (for the early 20th Century at least) the amount of rigging was tremendous. There was structural rigging, coaling rigging, net boom rigging, signalling rigging, the wireless aerials and, of course, all the stanchions and handrails, which were a nightmare in themselves.

For the rigging, the first conundrum was what material to use? Initially I was going to adopt the standard rigging thread, but I have never been overly keen on this stuff as it is not very strong and always seems to have a fluffy appearance, whatever you do to it. Eventually, I decided to use thin copper wire as it is much stronger, looks better and is also easier to handle. Being sold in 6 metre reels from my usual retail supplier, I thought that it wouldn't take too many of these 0.25mm diameter wires to complete the model, but I was wrong. I had completely underestimated how much

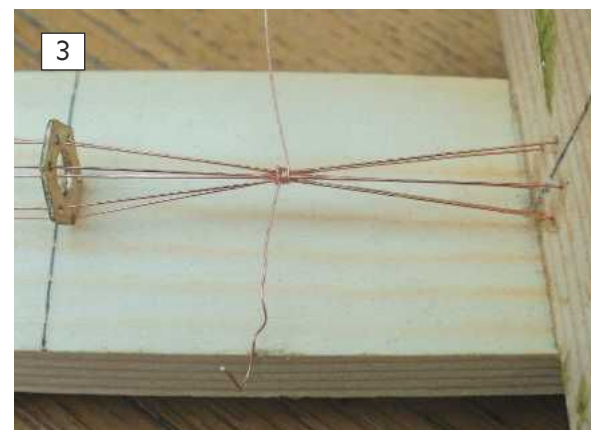


1 The sheer quantity of rigging is unbelievable. Even in the early part of the 20th Century, the Royal Navy still seemed to rig its ships as if they were men-o'-war.

2 The aerial spacers were fabricated from thin slices of brass hexagonal bar.

3 The six strands of copper wire were just tied together at their ends. Note the simple aerial assembly jig.

wire was needed and the construction just ate the stuff, one reason being that longer lengths than needed had to be used in order to handle it properly. Having also decided to use mock turnbuckles made from very fine electrical sleeving (telephone cabling to be exact), it was quickly realised that the cost of all this wire would be horrendous, so alternative (bulk) suppliers needed to be found. Fortunately an internet supplier, who could supply a roll of wire 250 metres long (for just a few pounds), came up trumps. This





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4. Rigging the torpedo net booms took some thought, their operational method not being immediately obvious.

5. The rolled nets and stowed anti-torpedo booms.



6

proved to be perfect for the job and was about a tenth of the cost of buying it as 6 metre long reels.

I suppose there must be a specific way in which to rig a model boat but if there is I don't know it, as I was continually attaching a line and getting it nice and taught only to find that by the time other lines had been added the first was no longer taut. In the end, it just had to be accepted that some lines would be somewhat slacker than one would like and **Photo 1**, which is of the 'A' turret area gives you a good idea of what was involved. The photos of the completed model all show the rigging and, as you can see, there is a lot of it.

Radio aerals

These proved to be particularly taxing to construct as they comprise a bundle of eight wires stretching from the bow to the main mast, being separated by small snowflake-shaped spacers which are not available in this scale. Oddly enough they are available in 1:350 scale, although even the manufacturers admit they would be difficult to use, something of an understatement when I inspected them.

6. There are masses of signal halyards and they have to be detachable at their lower ends (see text).

7. This picture shows the commercial stanchions and homemade awning supports.



7

the wires, and the last action was to tie the six wire ends, drawing them into one as in **Photo 3**. The completed aerials were then removed from the jig and fitted to the model, and as it so happened they turned out very well and quite look the part.

Booms and signal halyards

The anti-torpedo net booms along each side were another challenge as just trying to work out how the various retaining lines were fitted to them took an absolute age (**Photo 4 & 5**). In the end I think that what you see in the photographs is 'anatomically' correct, although they are not functional.

Also challenging were the signal halyards as one end of each was attached to the fixed superstructure whilst the other end had to be removable. This was overcome by having their bases attached to a separate plate which is screwed to the removable part of the superstructure (**Photo 6**), this last picture also revealing, in part, why so much 0.25mm wire was needed.

Railings

The main deck stanchions are purchased commercial items – sorry! Having tried to make them I quickly gave up, however the commercial jobs don't look too bad (**Photo 7**). The awning stanchions have been fabricated though, but as a consequence of being fixed firmly in place around the deck edges and unable to be laid flat as was the case on the real warship, it is difficult to traverse the turrets without everything getting into a tangle (**Photo 8**). This last picture also shows some of the deck tackle and my efforts at deck planking. So yes, we all make mistakes, but the very fact that this hobby offers an ongoing learning curve is, to my mind, part of the joy.

The main deck edge railings, of course, also had to be provided with a break-point to allow the deck central section to be removed.



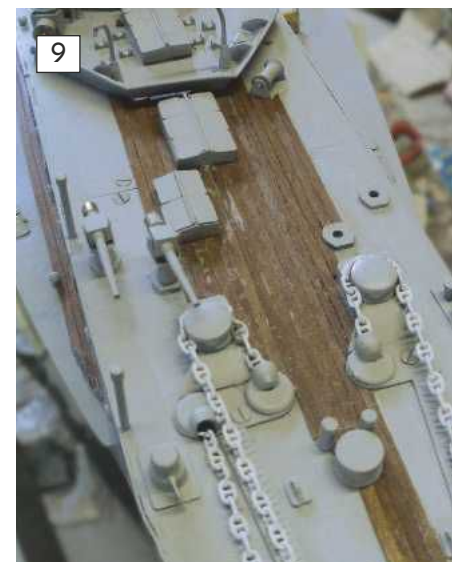
In the end, then, over 100 metres of copper wire was used, quite remarkable when one comes to think about it.

Planked decks

These were time-consuming but straightforward, being done at an earlier

8. Another view of the deck edge stanchions, safety rails and awning supports. Unfortunately, it was realised too late that fixing the awning supports in their vertical positions also meant the turrets could not traverse without their barrels fouling them. We live and learn!

9. Early stages of deck planking; each length of Mahogany strip wood was carefully trimmed and glued in place.





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11. This is the aft end of the quarterdeck and although not perfect, the deck planking and detail included is about right for this scale metal model.

12. This is the completed foredeck area.

13. The forward funnel and the back of the bridge.



13

stage of construction, although there was a degree of 'chopping and changing' during the project as the whim took me. The deck planks required over 80 metres of mahogany strip for which epoxy adhesive was used to bond the planks to the metal deck. **Photos 9 & 10** give you an idea of what was involved. There's no quick way to plank a deck, just patience, time and a bit of thought being the key elements of the task. A properly planked deck always looks much better than a pencil marked piece of plywood, and having spent many hours getting this far, it seemed a

shame to cut corners just to save a bit of time. **Photo 11** shows the rearmost end of the quarterdeck.

Good result?

What do I think about HMS Dreadnought now? Basically, I'm very happy as the essence of the battleship has been captured in miniature. When model builders talk about scratch building, my view is that those words really do mean making everything from basic raw materials. Having said that, today there

are so many top-class kits and semi-kits in the marketplace that it's no wonder many of us opt for that route, free time being precious and perhaps not so plentiful as in yesteryear.

To continue our walkaround, **Photo 12** is of the foredeck area, **Photo 13** is of the forward funnel and bridge, **14** is the amidships port beam turret, **15** is the central turret between the funnels and **16** shows the aft turret.

A simple building stand had been made early on during the project, but now the problem of transportation reared its ugly head. The revised stand includes long rods through each of its end cross members, extending pretty much to the ends of the hull, enabling it to be carried by grasping these rather than the stand itself. However, it is still a massive and heavy model and although its construction is basically very robust, there are numerous fragile detail parts, just waiting to be damaged, so this stand does reduce the chance of that somewhat. As a friend has recently said, this 'carrying stand' looks a bit like a sedan chair when in use.

Teething trouble

Dreadnought, near as damn it, is 99% scratch built, with virtually everything constructed from metal, sheet, tube bar etc., all held together with rivets and screws, as in full-size construction, with wood for the planking. The only major difference is in the form of propulsion for in the end I reverted to conventional electric drive for the reasons explained in Part 4. This has been the most vexatious of issues for me as having steam





14



15



16

turbines was part of the rationale for building HMS Dreadnought in the first place, but I have some good news. Readers may recall that the turbines were removed from the hull for remedial work and now that HMS Dreadnought is at least externally complete, attention has turned back to the steam plant. If you remember, this was plagued with poor steaming due to the inability of the burners to function adequately. To resolve things, a simple test bed was constructed (**Photo 17**) with no disc regulator or condenser and only two turbines. This was to make things as uncomplicated as possible. Only the hand pump was used to supply water to the boilers, which were left on 'open flue' with no return, as I suspected this was part of the problem. The small commercial gas tank was put to one side and the burners plumbed directly into the gas bottle. The system was primed and off we went, all a quiver with anticipation. Being on open flue the burners lit without any difficulty, but the flames were still weak, so clearly there was a problem of some sort.

