#### www.electric-boat-association.org.uk

# Electric Boat NEWS



The first All-Electric Boat Show • Rainy Days and Mondays Support your Committee • Boats on Show



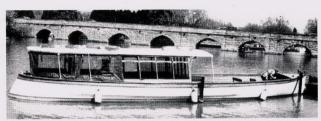
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# **EBA CALENDAR**

cannot be held responsible for any errors which may occur, or for any actions that might be taken as a result of this material. also, views expressed in the magazine are not necessarily those of the EBA. Electric boat News welcomes contributions from readers and members. If you have anything you think might

be of interest, please send it in. Bear in mind however that due to circumstances

sometimes beyond our control we cannot be held responsible for any damage

or loss which may occur to this material. Items of interest include letters, reports on rallies or events, reports of particular cruises or trips, articles or advice on building or running electric boats, and reports on items of

equipment. We also welcome manufacturers' reports on new items of

equipment or boats.

July			Honorary President: Aitken Clark
20th – 21st	EBA attending	Thames Trad Boat festival	Chairman: John Hustwick
			33 The Street, Latchingdon, Essex CM3 6JP
August			Tel/Fax: 01621 742367
August			e-mail: john@mhustwick.freeserve.co.uk
23rd – 26th	EBA represented	TWA National Festival	Secretary, Membership Secretary: Barbara Penniall
			150 Wayside Green, Woodcote, Reading, Berks RG8 0QJ
Septembe	er		Tel: 01491 681449 Fax: 01491 681945
			e-mail: eboat@mail.com
7th – 8th	EBA Event	Norfolk Cruising Weekend/ Silent Sensations	Advertising Manager, Electric Boat News: Gill Sauer
		Slient Sensations	24 Sparrowgrove, Otterbourne, Winchester, Hampshire, SO21 2DL
			Tel: 01962 714017
October			e-mail: gillian_sauer@hotmail.com
1.4.1	247 June & 100		e man. giman_sader@notman.com
14th	EBA Event	Laying Up Supper	Treasurer: Brian Pickess
For further o	details of the abov	e, or notice of other events,	22 Temple Mill Island, Bisham, Marlow. Bucks SL7 1SG
	ict the Secretary	e, of notice of other events,	Tel/Fax: 01628 823089
	,		e-mail: brianpickess@waitrose.com
			Technical Officer: Bob Ellis
			47 Charlton Rise, Ludlow, Shropshire SY8 1ND
			Tel: 01584 874830
			e-mail: rattyo@aol.com
			Vice-Chairman – Business Members: Martin Allen
			Lakeland Electric Boat Centre,
			Unit 4, Ullswater Business Park,
			Ullswater Road, Penrith, Cumbria CA11 7EH Tel: 01768 840211 Fax: 01768 840212
			ICI: 01/08/840211 Fax: 01/08/840212
			Vice Chairman – Users Group: Ian Rutter
			Riverwood Heights, Gibraltar Lane, Cookham Dean, Berks SL6 9TR
			Tel: 01628 476158
			e-mail: ian_rutter@onetel.net.uk
			Founder Editor: Kevin Desmond
Electric Boat Ne	ews is published quarte	rly by the	Cover Picture: Sun, water and an electric boat – magic ingredients brought together at the Boats on Show event (see centre pages)
	t Association		- Robin Richardson aboard his Phoenix 21.
Whilst we take		ced or reprinted without permission. the accuracy of the contents, the EBA	Photo: Barbara Penniall

The Electric Boat Association is on the Internet.

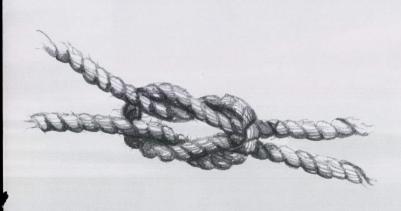
The World Wide Web Address is: www.electric-boat-association.org.uk ISSN 0969-031X

Printed by: The Ethedo Press Limited Ethedo House, Spearmast Industrial Park, Lane End Road, High Wycombe, Buckinghamshire HP12 4JG

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#### **Copy Deadlines:**

Material to be considered for inclusion in the next edition of Electric Boat News should be sent to the Editor (preferably by email) by the following date:

Autumn Friday 6th September 2002

#### On the current.....

The juggernaut of the Summer is rolling and by the time you read this we shall be more than half way through our season of events. It is good to know that the Association is in such good heart, with our first ever all-electric boat show at Hartford Marina in May (see report on pages 2 and 3). However, our programme of activity is dependent on the efforts of a small team and you are encouraged to read the Chairman's open letter to members and to think how you may be able to help.

