



- By using online bank transfer to the club's account. Sort Code, **23-05-80**, Account number, **42978396**, Account Name, **Basingstoke Model Boat Club**. Please use your initial and surname as the reference so I am aware who has paid. Where possible I urge members to use this facility in preference to cash or cheque payments

Note that the club banks' with **Metro Bank**. When paying by BACS be aware that Metro Bank has not yet signed up to the account name checking service and you may receive a warning from your bank that they cannot verify the account name. **Be assured that as long as you have entered the details above then your money will find its way to the club's account.**

- By cheque made payable to **Basingstoke Model Boat Club**, or cash either handed to me or sent to the following address:-

**Andy Clark**  
**25 Coniston Road**  
**Kempshott**  
**Basingstoke**  
**Hants**  
**RG22 5HT**

- Hand your fees to our Chairman, Chris Cole at the lake side by putting it in an envelope with your name on the outside and he will pass it to me.

If you will not be renewing your membership please let me know so that I can keep records up to date.

### **2023 / 2024 Accounts**

As it is near the end of the Club's financial year, I have to make you all aware of our financial position and how your money is spent. Below you will find a simplified version of the Club Account for this past year 2023/2024. If anyone wants to see the actual accounts, receipts, etc. please let me know and I will bring them to the pond for you to view and inspect. With costs in second class postage rising by 10p to 85p I have taken the opportunity to forward buy 400 stamps for the 2024 year at the 75p rate.

Monies at Bank carried forward	£1,784.49	
Total Income from annual fees	£858.00	
Sale of donated boats	£953.50	
Donation to RNLI from sale of donated boats		<i>£953.50</i>
Website Fee (One Com)		<i>£24.71</i>
June Newsletter Printing Cost		<i>£59.52</i>
100x 2nd Class Stamps @75p		<i>£75.00</i>
Sept Newsletter Printing Cost		<i>£66.00</i>
100x 2nd Class Stamps @75p		<i>£75.00</i>

*Basingstoke Model Boat Club March 2024 Newsletter*

Dec Newsletter Printing Cost		<i>£71.31</i>
100x 2nd Class Stamps @75p		<i>£75.00</i>
Club Christmas card		<i>£96.00</i>
Flowers for Artist		<i>£7.00</i>
50 x name badge holders for exhibitions		<i>£8.99</i>
March Newsletter Printing Cost		<i>£64.95</i>
400 2nd Class Stamps @75p 2024 newsletters		<i>£300.00</i>
PI Insurance		<i>£77.20</i>
		<i>£1,954.18</i>
Cheques to be presented to Bank	£0.00	
Cash paid/to be paid into Bank	£0.00	
Current Monies at Bank 11th March 2023	£1,784.49	

**Dates for your 2024 Diary**

**The Basingstoke and District Model Engineering Society** Spring Gala weekend will be held at the Viables Centre Harrow Way Basingstoke RG22 4BJ on the **13<sup>th</sup> and 14<sup>th</sup> of April** and the club once again has been asked to attend and provide a display of boats

**Popham Airfield Model Show** will be held at the airfield (SO21 3BD) on the weekend of **7<sup>th</sup> and 8<sup>th</sup> September** and like the Spring Gala weekend we have been asked to provide a display of model boats.

Volunteers are requested for both shows to bring boats for display and help man the club's stand. Please contact either myself or our Chairman Chris if you are able to help.

**Sunday 21<sup>st</sup> April** we will again be hosting members of the **Model Hovercraft Association**

Members from **The Surface Warships Association** will be joining us at the lake on **Sunday 5<sup>th</sup> May**

The **Vintage Model Yacht Group** will once again be joining us on **Sunday 16<sup>th</sup> June**

**Sale of Alan Wells Boats**

The final boat and transmitter from Alan's collection was sold after the December newsletter was produced. This raised a further £90.00 which was donated to the RNLI. See letter from their Secretary below.

## Basingstoke Model Boat Club March 2024 Newsletter



Royal National Lifeboat Institution  
Patron: Her Majesty The Queen  
President: 1989 The Duke of Kent  
Chief Executive: ~~Mark Dowie~~ MARK DOWIE  
RNLI (RNLI) is a trading name of RNLI (RNLI) Ltd, a company registered in England and Wales  
at New Quay Road, Lyme Regis, Dorset, UK. Registration No. 10591202

64 Eastrop Lane,  
Basingstoke.  
RG21 4AX

Andy Clark,  
BMC Secretary/Treasurer  
25 Conston Road,  
Kempshott,  
Basingstoke  
RG22 5HT

21.1.24

Dear Andy,  
What a lovely surprise to find your letter and donation of £90 from Basingstoke Model Boat Club on the mat!