First, the system was checked for leaks whereupon I discovered that one of the soldered joints was not sound and leaking gas. This could have contributed to the explosions in HMS Dreadnought in the earlier trials. This problem was fixed and off we went again, but still no joy as although better, it was still not good enough.

Some smaller gas nipples had been purchased, just in case, so they were swapped with those in-situ, more out of desperation than anything else and off we went again. To my total amazement the performance was revolutionised, steam being raised in no more than 10 minutes from cold, and easily up to over 100psi. A certain amount of celebration immediately followed, which proved to be short lived when the regulator was opened and... absolutely nothing happened!

Steam gushed from every orifice of the initial turbine on test, and so the whole system was shut down once again. Wondering if the steam lines had been connected correctly, they were changed

14. The amidships port beam turret area.

15. The turret between the funnels and more of my planking.

16. The aft turret area.

around but the result was the same. As you might guess, initial elation was now turning to despair however a trawl on the internet showed that the connections to the turbines were correct in the first place and so they were reconnected as before. A look inside a turbine (**Photo 18**), seemed to be a good idea, even though a special service tool is required for total dismantling. Going as far as possible, revealed the inner workings of the reverse valve etc. (**Photo 19**), whereupon it was decided to add a little sealant to the various joints on reassembly and omit the drive extension. The internal chambers were also flooded with steam oil and it was back to the test bed.

Once again, steam was raised and the regulator opened only to be faced with the same gushing of steam everywhere. It was then that a rare Eureka moment came with

the thought that the turbine might need a little help to start it rotating, a bit like a jet engine perhaps? Connecting the output shaft to an electric drill, the rotor was duly spun, a bit like using an old fashioned starting handle. After a while, the regulator was opened, keeping the drill running before it was gently disengaged. The result? Surprise, surprise! A high-pitched whine emanated from the turbine – it was working and going like the clappers.

The exhaust was a nice fine plume of steam and the driving shaft was a visible blur. The boiler could just about keep up with the steam demand and the turbine output shaft would actually continue to rotate on very low pressure. It was not possible to physically stop the shaft with one's fingers and the turbine would reverse as well, so it was left running to bed everything in. One thing noticed was that as the gas was used, the burner(s) became less efficient, and so in a new steam plant each burner would probably require its own gas tank. I also came to the conclusion that combustion chambers would have to be fitted at each end of the boilers to activate the return flues.



17. The steam plant, dismantled and part-reassembled for bench testing.

18. A (dental) turbine dismantled as far as is practicably possible without a special tool.

19. Inside the business end of a turbine.

Where are we now?

At the time of writing, HMS Dreadnought has not yet had her full 'steaming' trials on open water, but photos of that event will appear in Model Boats soon! The photos scattered around are of HMS Dreadnought afloat at the pond, albeit only for a very gentle first test as I was not 100% happy with it all on the day. Family illness during the last 12 months has slowed work on the model somewhat, and the original target of having it properly on the water in the same building time as the full-size has long gone out of the window I am sorry to say. On the other hand, having now proved to myself that the use of the 'dental' turbines does work, I wish that the entire quadruple turbine steam plant is back inside HMS Dreadnought, but reality means that due to space limitations that is now

18



impossible. To quote a well-known film, 'A bigger boat will be needed', which is where I am at the moment. Realistically, I think a steam turbine propelled model with one or two propellers would be the best solution, but that would require further modifications to HMS Dreadnought, although two of the existing four prop shafts could be left undriven I suppose.



All I can really say is, 'watch this space' as I expect to be back here in the pages of Model Boats in the not too distant future with a mini-feature of HMS Dreadnought fully serviceable and working under radio control. In the meantime I do hope that these five articles will have encouraged some of you to experiment with your model-making and push the frontiers a bit.

Dana 200

In a break between projects **Kenneth Ruxton** craves a bit of light relief in the form of Billing's quick-build North Zealand fishing cutter



ABOVE: Billing's colour scheme is equally attractive. Note the upturned ship's boat and the rather odd propeller angle.

BELOW: Ready to make a start. I used ZAP 'green' cyano extensively during this build and found it the ideal adhesive.

Whilst sitting at home one day in a 'nothing to do' mood, I decided to scan the internet to see what Billing Boats of Denmark were up to in relation to static models and, much to my amazement they were selling this little delight. On seeing the picture, I fell in love with the shape of it and the colour scheme, the Billing display model featuring a lovely deep green hull colour. Since the 'delivered to door' cost was a mere 52 Euros, resisting the proposed purchase was, well, impossible.

Static or R/C?

Fishing, of course, is a well-known Danish tradition and in the late 19th Century scores of these boats sailed along the shores of the Danish coast. During the 1920s, however, many of them were retro-fitted with engines and propellers, which enabled a quicker landing of their catches. Coming from a coastal village where the time-honoured

ABOVE: Priced at around £45 this is a low commitment model and perfect for beginners.

Galway lugger was once used for fishing, Dana 200 reminded me so much of those days and brought back fond memories. I couldn't wait to get started.

On receiving the parcel, which arrived very quickly at that, I was pleasantly surprised with the kit's content, whilst noting that the plastic hull is quite small. Even so, the kit includes all the wood and other materials needed for Dana's construction apart, of course, from the usual glues, paints and your time.

I should just say that there is an option to build Dana 200 as either a static model or radio control, although no real recommendations are





If building a static model, gluing the sub-deck takes a matter of minutes, however do consider the possibility that you might want to add lead for stability.



When there's no radio gear to consider, adding the skeg, rudder and propeller almost feels like cheating.



made in the kit for the latter and, inevitably, all the R/C gear would have to be miniature in concept. The choice is yours, although what is depicted here is a static model. That said, its one-piece hull moulding with no interior ribs is, of course, completely waterproof and able to accommodate radio gear.

Construction

Starting with the hull, ZAP 'green' super glue was used to attach the plastic sub-deck and, in a matter of minutes the assembly was ready for the deck planks. Just prior to this the wood rudder, skeg and (non-working) propeller were glued in place. Yes,



ABOVE: Who'd have thought the humble teabag would serve us modellers so well?

LEFT: Let the planking commence. Starting on each side of the cabin moulding I worked towards the deck edges, then backfilled afterwards.

the propeller angle looks a bit odd, but that appears to be how it is. The kit comes with all the necessary strips of wood for the deck planks, however its handy to have some extra hardwood strips, just in case one breaks or you damage one. Planking started along the sides of the cabin mouldings going towards the deck edges, the centre sections being backfilled afterwards. I'll admit it's not perfect planking, but I'm happy with it and that's the important thing.

While planking the deck, a basin of boiling water had the sail material placed in it and four tea bags put on top of the cloth and left for two hours. It looks disgusting but the outcome was wrinkled stained sails that look lovely on the model against the white of the hull, the colour also synchronising nicely with the deep red primer colour of the bottom. Incidentally, if you're wondering why my Dana 200 ended up with a red bottom rather than green, as on the box, I chose this because I remember many old boats of this period having a deep red anti-fouling coat which, in truth, I think looks a little better.

LEFT: As is evident in this shot, the contrast of the wood colours is very pleasing indeed.





A pre-lacquer view of the deck. Whilst you could argue that my ship's boat is the wrong way up, I quite like the fact that you can see some detail within.



Nearing completion and awaiting the sails - hurry up mum!



Anyway, with the basic hull complete, a vertical board was run around the upper hull exterior giving it a slightly taller and, oddly, slightly longer look as well. These panels are of balsa wood, to which a hardwood strip is added to finish them off. You won't need me to point out that the contrast of the two woods looks rather nice. Be careful with the balsa, mind, as it doesn't like bending that much, indeed the bends at the bow and stern required careful manipulation and a bit of pre-soaking. Lower down on the hull sides are similar boards that run part of the way from the stem to almost the stern and, likewise, these are from balsa finished off with a hardwood strip.

Making the cabin tops was enjoyable, once again with a mix of woods both light and dark. The glue used was generally the aforementioned 'green' ZAP which makes a bond very quickly and results in it being possible to make a hatch or a cabin in an afternoon, bar final finishing and painting. As this was to be a static display model, quick-drying spray lacquers were used, with a light sanding between applications.

The small ship's boat is built on a vacuum-forming that just needed to be fitted out. It

What a difference some lacquer makes. This was simply sprayed on with a light sanding between coats.

wasn't until much, much later that I realised I'd probably mounted it the wrong way around on the deck, i.e. right side up, but I think I can live with this, especially as the detail within can be seen. Meanwhile, brass wire is supplied for handrails etc., plus a chain and a cast anchor.