From the particular to the general, a report in the Guardian points out the good news, that Britain has one of the greatest potentials for exploiting renewables in the world – and the bad news, that we have spent the past 25 years failing to grab the opportunity. The review of Britain's energy policy launched in the spring included a recommendation that the percentage of electricity obtained from renewable sources should increase from 10% by 2010 to 20% by 2020. In the meantime, as reported in News from Home and Away, our leading energy companies are beginning to think seriously about the post-hydrocarbon future.

Indeed, in a Government sponsored report *Motoring towards* 2050, the RAC Foundation forecasts that the car of the future will be powered by a hydrogen fuel cell, producing no emissions other than water, and that such motors will start to outnumber conventional engines from about 2030. The report continues that a small number of internal combustion engines may remain in production as late as 2050. While the change over to fuel cells is in process, the report considers that the hybrid internal combustion/electric car will be built in considerable numbers to fulfil a transitional role.

On a lighter touch, John Peel's Saturday morning Radio 4 programme, Home truths included the following supposition: "That a recharged battery will be heavier than a discharged battery" I can't promise that there will be a prize for anyone who can support or discount this thought – , but you could give it a try?

long Ellis

#### Editor

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36 Kenilworth Avenue, Reading, Berkshire, RG30 3DN Fax/Ans: 0118 958 9737 Pager (24 hours): 07626 294720 Email: bargetony@aol.com

# THE ALL-ELECTRIC BOAT SHOW

John Hustwick reports from the first all-electric boat show

# HARTFORD

## Huntingdon on the River Great Ouse

A year later than planned, due to the foot and mouth crisis, the first all electric boat show got off to a good start on 4 - 5th May. With generous support from Hartford Marina manager Scott Deverell and his team and the waiving of the licence fee for the weekend by the Environment Agency, plus a lot of effort by the committee set up to run it, the EBA were finally able to launch the show.

Advertising had been good, both locally around the Huntingdon area, courtesy of Scott and Taff James and in the boating press. Unfortunately however the Saturday afternoon clashed with the FA Cup Final and so it had been expected it would be a bit quieter as a result. Luckily the weather was fine, if a little on the cold side but people did come along – some from quite a distance. It appeared that those who did come were genuinely interested in electric boats, six particularly so as they joined the EBA as new members.

The exhibitors all made a great effort to take part. Further contact details are listed elsewhere in the magazine:

#### DAVID CARTWRIGHT

David had brought along two of the Ruban Bleu boats which he is importing from France in conjunction with John Williams. These were the smallest craft, the 4 seater *Blue Ribbon* and the bigger 7 seater *Scoop*. Both boats were kept on the water and were demonstrated quite frequently.

#### CREATIVE MARINE

Julia Lawson, ably assisted by her mother (Simon and Roy being busy back at base), showed off their latest Frolic 21 *Georgie*. Unfortunately she had to stay on her trailer as the batteries had not arrived in time to be fitted for the show. Or was it that they just didn't want to get that delightful blue hull wet and dirty?

#### JECKELLS CHANDLERY OF OULTON BROAD

Andy Jeckells and friend Victoria represented Jeckells Chandlery who offer a comprehensive chandlery service, as well as specialising in boat upholstery. They brought with them with a stand displaying a myriad of items and materials for taking care of all the soft furnishing requirements for your boat. It was good to see Jeckells at the show because it demonstrated that there are other businesses from a wider background who have an association with electric boats. Further information:

ARINA

Jeckells Chandlery of Oulton broad, 128 Bridge Road, Oulton Broad, Lowestoft, Suffolk, NR33 9JT, Phone: 01502 565007,

Email: (sales) **sales@jeckellschandlery.co.uk**, (covers/soft furnishings) **covers@jeckells chandlery.co.uk**, Website: **www.jeckells.swinternet.co.uk** 

#### Pb BATTERIES

Dave Millin brought along a selection of batteries and chargers that they are marketing and these were displayed on their stand along with a comprehensive set of literature. The stand appeared to attract quite a bit of interest.

#### PHOENIX FLEET

Robin Richardson brought along his *Phoenix 21* river launch which can take 12 passengers. This craft should be ideal for hire boat companies. The boat was afloat for both days and proved popular, with Robin taking visitors out on a number of occasions.



Stands at the show: left, Pb Batteries and right, the EBA stand all photos Barbara Penniall



#### THAMES ELECTRIC LAUNCH CO.

The Hartford Show was used to launch the first of a new line of Dutch built boats called *Interboat* that Emrhys Barrell of TELCO is importing. The model on display in the water was the *16*. Details of this range of boats have already appeared in the Spring 2002 issue of the EBN. Also on display were a range of electric outboards. There appeared to be good interest in the *Interboat 16*.