We really do appreciate that you give the money raised when you sell boats etc. to the RNLI. The £90 will go towards maintaining the lifeboats - as you know this work costs a lot of money and your donation is so important.

Many thanks again for your continuing support of the RNLI and I hope you and your mentees enjoy a happy and healthy New Year.

Yours sincerely,  
Shelagh Le Marechal  
SHELAGH LE MARECHAL  
SECRETARY, BASINGSTOKE BRANCH RNLI

The RNLI is the charity that saves lives at sea  
Royal National Lifeboat Institution, a charity registered in England and Wales (209603)  
and Scotland (SC037736). Registered charity number 20003326 in the Republic of Ireland

In total for the 2023/24 year the club has donated **£953.50** from the sale of late member's boats which is a tremendous achievement.

### Midhurst Show report

The show was held on Sunday 11<sup>th</sup> February and once again the club put on a great display of model boats and 1 RC Truck. At this point I have to thank in no particular order the following members (Barry Parsons, Alan Spooner, Tim Jeffries, Joe Beckett, Terry Walsh and Chris Phillips) who brought along boats to display and help man the club's stand. Chris brought along his virtually complete Bristol Pilots Cutter which is a grand model and we hope to see it on the lake soon.



*Views of the Club's display*

The show is spread over the centre's main hall, two side halls and an another area near the café that was taken over by 3D printing, crafting, displays of model aircraft and others

The main hall had a number of model railway displays of varying gauge and style ranging from N gauge up to O gauge live steam locos. In addition there were three of other model boats clubs, RC Helicopters, War gamers (some of which were dressed in costume), Diecast military and civilian models and an amazing display of large Lego Technic models.



*Lego Technic Models in Main Hall*

One of the side halls was dedicated to Meccano models including an 8 foot tall model of the Eiffel Tower which took the modeller about a week to make. The other hall had model boats from the Springbok Club and a display of very large (and expensive) RC Trucks which were often to be seen in actions around the centre.



**Eiffel Tower**

The show was well attended by members of the paying public and after the show I received the following from the organisers who are already looking towards the 2025 exhibition.

Dear Exhibitor,

I would like to take this opportunity to thank all the exhibitors and club members who attended the 41<sup>st</sup> Grange Modellers Exhibition this year. It has been another very successful event, which following a busy January on the fitness side of the business, has really helped ensure we've started the year in a positive way! Apologies if I did not get to speak to you towards the end of the show, it was my intention to do so but the busy nature of the event prevented me from catching everyone!

We will not be running a summer edition of the event this year; however, I must now look ahead to the planning of the 42<sup>nd</sup> Annual Modellers Show on February 9<sup>th</sup> 2025. I know I have spoken with many of you already, but to ensure that I am as organised as possible, I would ask that you respond to me again even if we have already discussed your attendance. I have attached the booking form to this email, so just send this back to me as soon as possible to secure your place. As stated on these forms, we would be very grateful if anyone that can provide their own tables, could do so for future events, as we are limited on the amount we can provide as a centre and hire charges have formed an increasing part of the costing for the event over the past few years. Once again, many thanks for your support this year, and in the past, and I look forward to hearing back from you regarding next year's event!

The club will be attending the 2025 show as usual.

*Chris Cole our Chairman has produced a number of articles on various electrical items and accessories for use within model boats. The subject of the following article is Batteries. Others, covering Brushless Motors, LEDs together with how Ardupilot Flight Controllers could be used the world of model boats, will appear in later editions of the newsletter.*

### **Batteries, what are they and can they do it?!**

A battery for our purposes is a means to store power, and release it in the form of electrical energy. Most of our batteries involve a chemical reaction of some variety.

There are 3 main components of this "power." Voltage, current, and resistance. If we think of an analogy of water and tanks, we can relate to that. The voltage can be compared to the height of water in a tank, and in essence the pressure, or height potential, weight of the water column. The current is equivalent to the flow of water, out from the tank. The resistance is the things that stop the flow, like taps, thin long crusty pipes and so on.

The size of our tank gives us a measure of how much we can get out. But what we get out is controlled or restricted by the flow lines. This results in how much we can get out, and for how long, at a level that is of the best use and that we can use, for long enough.