Finishing off

Nearing completion now, the deck area was sprayed with lacquer a few times, with a gentle sanding between applications. The result, I feel, doesn't look too bad, even though I say so myself. Setting up the masts, together with their ratlines and rigging, took a bit of time. In between all of this, my mum sewed the sails, and a fantastic job she made of them too. Sewing sails is an art and one needs a top-class seamstress to do this work, especially on miniature sails, otherwise they can look awful. I notice from the past articles in this magazine by David Petts that he used the services of the 'alterations lady'



Finished, in next to no time! Billing's Dana builds into a very pretty little model that would grace any shelf in the house.

in his local dry-cleaners, something readers might like to consider if they are dreading the task of sail-making.

Conclusion

Dana 200 makes a lovely diversion from R/C scale and one that needn't take too much of your time, especially if building 'static', as operational considerations go out of the window and one doesn't have to worry about hull fitting out, interior access etc. Treating it to a solid hardwood white oak display base makes it look worthy of any shelf in one's home, but beware if you have pets, because as sure as day follows night, models displayed around the domestic dwelling are like a magnet to animals.

Dana 200 is very light in weight, and to make it sit better on its stand, some internal ballast was added. Model size? The hull is 360mm long and the model 390mm high overall. Priced in the UK at about £45.00 it represents an easy build at a good price.



I feel it only fair to point out that this isn't my finished Sea Breeze. In fact, it's the SLEC display model, which I was delighted to handle at Warwick.

Sea breeze

Casting around for something traditional to build, **Graham Ashby** claps eyes on the VMBC range and the memories come flooding back...

Nostalgia sells, it's a fact. I know this to be true because a.) I'm living proof of it, and b.) SLEC's newly refurbished Vintage Model Boat Company range is selling like a plateful of freshly baked Fondant Fancies. At the Warwick show in November I stopped by the SLEC stand to chew the fat with proprietor Ian Hull and quickly established that he'd underestimated the demand on certain kits (the Huntsman being one) and was having to take orders.

For my own part, the range evokes fond memories of a different era, a period, back in the mid to late '70s, when life for this 16-year-old school boy seemed so much less complex. In the year that VHS video tapes were launched, Futaba's Medallion transmitter was trending and Graupner's Bugsier 3 was the kit of choice for the well-heeled, yours truly had just purchased his first proper traditional model boat kit, a VMBC Sea Hornet. I built it (an achievement in itself for a 16-year-old), fitted my Medallion 2 radio, installed an O.S. 10 Marine engine, and ran it up in a discarded tin bath tub in the back garden. Oddly, I never got to try it on the lake and clearly remember

selling it, possibly to pay for my next boat. I also remember the build being quite ambitious at the time, the process of skinning the hull being particularly challenging. No matter, it got finished, although to this day I still feel a sense of regret that I didn't properly run it on open water.

Fast forward 35 years through a series of complex events that have me editing this fine organ and news quickly reached me that Ian (from SLEC) had taken on the VMBC range and was producing the kits once again, using his established laser cutting techniques. In truth, it's been far too long since I built a proper traditional wooden boat and as I scrolled through the range at www.slecuk.com, passing over the Fairey Huntsman, the classic Sea Rover and my beloved Sea Hornet, my attention was drawn to two models. Not the sexiest of the fleet by any means, the humble Sea Scout day cruiser appealed (because it reminded me of a Keil Kraft Neptune I once owned), and so did the Sea Breeze. In the end the styling and the simplicity of the '50s runabout really captured the spirit for me and when push came to shove, I couldn't resist its gentlemanly 'essence of Ullswater'. Had I been wealthy, successful, and living the Lakeland – boathouse at the bottom of the garden – dream, I reckon I'd have owned a real Sea Breeze. A call was made to Ian and an order placed for both the kit, fittings set, prop shaft and rudder assembly.

Boat in a bag

I really can't remember how my original Sea Hornet was packaged but when the Sea Breeze arrived in a heat-sealed plastic sleeve,

sans box, I was immediately transported back to the days of small model businesses, owner-enthusiasts, and limited production runs from overgrown garden sheds. Rest assured, there really is no expense spared on the packaging and whilst this could be considered a criticism, it certainly isn't meant to be. In truth, this minimalist approach is both fitting and quirky, and I like it.

Slice the top off the bag, slide out the contents and the next thing that strikes you is the svelte flat-pack nature of what you've bought. A couple of ply sheets comprising the laser-cut keel parts and bulkheads, some spruce stringers, a printed / planked deck sheet, ply side and bottom skins, hatch parts, stand parts, an acetate windscreen, some ancillary bits and bobs and a 7-page, illustrated construction guide. There's no full-size plan because it just isn't necessary. From a manufacturer's point of view you could also reason that this stops a person buying one kit, then passing the plan around to all and sundry in order that they may pop along to the copy shop, have another printed, and make their own kit. If I were a kit manufacturer hoping to earn a crust, that's certainly how I'd be thinking. Anyway, closer inspection of the ply parts confirmed some crisp cutting. The spruce stringers, meanwhile, were straight, the deck planking very nicely printed and the ply skins from good stock. 'Pleasing' was, perhaps, the best way to describe my impression at the time, indeed the mood remained through inspection of the both the white metal fittings kit plus the rudder and prop shaft. Right, let's take a look at the breakdown of costs thus far:

Sea Breeze kit:	£80.00
Fittings kit:	£10.00
Rudder assembly:	£ 5.00
8" Prop shaft:	£ 7.94

Coffee table build

Like most self-respecting model builders I have two or three projects running at the same time and with a major build occupying workbench No.1, I reasoned that this relatively minor project could be accommodated on workbench No.2, more commonly known in our house as 'the coffee table'. So it was, then, and with scalpel, a roll of masking tape,

DATAFILE

Name:	Sea Breeze
Model type:	Traditional wooden motor launch
Length:	24" (610mm)
Beam:	8" (203mm)
Rec'd motor:	Turnigy 2836/11T 750KV
Rec'd ESC:	30A brushless
Rec'd battery:	3S 2200mAh LiPo
RRP:	£80.00 (kit); £10.00 (fittings kit)
Available from:	SLEC Manufacturing
	Website: www.slecuk.com
	Tel. 01953 885279



Flat-pack. If you could buy real boats from IKEA, they'd look like this.



The fittings kit: steering wheel, flagstaff mount, horn, bow post, fairleads, stern cleats, air vent, dashboard, and slatted seat.



Gluing this little lot together was an absolute pleasure using my favourite resin.



Adding the keel doublers that will eventually support the hull skins. Note the chamfer.

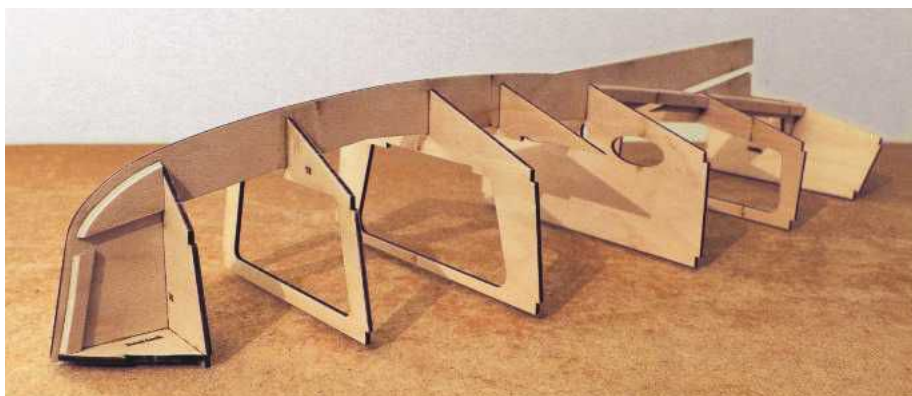


Where the prop shaft exits the hull, double thickness keel doublers are employed to strengthen the detail.

aliphatic resin, a handful of clamps and a Perma-Grit sanding tool, a start was made.

Having accumulated some previous experience of laser-cut parts, I'm delighted to report that a few tiny scalpel cuts had the parts dropping from their parent sheet with ease. As is the way with laser cutting the burnt edge must be gently papered away to ensure a good bond, after which the simple process of slotting the bulkheads over the keel can commence. With a tube of medium cyano you could probably have this done in 30 minutes, however I was in no hurry. I love aliphatic resin and happily glued one former at a time, setting it square, taping it in position, then letting the glue cure before moving to the next. After two or three sedate days, the breast hook and bulkheads were positioned and she was beginning to take shape very nicely.