A variety of electric boats were to be seen in and around the marina. Left is Robin Richardson's Phoenix 21, centre background is Cedric Lynch and his solar-powered canoe, while setting off from the quayside is Bob and Hilary Ellis's 21ft Frolic Snow Goose while to the right is John Hustwick's 18ft Frolic Rhapsody



Boats and more boats: on the quayside are examples from the Ruban Bleu and Creative Marine stables. Afloat (centre) is Tony and Janet Dunning's Amphicat, Sunshine, just ahead of Robin Richardson's Phoenix 21

#### JOHN WILLIAMS BOATS

John and Sandy Williams displayed *Zelec*, the largest of the range of Ruban Bleu boats which they are importing in association with David Cartwright. This remained as a static display on its trailer, but nevertheless attracted interest while the smaller boats were being used to demonstrate the Ruban Bleu range on the water.

#### AND LAST BUT NOT LEAST, THE ELECTRIC BOAT ASSOCIATION

The EBA stand, manned by Barbara Penniall and John Hustwick with help on the Saturday from Chris Fairman and his wife Jo, attracted a number of visitors keen to find out more about electric boating. Magazines were popular as was product information. Members placed orders for sweat shirts and polo shirts. Grebe brooches and pennants were sold, all helping towards the EBA finances. It was good to put the faces to the names of various members who came along to say 'hello' at the stand.

EBA members who attended with their own boats were Paul and Pat Wagstaffe with their skiff *Piec*, Cedric Lynch with his unnamed solar powered canoe, Bob and Hilary Ellis with their 21' Frolic *Snow Goose*, John Hustwick with his 18' Frolic *Rhapsody* and Tony and Janet Dunning, who had come all the way from Cumbria for the weekend with their Amphicat *Sunshine*. A number of trips were made in these boats for people who wanted to experience electric boating. Cedric's solar powered canoe attracted quite a lot of attention and was a talking point.

It is hoped that having established the Show at Hartford Marina, it will continue as an annual event and as a result will attract more exhibitors and hopefully many more members of the public. It was hectic but not a very painful learning curve – thank goodness.

Finally, I would like to say that Hartford Marina was an excellent venue for the Show, with its good slipway, spacious trailer parking area and general facilities, plus it was easily accessible from the main A14 trunk road. For those who don't know it, the Marina is situated in a very pleasant location just off the River Great Ouse, which itself is very picturesque through the Huntingdon area. There are very few electric boats on this river. However, Scott Deverell is very keen to promote them and so for those who trail boats it would be worth a visit. I know Scott would be very happy to see more EBA members at Hartford during the boating season. Further details from:

Scott Deverell, Marina Manager, Hartford Marina, Banks End, Huntingdon, PE28 2AA, Phone: 01480 454677, Email: **Scott@hartfordmarina.co.uk**,

alla

website: www.hartfordmarina.co.uk



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# WALES

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# SUPPORT FOR THE COMMITTEE

An open letter to EBA members

The number of members is increasing steadily and we hope this trend will continue. However we may be the victims of our own success. By this I mean that the workload, particularly for our secretary Barbara Penniall, is growing exponentially and I believe it is fair to say has just about reached saturation point.

Having been involved with the Committee of the EBA for some time now, I realise just how much work goes on behind the scenes and just how few people are actively involved in doing it. This worries me because it could leave the EBA in dire straits if anything serious should happen to one of these key people. As a starting point to reducing this vulnerability I would ask members to consider the following ways they could help:



#### Magazine distribution

The magazine needs to be put into envelopes and stamps and labels stuck on the envelopes. This is an easy but time consuming job (8 hours at the latest count), – I know because I have helped do it! If any members would like to volunteer to do this it would be very helpful. The magazines, stamps and labels would be sent to your address, so apart from stuffing the magazines in the envelopes and sticking on the stamps and labels, the only other thing to do would be to take them to the nearest post office. This would need to be done four times per year but if we have several volunteers, it could be done on a rota system so you would only do it occasionally – perhaps once year/18 months. Of course you could always organise an envelope stuffing party but I think you would have to serve non-alcoholic beverages!



#### Mailshots

You have seen our recent mailshots for Creative Marine and Pb Batteries and these have been looked upon as a worthwhile exercise and we expect other business members to take up this service. The same work would be required for this as the magazine mailings but the number of times it will need doing will depend on our business members. Event organisation The EBA Executive Committee will continue to carry out the organisation for the main shows we attend but a way members could help would be to



volunteer to be responsible for organising one of our smaller social events, or rallies that is purely for EBA members. This would not be an onerous task. As those who have attended know, these events are quite low key. Having said this, if there is a member who feels very enthusiastic about organising events and would like to be heavily involved with all aspects of this, we could discuss the role of an Events Organiser. This would mean a position on the Executive Committee which meets every two months.