In the "sparky" world, volts (V) are the measure of the potential, while current is measured in Amps, sometimes shown as I, and the "resistance" (R) is measured in Ohms. There are "sizers" of these values, to allow us to talk about things without getting involved with tiny or enormous numbers. For example an m usually means milli or a thousandth, as in mAmps, 2000mAmps (mA) is the same as 2Amps (A)

Likewise K is a thousand times bigger, and M a million. As in (we will get to it in a moment,) KWatts, and MWatts, which are lots of power.

There are a number formulae that connects them, such as  $V$  (volts) =  $I$  (amps)  $\times$   $R$  (ohms resistance). One of these is called Ohms Law and is normally written as  $V=IR$  and can be used to calculate a number of different parameters.

So if we have a current of 10Amps flowing through a resistance of 2ohms, we have  $V = 10 \times 2 = 20V$  or 20 volts is required to make the current flow at that level through that resistance. We can rearrange the formula, so that if we know the volts and resistance, we can tell what the current should be. Rearranging becomes  $I = V / R$  so for a 12V and resistance of 0.5ohms (500mOhms) we get  $I = 12 / 0.5 = 24Amps$ .

Another formula is  $W$  (watts, power) =  $I \times I$  (or  $I^2$  current squared,)  $\times$   $R$  (resistance). Current squared times resistance is watts or power. So for 24A flowing through the 0.5ohm resistor gives,  $W = 24^2 \times 0.5 = 576 \times 0.5 = 288W$ . That's what makes things get hot. Again we can rearrange this formula, e.g. by putting  $V$  in place of  $I$ , we can get  $W = I \times I \times R = (V/R) \times (V/R) \times R = (V^2 / R^2) \times R = V^2 / R$ . Also  $V \times I = W$  (Volts  $\times$  Amps is watts.)

Again we have Ah or mAh which is Amps for an hour. This is a capacity measure used in the battery industry to indicate the size of "the water tank" to know how much could we get out. That is we in theory could from a 2000mAh battery get 2A for 1 hour, or 4A for ½ hour, and so on.

Now in batteries we have a whole range of different chemicals that mixed together, will produce a chemical reaction, and result in what we get as a voltage across the chemical cell. Some of these chemicals are very violent and others not so, and some of them produce very high voltages, but have such a high internal resistance, that they cannot release much in the way of useful current, without a very big voltage drop. As mentioned before the current flows around a circuit, limited by the driving force, voltage, and "all" resistances in the circuit. There is no flow without a completed circuit, in electricity. If you complete the circuit, you will probably feel it.

Some of the chemicals are Alkaline, Nickel, Cadmium, lead, acid, Lithium, Metal hydroxides, etc. We get the typical batteries used in our boating world, as ZnMnO<sub>2</sub> (zinc manganese dioxide,) (think of Joe's multi-coloured pound shop batteries for his radios,) Pb (lead) NiCd, (nickel cadmium,) NiMH (nickel metal hydroxide,) LiPo (Lithium polymer,) (think of Carl's very fast catamaran,) Lilon (lithium Ion,) LiFe (lithium iron,) etc.

As chemicals become more dangerous, or "not up to the job," other materials are used, or discovered. The current "dogsxxxxxx" of the range are the LiPo's which can release very large current flows, with minimal voltage drop, and are comparatively light weight. They do have problems, due to the "volatility" of the chemicals, and in certain circumstances the reactions can get out of control, causing fires or explosions. So care is required in their safe handling.

Traditionally Pb (lead acid, or gel) batteries were the flavour of the month, but they don't have a high current flow, compared to their weight. As example, a 12V, 7Ah lead acid gel cell (actually 6 cells) cannot release anything like 7 amps for an hour, without significant voltage drop. More likely only 2A continuous. If our volt drop is too high, we can't get our motors to turn fast enough. In our water tank scenario such a restriction would mean we could get water out the tank, and onto the flower beds, but wouldn't work very well through the sprinkler, for the lawn. The pressure has gone.

The different types of chemicals in each of their "cell" variants, have a nominal voltage rating. Each cell of a Pb battery is nominally 2V, so 6 of them together are  $6 \times 2 = 12V$ . The cells are connected together to make a convenient package of 12V, 6V, 7.2V (6 cell NiMH) 7.4V (2 cell LiPo) 11.1V (3 cell LiPo) etc. Pb cells are nominally 2V/cell, NiMH (1.2V/c) LiPo (3.7V/c)

The flat area of the battery is a measure of the overall power. In the water tank, this is where the floor area of the tank is the comparison. The total volume shows the potential total capacity.