The rear motor mount and keel doublers came next, the latter positioned between the bulkheads and used for the sole purpose of



All square – so far so good.

supporting the bottom hull skins. Of course, in order to do this the doublers must be edge-chamfered to suit the rake of the bulkheads, a job which was entrusted to my Perma-Grit sanding block. Another two or three days, plus some careful chamfering at the bow, had the doublers located and some real progress made. Given that the assembly is still a little flexible at this stage, two ply spacers are next on the list, these glued between B1, B2 and B3 to stiffen the foredeck and keep the aforementioned bulkheads rigid when adding the stringers.

Established principles

Now, I'd be less than open if I didn't admit that any curving of wood is always met with a little trepidation from yours truly, so I

was particularly careful to ensure that the stringers were applied with care. To this end I chose, once again, to take my time, starting at the front where one end must be carefully chamfered to locate in the breast hook notch. With this, a dry fit of the first stringer, bending it from one bulkhead to the next, proved that the bend could be achieved without the wood splitting or breaking. The force required to get it there, however, was greater than I'd have liked so I decided to ease the process a little by following traditional plank on frame bending principles. At each bulkhead position I added six or seven small saw cuts to the inside face of the stringer to facilitate the bend and reduce the work of the clamps and masking tape that would later hold the position. It all worked beautifully well, although I still chose to work one bulkhead at a time from front



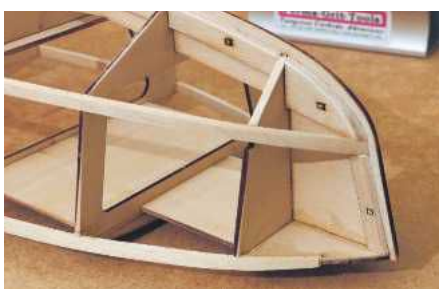
With the upper stringers in place the hull begins to stiffen up very nicely.



The rear motor mount support sets the motor at the correct angle to align with the prop shaft.



I love the classic forward-inclined transom of boats like this.



I don't mind telling you I was dead chuffed to get the stringers suitably sanded and matching the bulkheads.

to back, gluing, bending, clamping, waiting for the adhesive to cure, then moving to the next. To avoid the possibility of introducing a twist in the hull, I also worked on both sides simultaneously. Once past B3 the bend flattens out and a relative walk in the park is enjoyed back to the transom. The chine stringers were fitted in much the same way, saw-cutting where necessary and working both sides simultaneously from front to back.

In order for the hull skins to sit flush with the bulkheads the stringers must now be sanded back, a job for which the flat, even surface of



Top stringers in place and ready to receive the bottom chine stringers. Note the stiffening spacers between B1, B2 and B3.



A small chamfer on the end of the stringer locates it nicely in the brest hook notch.



Due to an undersize B1 the stringer notch ends up slightly high, resulting in the stringer missing it slightly.



I'm a slow and pretty methodical builder so this has taken me far longer than it will you.

the Perma-Grit block is ideally suited. Again, it's a task I don't relish so I chose not to rush it, due to the ever-present danger of creating a starved horse effect between bulkheads. Working from stern to bow the excess stringer material was carefully sanded away, the outline eyeballed, sanded more, then eyeballed again, a process that repeated itself ad infinitum until satisfied that the junction between bulkhead and stringer was flush and that the stringer traced a smooth arc from front to back. I don't mind telling you, I was quite relieved to finish this process and, as therapy, spend a few relaxing minutes sticking the curved bulkhead tops in place.

B1 blues

I can honestly say that, with the exception of what appears to be an undersize B1 bulkhead, the build has gone remarkably smoothly so far and I'm genuinely pleased with the way the model is shaping up. The B1 issue doesn't appear to have caused any problems, indeed as you can see in the photos, I've simply ignored its shortfall / slightly high chine position and let the stringer follow its natural course to the bow, where it's positively located between the keel doublers. Let's face it, once the hull skins are on, only you and I will know there was a problem.

Next on the build list is the fitting of the prop shaft, motor mount and then those dreaded hull skins. Stay tuned and I'll be back with more shortly after the festivities.

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Frequent heating of the pipe during the bending process will greatly assist in preventing kinks. You'll need to heat to around cherry red or just below to completely normalise the material.

You can actually 'feel' the pipe hardening as you progress the bend, so if you overdo it, the pipe will kink and you will have to start all over again – there's no going back from that situation. After a few attempts you will learn how far you can push the pipe before annealing is required again. In this way you can minimise the number of heating processes needed while still ensuring a good bend. As a rule of thumb, expect to reheat a 90° bend somewhere in the region of three to four times, particularly for larger diameter copper pipe.

A good reason for starting with a simple 90° bend is the fact that you can form it anywhere you want in the piece of pipe, then simply cut its ends to length. This makes your chance of success very high, to the point that there's only really one other possibility for error, i.e. starting the bend too close to the end of the pipe, whereby one end becomes too short for the finished product to be any use. The issue of where to start the bend will, of course, become more of a factor when more than one bend is incorporated into a single pipe. In this case make sure you have plenty of length at both ends. This can be considered a bit wasteful by those more adept at such procedures, but it could well end up being less wasteful than getting it wrong and having to redo it all!

The 90° bend

For this simple bend, heat the pipe to a cherry red (**Photo 1**), wait for it to cool, put it into your pipe bender and bend until you feel it stiffen (**Photo 2**). Mark the position of the pipe in relation to the bender – I marked it at the locating bracket on the handle (**Photo 3**)

Boiler Room

Fretting about pipe bending? Take **Richard Simpson's** advice and relax, it's all in the preparation

In the December 2017 issue we put together a few tools that we would find useful for the process of pipe bending; this month we're going to look at the process of actually bending a pipe and any preparation needed for the silver soldering of fittings.

and again when applying more stress during the bending process. Since heating the pipe effectively resets its internal stress and normalises the structure, bending becomes a repeat process of heating and bending a few degrees until the pipe hardens again.

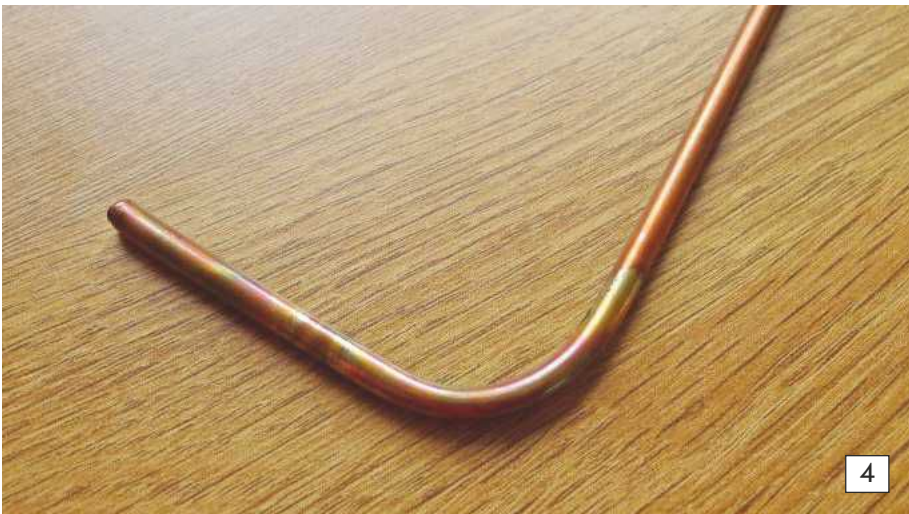
Baby steps?

The process of creating a simple 90° bend is very straightforward if you follow a logical sequential procedure, so by far the best place to start is in getting used to the tools and establishing a feel for the process. To do this, and to gain some experience, try your skills on a few pieces of scrap pipe, perhaps before progressing to something more complex.

This 'feel' is critical to a successful bend, particularly as copper is one of the metals that's most likely to 'work harden'. This, incidentally, is a phenomenon whereby the metal structure crystallises under stress and becomes much harder as you try to bend it,

As you bend the pipe you'll feel it slowly stiffen. If you're tempted to push it too far there's a real danger that the pipe will suddenly kink and you will have wasted both the material and the time. Two to three heating processes would be normal for a plant pipe with another final heating to remove all stresses when the bend is complete.





–remove it from the pipe bender, reheat it and when cool, bend it a bit further until you feel resistance again. Don't be tempted to go too far as, even if you are lucky enough to avoid a kink, you might compress the pipe slightly. When the bend is complete, finish off with a last heating to cherry red again to remove any residual stress from the copper and the job is complete. All you need to do then is cut to length with your pipe cutter and you have a piece of pipe that's ready for silver-soldered end fittings. If you've been careful, you should have a nice smooth bend with no kinks or creases, no reduction in diameter or flattening of the tube, and ends that are neatly cut square with no deformation (**Photo 4**).