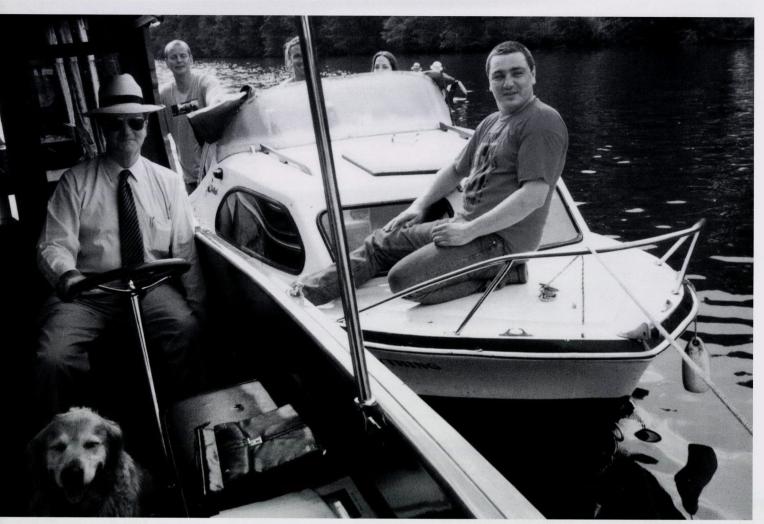
We all want to see the EBA grow and prosper but it does need support from members to be able to do it. Please call me if you would like to help in any way.

John Hustwick Chairman



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# NEWS FROM HOME & AWAY



Terence Casey at the wheel of Shiel Water, towing a petrol-powered cruiser back to her moorings. Photo: Tony Ellis

## SHIEL WATER (ELECTRIC) RESCUES CRUISER (PETROL)

This story has been a long time coming – but it is worth waiting for. After the Biennial General Meeting on 28 July last year, the boat owners among our group took everybody on a cruise up river to Marlow Weir and back. Among the generous boat owners were Terence and Ann Casey with their 38ft electric launch *Shiel Water*.

As *Shiel Water* was approaching Winter Hill on the return journey to Bourne End, a small and rather run down grp outboard-powered motor cruiser passed her going downstream. A few minutes later, we caught up with the cruiser which appeared to be drifting in mid-stream.

The boat had run out of petrol and with the camaraderie so often found while afloat, Terence offered a tow back to their moorings downstream. All's well that ends well – and a few more boaters now know that petrol power is just as likely to have problems with supplies!

#### **BP – ALL THE CHANGES YOU DESERVE**

Even if Government's world-wide are slow to adopt the changes necessary to grasp fully the advantages of alternative sources of energy, major energy companies such as BP Oil UK Ltd are beginning to change direction. A leaflet issued at BP petrol stations entitled *All the changes you deserve* sets out a number of their new policies which seek to improve the company's



environmental credentials. The leaflet points out that BP is the world's leading producer of solar energy. The company is also introducing total energy solutions, including electricity and seeks to investigate alternative fuels, alternative processes and alternative ideas. A number of BP sites in the UK now have their electricity supply topped up by solar electricity – up to 10% of their total energy requirement.

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#### BEAUCHAMP FLOATING ELECTRIC CLASSROOM

A leaflet on the opportunities offered by the Beauchamp floating electric classroom (EB News, Winter 2001/2002) is now available from the Beauchamp Lodge Settlement, 453 Harrow Road, London, W10 4RG

Phone: 020 8960 4321, fax: 020 8960 5566, Email: **info@beauchamplodge.co.uk** 

Leaflet for the Beauchamp floating classroom project

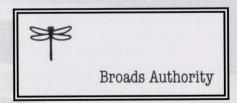


#### 'WHICH BOAT BATTERY' FROM PRACTICAL BOAT OWNER

The April edition of Practical Boat Owner magazine – that compendium of all things maritime – included an article by Andrew Simpson, Associate editor on the subject of boat batteries. This twopage piece introduces the untutored to the vagaries of the different types of batteries and their uses, and was produced in association with Barden Energy. Copies of the article can be got for \$3.50 from PBO Copy Service by email: **copyreport@ipcmedia.com** or **telephone 01202 440832.** 

#### CHARGING AHEAD AT HORNING STAITHE

In the last edition of EB News there was a report from Tony Ellis



concerning his visit by boat to Horning Staithe on the Norfolk Broads last September. Since then, we have received information from the Broads

Authority which highlights significant improvements to the Staithe carried out over the last winter. These include, among many other things, piling of the 110m frontage and raising the surface by one foot to prevent flooding. A new electric charging post has also been installed, enabling two electric boats at a time to recharge their batteries, using a prepaid card. The card can be bought in units of &1 from Horning Post Office, which is open for 7 days per week.

Other recharging points can be found at Wroxham, Coltishall, Ludham Bridge, Potter Heigham, Stalham, Hickling and Norwich and recharge cards can be obtained from the Broad's Authority Norwich office, Broads Information centres, or EBA members, Camelot Craft at Wroxham.