So an AA sized rechargeable could have a rating of 2000mAh, (2 amps for an hour) while a "Sub C" typical 6 cell NiMH battery could also have the same 2000mAh rating. The "tank" is the same but the pipework is very different. No one would expect to pull 2 amps from each and expect the same result. No, here the batteries internal resistance has a big effect and the AA would have a significant voltage drop at 2A, such that the volts would be too low to spin the motors fast enough, for long enough. AA, or Sub C batteries are made by rolling the cell round into a cylinder shape.

So when we look at batteries, we need to decide on how fast we want to spin our motors, which tells us the voltage level to get that. We then need to know how much current the motor will want/draw from the battery to keep up to speed. And we need to know how long we want to do that. Of course we won't always be blasting at full speed, and maintain our popularity, so we can modify this by saying we would on average use 25% of max current. Average Amps x time (endurance) = Ah. What type of battery can deliver our max current, (A max) easily? So we have the Volts, the Ah, A max, and how heavy can we be? That should narrow the options.

As an example, if we decide that we need about 12V to make our motor spin at the right speed, and to do that it would take about 10A. We want to run for about 30 mins on the battery/ies. That gives 12V, peak amps 10A, an average 2.5A.  $2.5 \times 0.5hr = 1.25Ah$ . A 12V lead battery of 7Ah rating looks the ticket, but it would not get to full speed, for long if at all. So a couple may be required in parallel? Now what sort of boat do we have? If we have a 1m tug, it's going to be heavy, ballasted to the water line, so Pb batteries may do it. Alternatively we could look at LiPos, and a 3 cell nominally 11.1V, with a rating of 2200mAh, (2.2Ah). LiPos have a second rating (C Rating) printed on them like "30C" which means it can cope with short bursts of 30 times the amp number of the Ah rating, so it can handle  $30 \times 2.2A = 66A$  in a burst, without too significant a volt drop. So it would do for a fast boat that potters

about most of the time. Would this work for our tug? It could, but as LiPo's are more expensive, may be an overkill, and at about 300g weight, you would still need to leave the heavy Pb batteries in the boat to get it to the waterline!

So as a final reminder:-

$V = I \times R$ , Current times ohms resistance equals Volts

$V \times I = W$ , Volts times current equal watts

$I \times \text{hr} = \text{Ah}$ , Current times time hours equals Amp Hours (sort of capacity)

$V \times I \times \text{hr} = \text{Wh}$  Volts times current times time hours equals watt hours (better measure of capacity.)

Also for those paying attention:-

$W / s$  Watts per second equals Joules (energy!)

*Many thanks Chris!*

### **Building the Bella part 4**

At the time of last newsletter I had completed the hull and fitted the cabin sides and roof to the model.



After the excitement of Christmas and the New Year I recommenced the build by making up the mast and boom, fitting the rudder and linkage, servo mounts, glazing the windows and finally rigging the boat. I used dynema cord for the standing rigging as opposed to the steel wire supplied as I find this an easier method. Much to my surprise come the 23<sup>rd</sup> of January the boat was finished and ready for its maiden sail.





After waiting for a suitable day (i.e. not raining) I popped to the lake one Tuesday afternoon to try it out. I'm pleased to say that the voyage went well with no issues apart from a bit of fine tuning of the mainsail. Since then the boat has been on the water a number of times and it performs well. If you are looking to build a yacht then I highly recommend the Bella an Areo Naut kit.

### **Public Toilets in Eastrop**

In the latest edition of the Council produced Basingstoke and Deane Today there is a short article on providing greater access to public toilets within the borough a number of which are having their opening hours extended to increase access to these facilities. I was pleased to note that those in Eastrop Park will be open throughout the year.

### **For Sale**

Keith Barnes has 3 x 1/48<sup>th</sup> scale scratch built Ocean going tugs for sale at £250.00 one each, plus a Deans Marine cargo ship at £300.00. Proceeds will be donated by Keith to the St Michaels Hospice, Basingstoke. If interested see Keith at the lake or contact on 01256 359928.



**Keith's boats for Sale**

**Close**

Well that's it for this issue I've bumbled on long enough, for those of you taking bets on this, according to word count there are 3514 words in this edition plus a number of pictures. I hope you found at least some of them worthwhile. Articles from members for newsletters are always very welcome so if you are restoring a model or undertaking a new build share your experiences with the whole club.

*Cheers*

*Andy*

*To save costs the Newsletter is printed in black and white so you miss some of the detail of the photos in colour, etc. – if you would like to see it in full colour I will as usual ask **Carl**, who is now living in Wales and has the distinction of being our first “**Internationally located member**”, to add a copy to our BMBC website.*