The next step

Having mastered a single bend, it is time to consider a pipe with more than one bend in it, and that is when the position of the second becomes more critical. Let's consider that we've made the first bend and now want to create a second in the same piece of pipe. The important part of this process is where that bend is located in the pipe. There are two basic trains of thought in this regard; one suggests marking out the bend from the point where it starts whilst the other is to mark the centre point of the bend. There's no hard and fast rule, but I've always marked out the centre of the bend and located that in the centre of the pipe bender. It has always seemed a bit more logical to me, however the other camp will argue that if you mark the start of the bend any error that might creep in is located further from the pre-made section of pipe rather than closer to it. I usually try to set up two pieces of straight pipe in the fittings of the plant components and where they cross, a 45° line from there has to pass through the centre of the bend.

You can sometimes get frustrated with bits and pieces of copper pipe everywhere, however using clamps helps considerably. Another method is to use a piece of solid copper cable such as that from redundant domestic mains cabling, and make a shape

template for the pipework you need, using this solid cable as a former. With everything in place, you should be able to align your work piece of pipe with what is being actually joined, and mark either the centre or the start of the bend. From that point onwards, it is simply a repeat of the first bending process, but with the hope that the end of the pipe will be somewhere close to where it needs to be. If the bend is not exactly where you want it, you might get away with a little bit of straightening out at the end of the bend, then progress it a bit, but that process does tend to be fraught and invariably the easiest option is to start again – sorry!

Useful cheats?

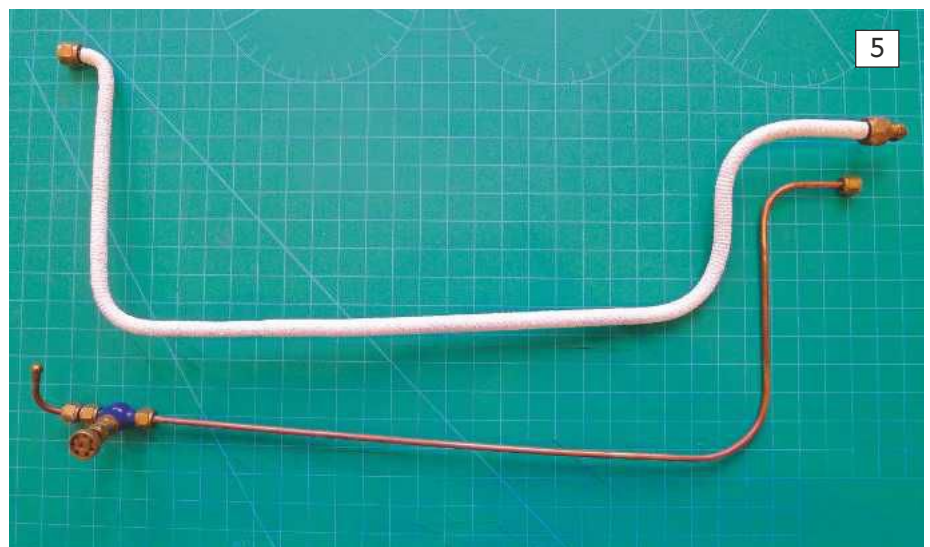
Of all the things I can suggest to help you with your pipe bending, the most important, by far, is to think the process through before committing to the pipe benders. It's well worth looking for an easier way to do things as this could significantly improve your chances of success. If you simply go wading in, bend the pipe, and then start thinking about the next step, you'll invariably miss these options. As an example, it's always



ABOVE RIGHT: Mark the pipe somewhere away from where it's going to be heated so it can be repositioned in exactly the same spot. This type of bender has a bracket cast into the handle to hold the straight section of pipe, which is a perfect marker.

ABOVE LEFT: A neat and straight 90° bend should be easily achievable after a little practice and will boost your confidence no end. Don't worry about the heating process changing the pipe's colour, this will all disappear with a gentle polish.

Two little cheats are demonstrated here. The top pipe joins two dissimilar size fittings, so they have been sleeved together with the join in the middle of the straight section. It is now barely noticeable under the insulation yet it made the pipe so much easier to manufacture. The lower pipe is an example of using a convenient valve to separate the bends.





ABOVE LEFT: Complex pipe runs can be separated by the fittings to make the individual pipes much easier to make. This assembly is simply a collection of straightforward bends, the most complex being an S-bend.

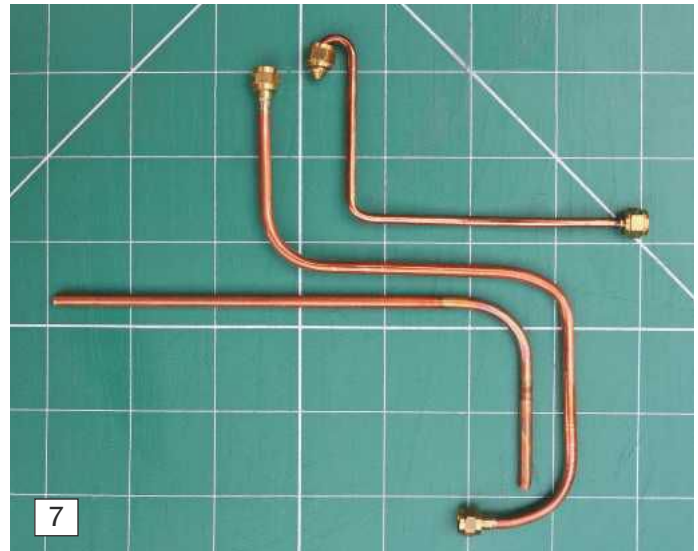
ABOVE RIGHT: Learning how to make your own copper pipes opens up countless opportunities for steam plant arrangement and bespoke designs, so it's a very worthwhile skill to learn.

good to remember that pipe sizes are usually designed to slip over one another as their diameters increase. So, if you're faced with a situation that requires one end of the pipe to be housed in a larger fitting than the other end, it's an easy job to simply solder a sleeve to the end of the pipe to make it the correct size for the larger fitting. This is an extremely useful method to have at your disposal when you plan your procedure, as the change in size can be at any point along the pipe. Ultimately it means that you could put a bend in one size of pipe and a bend in

A steam plant is almost certainly going to require home-made pipes at some point or other. Neat straight pipe runs with regular bends will set your plant apart from the others and give you a huge amount of personal satisfaction and pride, as well as making your model much easier to safely operate.

the other, slide the two pipes together and adjust to give you the perfect length and attitude, before silver soldering them in place. If the pipe is going to be lagged anyway, you won't even notice the change in diameter, but you will have made life so much easier for yourself when creating a complex piece of pipework, **(Photo 5)**. Another thing to consider is the location of valves and fittings **(Photo 6)**. Thinking about the placement of these fittings can simplify the job and make life so much easier when endeavouring to be neat and accurate. A useful tip to remember is to mark your pipe bends only 'after' you've heated it up the first time, because you'll lose your mark in the heating process. The best way is to have a permanent mark on your bender (such as a saw cut) or on a handy piece of the casting, such as the locating bracket we used earlier, and somewhere off the bend. When you've set the pipe in the correct position in the bender, mark it against your datum point. Then, when you reheat it and return it to the bender you'll know that you're going to put it back in exactly the same place.

To make life easier, a final thing you may want to consider, which I think is particularly



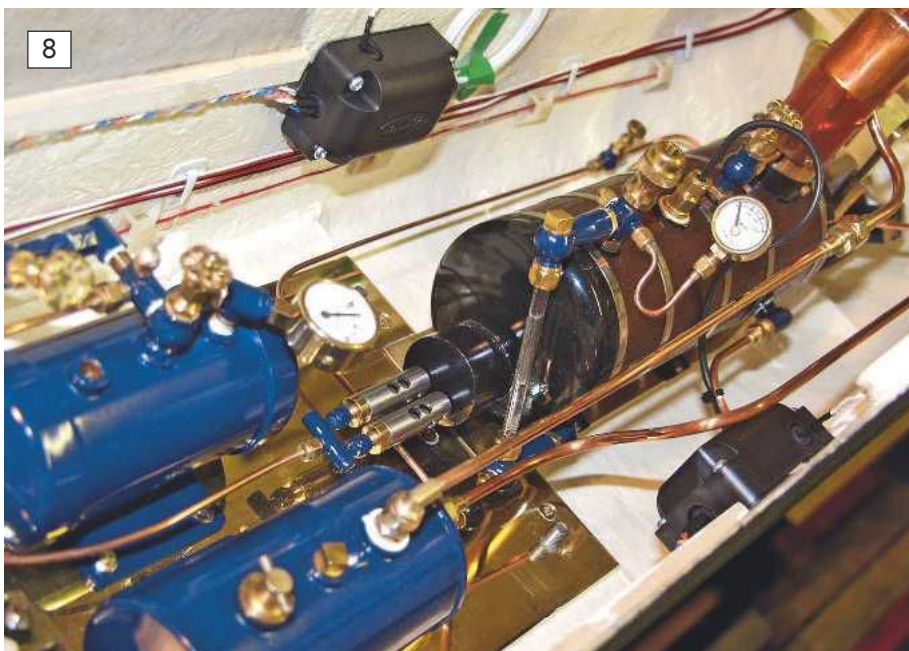
important, is never to use coiled copper pipe. Always using straight lengths. This is invariably more expensive, but you are never going to be able to straighten coiled pipe to enable you to create neat, tidy and straight runs. Keep a good stock of straight pipe in different diameters, allowing sleeves to be made wherever needed and this will ensure that the straight parts look straight and the bends are even and consistent.