#### SOLAR SAILOR HYBRID POWER SYSTEMS

An attractive (and encouraging) leaflet recently dropped on the editor's desk from Solar Sailor Hybrid Power Systems of New South Wales, Australia.



Solar Sailor are able to sell their hybrid concept from the proven success of the *Sydney Solar Sailor* which cruises Sydney Harbour. This unique vessel uses a variety of deck based solar panels, with raised wings on the cabin roof which are covered with solar panels and can be angled to gain additional energy input from the wind direction – thus acting as a sail.

The brochure points out that using a hybrid power system will help users in obtaining:

- Lower operating costs and total life costs through savings in fuel and maintenance.
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Further information from:

Solar Sailor Advance Technology Watercraft, Unit 17, Hallmark Estate, 259 Princess Highway, Ulladulla, NSW 2539 Australia. Phone: ++61 2 4454 4328,

Email: admin@solarsailor.com.au, Website: www.solarsailor.com

#### ELECTRIC BOATING HITS THE NATIONALS

The Sunday Mirror magazine for April 13 included an interesting article on how to treat yourself to some watery relaxation on a canal or riverboat holiday, both in the UK and on the Continent. Nothing unusual about that you might say – except that electric boating appears in the first paragraph, with the suggestion that hirers should go green on the Thames and hire an electric boat, pointing out that there are plug-in points all along the Thames.

# RAINY DAYS & MONDAYS



The gathered fleet passing through a lock on the Great Ouse: Left to right: foreground – Cedric in his solar canoe, lockside: John William's Zelek, Emrhys and Linda Barrell's Interboat, John Hustwick and Rhapsody and Paul and Pat Wagstaffe in Piec

Barbara Penniall reports on the cruise on the Great Ouse after the All-Electric Boat Show at Hartford marina

Would the weather be kind to us? We had been very fortunate that it had been reasonable, although a little chilly, during the two day electric boat show at Hartford Marina – but now we wanted to relax and enjoy a pleasant cruise on the beautiful River Great Ouse.

Monday dawned – we think – but the sky was grey and drizzling. Several members wanted to join us but quite reasonably, were unwilling to risk their open boats under leaden skies. Come along anyway, we cheerfully urged, it'll be fine (we meant the cruise, not the weather!). We had agreed to meet at 10.30 in the marina and as we drove in, the drizzle became more meaningful, but we were confident that *Snow Goose* with its snug cabin would afford a degree of protection.

However, as we arrived we were greeted with the sight of Bob Ellis pulling *Snow Goose* up the slipway and found that poor Hilary was not feeling at all well and they were going to have to set off for home immediately. It is a tribute to both Bob and Hilary that they had made the long journey from Ludlow in Shropshire to Huntingdon trailing *Snow Goose*, when Hilary was so uncomfortable. Everyone was very sympathetic and agreed they must leave as soon as possible so our first task was to say goodbye to two very stalwart supporters.

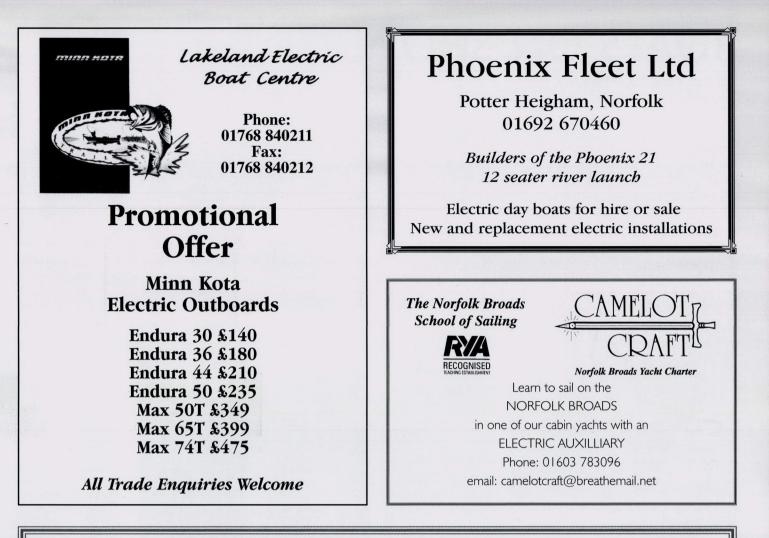
At this point, we were debating whether we should cancel the cruise and go by car to the restaurant we had booked for lunch when Scott Deverell – Hartford Marina's irrepressibly cheerful Manager (and still in shorts) – greeted us with the assurance that the weather would go round us – "It'll be a lovely day later, you'll see". Although Chris Fairman, Anthony Oliver, Tony Fogarty and new member Barry Crellin had joined us, they were without boats, but John and Sandy Williams kindly offered to launch their *Zelec*, which had been part of the land display over the weekend and it had not necessarily been their intention to put her in the water.

Trusting Scott's judgment, we assembled: the Williams' launch, *Zelec,* John Hustwick's *Rhapsody*, Paul and Pat Wagstaffe's *Piec* and Cedric Lynch in his solar canoe. Then Emrhys and Linda Barrell arrived, aided by Keith Langridge and prepared to follow us in their *Interboat* and so, an hour later than planned, we cruised out of the marina onto the River.

The weather brightened and, as always, people on the banks stopped in amazement as this (albeit small) flotilla cruised silently by. The weekend had received good press coverage and as we progressed towards The Old Mill at Brampton we spotted a camera suddenly appearing from the bank, and then later from a bridge and were told to circle, hold position or organise the boats for a photoshoot. Eventually we reached the restaurant to be greeted again by journalists and endured a further session under the photographers' instructions.

Tony and Janet Dunning, who should have been en route back to Cumbria, bearing in mind the length of their journey, also joined us for the meal and as we emerged we found that Scott had been absolutely right and the afternoon was far more pleasant. As we cheerfully cruised back to the Marina, stories were swapped and jokes told and we all benefited from Tony Fogarty's wicked sense of humour. In fact the only sound was cheerful voices and happy laughter.

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## Information sheets from the Electric Boat Association

**1. PRODUCT GUIDE & EBA TRADE MEMBERS** 

(free upon request)

2. SOLAR POWER by Solar Energy Alliance

3. ELECTRIFYING YOUR BOAT by Hawthorne & Wagstaffe

4. HULL DESIGN FOR ELECTRIC BOATS by Andrew N Wolstenholme

5. LEAD ACID BATTERIES - OPERATION & MAINTENANCE

by CMP Batteries

6. HIGH SPEED ELECTRIC BOATS by Lorne Campbell

7. HYBRID POWER by John Hustwick

Available: Free to members Nos. 2-7 Non-members @ £1.50 per copy

The Secretary, Electric Boat Association, 150 Wayside Green, Woodcote, Berks RG8 oQJ

Tel: 01491 681449 Fax 01491 681945 e-mail: eboat@mail.com

# BOATS ON SHOW Penton Park 16 – 19 May

Of the eleven companies with river craft at this year's Boats on Show event, nine were exhibiting electric boats. This year the show moved down river from Beale Park to Penton Park, Chertsey – opposite the entrance to Thorpe Park. The event ran for 4 days from 16 to 19 May and the EBA stand was manned throughout by our Chairman, John Hustwick and our ubiquitous Secretary, Barbara Penniall. The show was divided between the Penton Hook

Marina, with a range of Try-a-Boat craft and the show ground,



Our Chairman, John Hustwick talks to a visitor outside the EBA Stand (Photo: Barbara Penniall)

clustered around the Main and Mississippi Adventure lakes. The numbers of visitors were disappointing, but it is hoped that the new location – with its proximity to the M25 / M4 and M3 will catch on in due course.



John Williams taking a customer out on one of his Ruban Bleu day-boats (Photo: Barbara Penniall)



John Williams (centre) and Steve Birtles talk to a customer (Sandy looking on)

#### CLASSIC LAUNCHES

A new name on the waterfront is Classic Launches and their 20ft open launch of traditional design available at &25,000 (including VAT), fully fitted (complete with canopy and Lloyd Loom chairs – but excluding trailer).



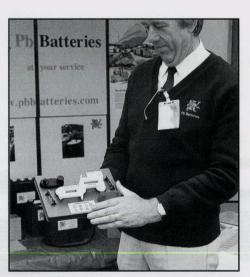
Stuart Weatherley alongside his new 20ft Classic Launch

Further details: **Stuart Weatherley, Classic Launches Limited**, **17 Reading Road, Henley-on-Thames, Oxfordshire, RG9 2AB. Phone: 01189 482629, Fax: 0118 948 2629.** 

#### JOHN WILLIAMS BOATS

John and Sandy Williams were down from Norfolk, showing two of the Ruban Bleu range of electric day launches, assisted by Steve Birtles. John and Sandy are now cruising the canals until September and Steve Birtles is managing the business in their absence. Further details: John Williams Boats, The Staithe, Stalham, Norfolk, NR12 9DA. Phone: 01692 580953, web site:

www.johnwilliamsboats.co.uk, Email: johnwboats@aol.com.



David Millin of Pb Batteries showing the new quick release cap

pleased to say that his fleet of day-hire boats at Potter Heigham on the Broads was thriving and that he had sold a new *Phoenix 21* in the month prior to the show.