Cutting remarks

The final part of the process is cutting to length which, of course, you might avoid if you've made the pipe in two pieces that slide together. If not, you'll have to cut the pipe to length with either a miniature pipe cutter (for the larger diameter tubing), or a humble Stanley knife for smaller sizes. This is where pre-planning can help as sometimes it's possible that the pipe cutter will not fit as close to the bend as you might prefer. In such cases you may have no option but to cut the pipe before bending.

A Stanley knife is a surprisingly useful tool for cutting small diameter copper pipe. The idea is to simply roll the pipe under the blade on a self-healing cutting board or a hard wood surface (not a kitchen worktop!). Do not use excessive pressure as the pipe may deform, but gentle pressure and plenty of forward and backward rolling will soon part the pipe easily and neatly. Ensure the blade remains square to the pipe – which is easy if the knife blade remains vertical – and you should end up with a cut as good as you would get with an off-the-shelf pipe cutter. The blades probably won't last that long, but they're replaceable. With the fittings silver soldered in place, you will now be generating bespoke pipes that fit your steam plant perfectly, and enhance both the reliability and the appearance of it all **(Photo 7)**.

In conclusion, with a bit of practice you'll surprise yourself and quickly realise that pipe bending is nowhere near as scary as you might have thought. Hopefully that pile of scrap copper tube will now be diminishing (not growing) whilst you create pipe runs to be proud of **(Photo 8)**.



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31 in long by 9.75 in beam



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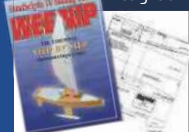
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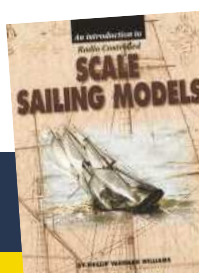
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1:700 Scale Naval Dioramas



Convoy JW58, 1944.

Arctic Convoys in Action

Chris Drage uses his 1:700 scale dioramas to tell a tale of two convoys

There's a plethora of model naval ships in 1:700 scale, however merchantmen tend to be notable by their absence. Of course, a great way to include a cargo vessel is via a diorama based on a convoy as you can include more ships together at sea than would normally be the case in reality. The excellent multimedia kit of a Liberty Ship released by Tom Modelworks in the States, presented an opportunity to create a couple of convoy dioramas. The first featuring an escort carrier, the second an opportunity to model an O Class destroyer as accurately as possible, with both dioramas including a Liberty Ship.

Arctic convoy JW58

JW58 was a large convoy of 40 merchant ships with a massive escort, sailing from Loch Ewe on 27th March 1944. Among the close escorts for the convoy were the

corvettes Bluebell, Honeysuckle and Lotus and the newly completed escort carrier HMS Tracker. Opposition to the convoy was intense and its defence was equally aggressive. The German submarine U 288 was sighted and attacked by a Fairey Swordfish from HMS Activity and with the assistance of Avenger and Martlet aircraft from HMS Tracker, it was destroyed. The German's claimed that nine destroyers were sunk during the convoy's passage and claimed significant damage on other ships.

In reality though, no U-Boat sank any ship in this convoy with all the ships berthing safely at Kola Inlet on April 6th 1944. JW58, then, was one of the success stories of the Murmansk Run.

The diorama features the morning of a day with the Avengers and Martlets warming up on the escort carrier's flight deck. There's also a Liberty ship, HMS Tracker (her only

HMS Tracker is the centrepiece of this JW58 diorama which, I have to say, I'm very pleased with.





LEFT: HMS Bluebell K80 depicted as a long forecastle Flower Class corvette.

ABOVE: HMS Lotus K130 rigged as a minesweeper with an acoustic hammer fitted to her bow.

BELOW: A typical Liberty ship of Convoy JW58.

occasion on arctic convoy escort duty) and the corvettes HMS Bluebell (K80), HMS Lotus (K130) and HMS Honeysuckle (K27). The corvettes are from White Ensign Models' Bluebell and Buttercup kits; HMS Tracker was converted from a Skywaves Bogue kit, whilst the Liberty ship was a multimedia kit from Tom's Modelworks.

No two corvettes were the same and the ships modelled show this quite clearly. For example, note the higher bridge on HMS Honeysuckle and the fact that HMS Lotus is rigged as a minesweeper and has an acoustic hammer fitted to her bow. HMS Bluebell, meanwhile, is perhaps the most conventional of the three ships, being pretty much a standard long fo'c'sle version. HMS Bluebell and HMS Honeysuckle sport the Western Approaches light blue and white camouflage schemes whilst HMS Lotus wears an Admiralty dark disruptive pattern common to escorts operating in Arctic waters. Please note the weathering effects on these ships as corvettes were subjected to hard and continuous use and often displayed large amounts of rust and salt corrosion.

In the background is the heavily laden Liberty ship. The model is fully rigged using fine wire and, unfortunately, 0.1 inch plastic



rodding as well. This was one of the early models at the beginning of my 1:700 scale ship modelling activities and at that time the technique of using fine steel wire had not been mastered and I relied instead on plastic rod for the rigging stays, and it shows! Compare this Liberty Ship with the Nathaniel Green featured in the second diorama of this article. The transport is depicted with its deck cargo suitably lashed down, including trucks, a tank from the old Skywave 1:700 Beach Head Vehicles set and scratch-built wooden crates.

The pièce de résistance of this diorama is HMS Tracker. It was more or less a straight out-of-the-box build and a chance to include aircraft on her deck. Flight crews on HMS Tracker are preparing three Grumman Martlets and two Grumman Avengers for the attack on U 288. In order to achieve this some very careful filing was required to remove part of the cockpits and show the canopies as being open. HMS Tracker sports an Admiralty dark disruptive camouflage pattern.

The seascape was constructed in the usual manner with Polyfilla and Modroc suitably modelled to create a rough sea. The ships' wakes were created using the acrylic gel / toothpaste method, making sure not to overdo the white water. The recesses for the ships were cut out in such a way that the models would be depicted rolling and pitching appropriately. In this respect it was fortunate that the WEM Corvette models came with a full hull option so that their underwater parts could be seen out of the water.

Convoy PQ18

The only model of a suitable O Class destroyer was a Tamiya kit, but it is incorrect for most ships of the class and a substantial conversion was therefore required. On the other hand, as the 'O's were principally on Russian convoy duty, this scenario provided the perfect choice for a diorama. Further



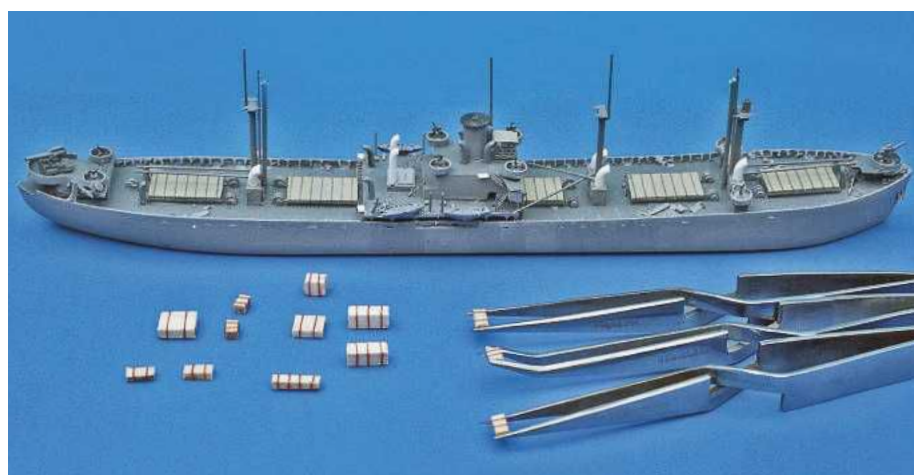
HMS Honeysuckle (K27).



ABOVE: HMS Tracker in a contemporary picture from 1944.



BELOW: Construction of Nathaniel Greene.



research revealed that during PQ18's voyage, two of the escort force included HM Ships Onslaught and Opportune, both of which occupied the same station on the starboard quarter of the convoy group and so the die was cast.