Photos by Tony Ellis unless stated otherwise

#### Pb BATTERIES AND PHOENIX FLEET

Robin Richardson and David Millin of Phoenix Fleet and Pb Batteries respectively were sharing a marquee. Robin was demonstrating one of his *Phoenix 21's* on the lake, with passenger trips on the hour every hour, generally skippered by John Hustwick. He was





Robin Richardson's Phoenix 21 goes off with another full load - John Hustwick at the wheel (Photo: Barbara Penniall)

David Millin was able to report that many of the boats on display, or in use at the show were now powered by batteries supplied by his company. He also demonstrated a new quick release cap which eases the process of topping up the batteries. Another novel feature was the 'take offs' which can either be used as a post or stud, depending on the connection method preferred. The insulator has a snap off top and you make your choice.

Further details:

Robin Richardson, Phoenix Fleet, Repps Staithe Boatyard, Potter Heigham, Norfolk, NR29 5JD. Phone: 01692 670460, Email: boats@phoenixfleet.com

David Millin, Pb Batteries, Unit 2, Oyster Park, Greenstead Road, Colchester, Essex, CO1 2SJ. Phone: 01206 792449, web site: www.pbbatteries.com

#### CREATIVE MARINE

The 21ft Frolic *Georgie* from Creative Marine was afloat on the lake, ready for demonstration. This lovely craft was the model on the Creative stand at the London International Boat Show and was sold shortly before the Penton show.

Further details: Creative Marine, The Secret Boatyard, Barningham Barns, Matlaske, Norwich, Norfolk, NR11 7LE. Phone/Fax: 01263 570100,

web site: www.creativemarine.co.uk



Georgie from Creative Marine

#### SALTERS BROS LTD

Tucked away in a quiet corner (from which I would be seeking a discount) could be found some of the fleet offered by Salter Brothers, including the *Commodore 17* day launch which is available from £7,500 (inc. VAT) in either diesel or electric power. Further details: **Phone: 01865 243421, Email:** info@saltersteamers.co.uk

#### BOSSOMS BOATYARD

As with the display at London, Jeremy Freeland of Bossoms was showing the two versions of their *Oyster 14.* These included the luxury model in the form of a new inboard powered craft, *Mercedes*, and the economy demonstrator *Oyster 14,* powered by an electric outboard. Further information: **Bossoms Boatyard, Phone: 01865 247780, Email: info@bossoms.co.uk,** website: www.bossoms.co.uk

#### THAMES ELECTRIC LAUNCH COMPANY

As foretold in Business News in the Spring Edition of EB News, Emrhys and Linda Barrell of the Thames Electric Launch Company were proudly displaying the new (to the UK) Interboat range of Dutch-built



Salter Bros Commodore 17



Two versions of the Oyster 14 on the Bossoms stand



The Interboat 19, available in either electric or diesel from the Thames Electric Launch Company

launches. The models on show included an *Interboat 19* and the smaller *16*. All models are available in either electric or diesel. Of particular interest was the fact that the differential in pricing between these two modes has been virtually wiped out. Indeed, there is no difference in the cost

of diesel or electric versions of the 19 with a standard price of \$15,440 (inc VAT). The 16 Electric costs \$12,920 (inc. VAT) while the 16 Diesel is \$12,815 (inc. VAT). Further information:

The Thames Electric Launch Company, Phone: 01491 873126, Email: thameselectric@goring.co.uk, Website: www.thameselectric.com

continued on page 15

# NOTICE BOARD

#### DISCOUNT FOR EBA MEMBERS ON THE CHELMER & BLACKWATER NAVIGATION

We are delighted to hear from Hugh Turner, Leisure Development Manager for the Chelmer & Blackwater Navigation who is offering EBA members a 10% discount on licence fees for the use of this tranquil and beautiful 14 mile waterway through the heart of rural Essex. The navigation runs from the County town of Chelmsford, to Heybridge Basin on the tidal River Blackwater, where the canal connects with the sea, near Maldon.

#### LICENCE FEES (BEFORE DISCOUNT)

FOR SMALL CRAFT NOT USING LOCKS:

12 months: \$30, 3 months: \$20, 1 month: \$15, One week: \$10, 1 day: \$5

#### LICENCE FEES (INCLUDING SHORT TERM MOORINGS) FOR LARGER CRAFT REQUIRING USE OF THE SLIPWAY AND/OR LOCKS:

1 month \$75, 1 week: \$25, 1 day: \$10, use of slipway: \$5

Members are recommended to contact Hugh at his office – 01245 225520 – before visiting.

NOTE: Dimensions for the Chelmer & Blackwater are 60ft by 16ft beam, 2ft 6ins draft and 6ft 5ins headroom.