On 14th September at around 1410 to 1440hrs, and during a very heavy air raid on PQ18, the Mary Luckenbach carrying ammunition was torpedoed and went up in one cataclysmic explosion. A Liberty ship, Nathaniel Greene, was severely shaken and pelted with debris. In fact, aboard the Nathaniel Greene it was initially thought that it too had been torpedoed, such was the force of the explosion. The Master sounded 'off boat stations' and the wounded and injured men were brought to the boats. The engines were stopped and a life raft dropped over the side. Two of the crew were badly injured and they were taken off by the destroyer HMS Onslaught, which came alongside when Nathaniel Greene temporarily dropped back to check her damage. On learning that the engines were sound and that no major leaks had started in the hull, the Nathaniel Greene then rejoined its position in the convoy.

The diorama depicts the Nathaniel Greene nearly dead in the water, with surface damage and her deck cargo dispersed and

scattered from the force of the exploding Mary Luckenbach. The destroyer HMS Onslaught is alongside. The destroyer's guns are trained to fire at the attacking aircraft and another destroyer escort, HMS Opportune, races up the now vacant ninth column of the convoy with her AA guns blazing. A damaged Heinkel HE111 bomber can be seen trailing smoke and is about to hit the water in a fountain of exploding anti-aircraft fire.

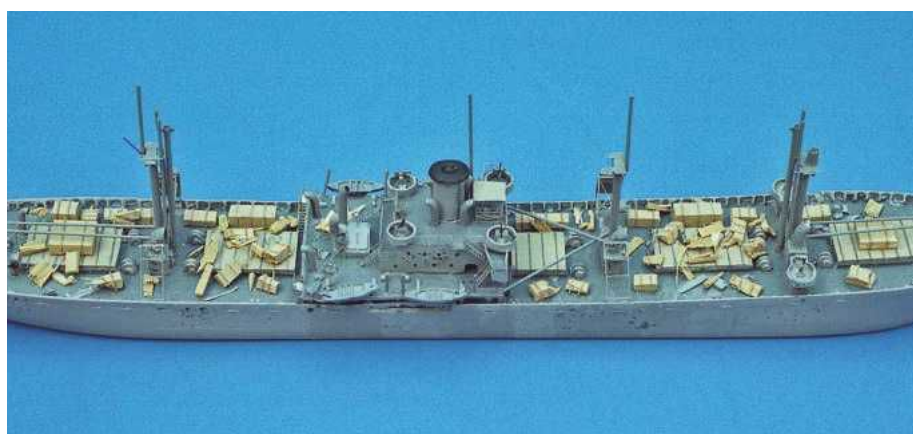
HMS Opportune wears the 1942 Special Emergency Fleet design with colours G20, G45, and white. HMS Onslaught wears a

modified version of this pattern as can be seen in the copy of a wartime photo sent to me by Alan Raven. Three items of note in this diorama are the crashing aircraft, HMS Opportune's bow wave and the deck damage on the Nathaniel Greene.

The crashing aircraft was secured to the base board using 0.008 inch guitar string, which is more rigid than brass, with a similar piece being added to the rear of the aircraft. To this was added thin, teased-out cotton wool, which had been soaked in dirty brush cleaner and left to dry. The port engine is shown stalled and on fire, whilst the starboard engine continues to run as is shown by a small circle of transparent acrylic sheet. Splashes from AA shells were created from teased-out cotton wool. The hardest item to model was the damage inflicted on the models and this was not as easy as you might think. You have to 'build' this and not simply destroy that which you have laboured nicely to achieve as being perfect.

I started at the stern of the Liberty Ship, which reports at the time state, 'was severely damaged'. In order to create holes and buckled plates, a heat probe was employed and the scene completed by adding small pieces of scrap etched brass. This technique was continued throughout the ship in areas where damage was likely

BELOW: Nathaniel Greene now in a damaged condition.





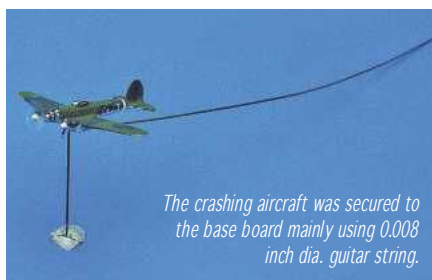
ABOVE: Nathaniel Greene nearly dead in the water with the destroyer HMS Onslaught G04 alongside to render assistance. The damage to the Liberty Ship being clearly evident.

to occur. The evidence states that the Mary Luckenbach was immediately to starboard of the Nathaniel Greene in the adjoining column, thus all the blast would have gone from right to left across the deck. Modelling the damaged and splintered packing cases, was not easy for, quite clearly, just adding wooden 'lumps' on the deck would not do. I have to say, banding the tiny pieces of splintered wood proved to be a labour of love, but the results were worth it. Last but not least, signal flags N & C were added, meaning, 'I am in need of assistance'.

The ships were located on the seascape and their relative positions marked before carving out a little of the plaster to recess them into the base board.

HMS Opportune needed to be 'on the turn' as she races past and, thus, is placed at a jaunty angle in the water. Her large bow wave proved problematical, as acrylic gel could not be persuaded to work properly. This was overcome by using two thin pieces of Plasticard (styrene) cut suitably to form a base for adding the gel, to which small pieces of cotton wool were glued that when teased out, looks a little like spray. This proved successful and more gel was added to the seascape to make the contours of the wake. The best advice here is to study photographs of ships in the water in order to create the right effect which, to be honest, is an art. Always get the seascape finished before you complete construction of the ship models, so that all you then need to do with the delicate finished models is to place them in their recesses with a drop of glue. The final touches involve using toothpaste to obtain

I was quite pleased with the crashing aircraft, the smoke trail, single rotating propeller and shell splashes as part of the whole PQ18 diorama.



that watery spume effect in the wake and around the hulls.

Conclusion

I have to confess to being a bit chuffed with the positive results of these two dioramas. The JW58 seascape is particularly pleasing and indeed, someone did tell me that they felt seasick just looking at it! Being able



References:

Wonderland Models

Website: www.wonderlandmodels.com.
Tamiya 1:700 British Destroyer O Class, kit No.31904 (two required for conversion for the PQ18 diorama).

Tom's Modelworks

Website: www.tomsmodelworks.com.
Liberty Ship kit and etched brass detail sets for all the models shown here.

Materials

Assorted plastic rodding and strip.
Assorted brass rodding and used guitar string. Kitchen foil. Polyfilla plaster. Modroc plaster bandage. Primer coat is Halford's Grey plastic spray primer. Acrylic paints used are artists' acrylics available from most art retailers. Varnish is Tamiya gloss. Enamel paints are Humbrol and / or White Ensign Colour Coat.

Research documents

Royal Navy Warship Camouflage 1939 to 1945, by Peter Hodges (Almark Publishing 1973).

Arctic Convoys, by Richard Woodman.
Arctic Victory, the story of PQ18, by Peter Smith.

Ensign No. 6: War Built Destroyers O to Z Classes, by Raven & Roberts.

British Destroyers 1892 to 1953, by Edgar J. March (Seeley 1966).

to convert the otherwise rather poor O Class destroyer kit into something akin to the prototype was also rewarding. A full description of this process may be the subject of a later article. Next month features what I consider to be my best work in 1:700 scale so far, which is: Mers-el-Kebir, Algiers, 6th April 1943.

Scrapheap Challenge

In the spirit of recycling, **Roger Stollery** and crew gather gaffer tape, pop bottles and bin liners, and turn them into a grand day out!

Plenty of wind and sun gave 16 competitors a spectacular day's racing for BOTTLE Boats on the River Deben at Waldringfield Sailing Club. With the southerly wind against the ebb tide there was spray everywhere, generated by the speed on the off-wind legs with the powerful bottle and plastic cup bows planing through the waves. After the first few races nearly all these unusual one-off designs changed to their small swing rigs to improve their tacking and manoeuvrability, whilst still producing fantastic speeds off the wind. Everyone enjoyed this, particularly one quarter of the fleet, who were aged between four and ten years old. With a little parental help, these aspiring R/C sailors coped well and, at times, could even be seen changing batteries, rigs and mending these simple boats, which are mostly made from recycled materials.

After a group photo (below), the racing began around the simple windward leeward course parallel to the beach. Initially against the southerly wind and the top of the flood tide, almost perfect conditions were enjoyed, which only got better when the tide turned.

This spectacle was greatly enjoyed by many family supporters, club members and villagers, who always love to watch this event.

Which rig?

The first two races were won by Graham Viney followed by Mike Pert and Bernard Kuflik all with big rigs. In Race 3, which was won by the latter, Keith Parrott was the first to appreciate the strength of the increasing wind and changed to his small rig. This immediately allowed him to improve his usual finishing position to gain fifth place. It gave him an even better performance in Race 4 when he came second ahead of the overpowered big rig boats that, in the strongest gusts, were showing their rudders in the air. Even more delighted was seven-year-old Oliver Stollery who, having also changed his rig, won the race.

The last race before lunch saw Alan Viney get a win, still with his big rig and absolutely flying downwind. In second place was Rob Vice, who had been struggling all morning to get his boat going during these initial races.



ABOVE: BOTTLE Boats can cope with most conditions!

Lunch arrived all too quickly wherein the competitors and the new WSC members were treated to a barbecue, which allowed time to mend broken gear, change rigs and get ready for the afternoon's racing. At lunch, then, Graham headed the leader board with 11, Mike and Bernard having 12 and 14 points respectively. It promised to be an interesting afternoon and we weren't disappointed.

Afternoon racing

Wayfarer sailor Mike came out strongly to win Race 6 followed by Marblehead sailors, Rob and Keith Parrott. Bernard took Race 7 and then allowed Rob to collect a string of four first places only interrupted by Mike winning Race 10. Mike also won Races 13, 14 and 16, but allowed Bernard to take Race 15. In these last few there were more juniors sailing than grown-ups! The Championship was all down to the last race in which Bernard only had to come third to beat Mike. However, he sailed into a well publicised mooring line that dropped him down to fifth,

BELOW: The eager competitors at Waldringfield S.C. ready for a full day's sailing.



A good start by the BOTTLE Boat fleet.



RESULTS (Top 10)

- | | |
|----------------------------|----------------------------|
| 1 Mike Pert | 6 Rob Vice |
| 2 Bernard Kufluk | 7 Alan Viney |
| 3 Graham Viney | 8 Keith Parrott |
| 4 Oliver Stollery (junior) | 9 William Sturmer (junior) |
| 5 Arthur Sturmer (junior) | 10 Graham Whitehead |

whilst Mike finished first ahead of the two juniors, Oliver and Arthur.

WSC Commodore, Bob Whitehouse gave away the Junior Championship prizes first, Oliver with 61 points taking the Junior BOTTLE Trophy. Second was Arthur Sturmer with 79 points, then came his brother William with 120, and fourth was Nathan Stollery with 180. With a well-deserved win Mike took the main BOTTLE Trophy with 30 points, Bernard was a close second with 31 and Graham third with 47. Remarkably, two youngsters took the next two places with Oliver fourth and Arthur fifth.

Mike thanked the race team, which included Sarah in the rescue boat, Linda on scores, and Roger for having created the idea, designed and built the boats, organised the event and run what turned out to be a very successful and hugely enjoyable day.

Enquiries are often made about the availability of BOTTLE boats and whilst the design and the all-important carbon hull and fin have never been made commercially available you can email Roger (info@guildfordmyc.co.uk) for further information on how you might get your own BOTTLE boat on the water – Ed.



ABOVE: Bob Whitehouse (right) presents the overall winner's trophy (and wine) to Mike Pert.



ABOVE: Bob Whitehouse presents the Junior Trophy to an elated Oliver Stollery, together with an arguably more exciting bar of chocolate!



ANATOMY OF A BOTTLE BOAT

The major parts of a BOTTLE boat are recycled: two 2 litre fizzy drink bottles connected by a cunningly designed carbon hull / fin which contains the radio, provides the stability, using a bulb keel, and supports the simple cantilevered swing rig via a socket in the deck. The sails are made from recycled plastic bags on recycled carbon arrow shafts. The bow section, meanwhile, is a recycled coffee cup and the bearing for the specially designed carbon rudder is pop riveted to the only rigid bit of a fizzy drink bottle, the cap!

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NR-1

Next month in **model Boats**

We've another eclectic mix of all your favourite articles coming in the February issue, not to mention a few treats. Take, for example, Roger Suitters' unique and unusual model of the nuclear-powered NR-1 research submarine, a **FREE plan** for Glynn Guest's cartoon-scale version of a Mediterranean island hopping ferry (that features a rudder and propeller at each end for manoeuvring in all directions), and John Goodyear's beginners' guide to Bermuda rig sail making. What with this plus all the reviews and regulars it's shaping up to be a fine read. Don't miss it!

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Sail school



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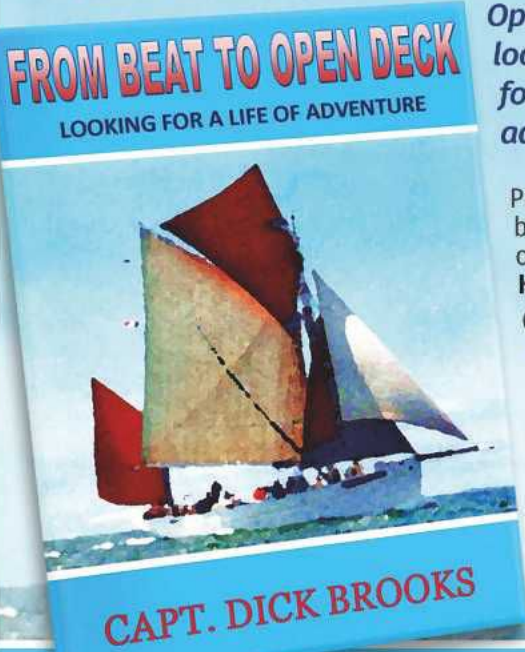
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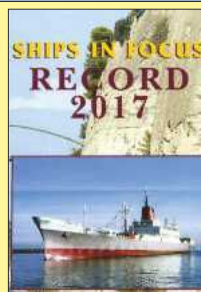
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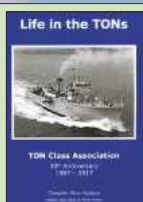
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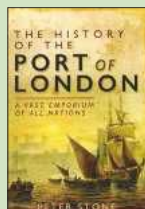
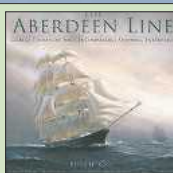
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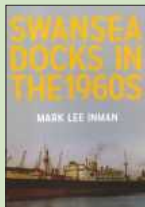
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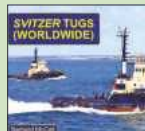
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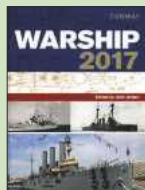


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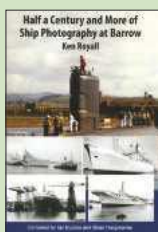


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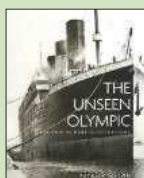
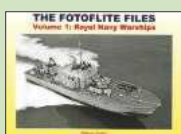


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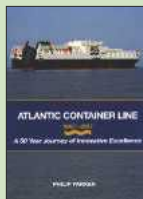
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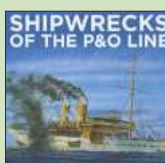
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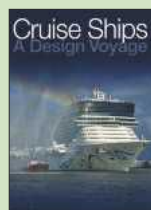
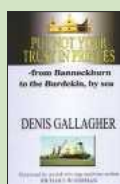
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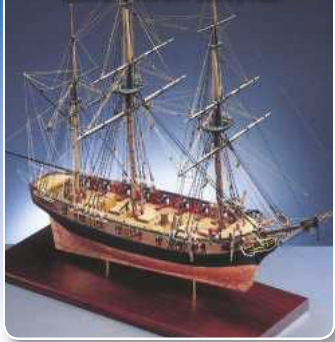


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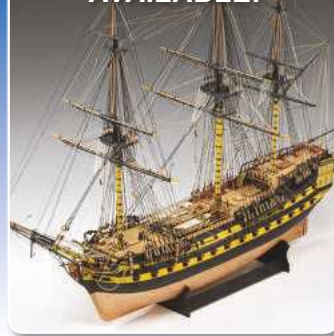
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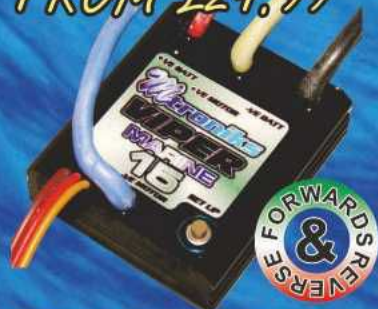
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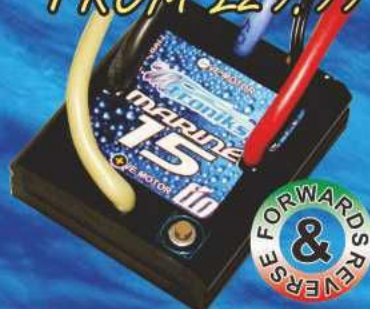
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