More charging points for Environment Agency navigations? Charging Point at Shiplake Lock (Photo: Tony Ellis)

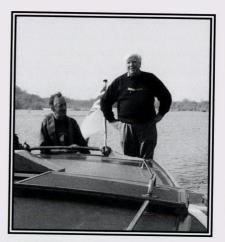
## PARLIAMENTARY WATERWAYS GROUP

Our Chairman, John Hustwick raised two questions with Baroness Young, Chief Executive of the Environment Agency who was speaking at the meeting of the Parliamentary Waterways Group on 11 June. The questions he raised included clarification as to whether the Agency would extend the current 25% discount for electric boats on the Thames to all of their waterways and whether plans were in hand for the installation of more charging points on Agency navigations.

Baroness Young was unable to commit the Agency on any of these issues, but replied with a positive statement concerning the positive view the Agency would take towards policies which would encourage environmentally friendly boating.

## HONORARY PRESIDENT AITKEN CLARK

So far we haven't yet included a photograph of our Honorary President, Aitken Clark who was elevated to his new position with the EBA at the Biennial General Meeting in July last year.



We now redress this omission with a casual picture of Aitken taken by Tony Ellis about two years ago aboard the pleasure wherry *Hatbor* on Hickling Broad.

Our Honorary President, Aitken Clark (right) aboard the pleasure wherry Hathor on Barton Broad

## LEAFLET DISTRIBUTION FOR EBA MEMBERS

From time to time, our Secretary, Barbara Penniall will be distributing literature received from our business members with the aim of keeping you informed of latest products and developments in the electric boating world. A reasonable charge is made to business members taking advantage of this service which all helps improve the funds available to the Association. Business members interested in using this new service should contact Barbara.

# 

#### **Public Relations Officer:**

Despite the plea in the last edition of EB news, we are still seeking a volunteer who is prepared to carry out the role of Public Relations Officer. It is very important that we fill this vacancy as soon as possible. **South East Representative:** There is still a vacancy for a South East representative. **Scotland Representative:** There is also a vacancy for a representative from Scotland. Any volunteers interested in either of these posts should contact our Chairman, John Hustwick.



## RAINY DAYS & MONDAYS

continued from page 8

These cruises are an essential part of the EBA's social calendar, as they serve to remind us just how fortunate we are to belong to a sector of boating that provides pleasure for us without disturbing any other waterway user, whether they are fishermen, walkers or the local wildlife. And it certainly stops people in their tracks to see our handsome boats cruising effortlessly without any audible or visible means of propulsion.

## STANDING ORDERS

Last year, Barbara Penniall encouraged members to pay by standing order. About 10% elected to do so, for which we are grateful as it reduces the number of subscription reminders that have to be written. If you would like to set up an annual order for \$25, payable on the date of your renewal, the following information should be passed to your bank:

#### The Electric Boat Association a/c 4273 7084, Girobank plc, Bootle, Merseyside, GIR OAA Sort code: 72-00-04

Please ask your bank to identify the payment with your name on the EBA Bank Statement.

# FREE LISTING OF SECOND HAND BOATS

Members who are thinking of selling their boat (and, hopefully, moving on to an even better model) should take advantage of a new service. We are starting a free classified listing service for members. Just supply up to 50 words – including details of boat model, type, engine, fixtures/fittings, viewing/current location and owners contact details. This information should be forwarded direct to the editor (details at front of magazine).

## ELECTRIC BOATING ARTICLES

A good way to extend the aims and objectives of the Association is to encourage the writing of more articles in magazines, journals and newspapers. There is a limit to the amount of writing that can be dragged out of your committee – and we also feel the need to encourage some novel thoughts and ideas. What we are seeking is members who are new to electric boating and who might be interested in writing of their experiences. Advice and guidance can be offered on technical details – but in essence we want the articles to offer a fresh view. Contact the Editor if you have any ambitions to break into journalism.

NEW ME Name	Vicinity	Boat(s) where appropriate
J L Filbee	Reading, Berks	It'll Do
Mrs J Rowland	Bourne End, Bucks	Tadpole
Hugh Turner	Bures, Suffolk	Firefly
David Runyard	Great Gransden, Huntingdon	
Peter Fletcher	Guildford, Surrey	
Marvin Motsenbocker	Fredericksburg, USA	I.C.E. Killer
James Murcott	Craven Arms, Shropshire	
David Hawkins	Didcot, Oxon	Hispaniola
Barry Crellin	Cambridge	
C R Boyes Hilton,	Huntingdon	The Boat
Tom Fennell	St Neots, Cambs	Hyeros
L G Fidler	Earith, Huntingdon	
R M Swann	London	
Dennis Watts	Chelmsford, Essex	Barney
Mr & Mrs R J Thompson	Marlow, Bucks	SL Swift
Chris Montgomery	Twickenham	
Michael Benton	Surbiton, Surrey	Teddy B
C G Cochrane	London	
R M French	Addlestone, Surrey	
D A Ponti	Chertsey, Surrey	Mystical
ohn Grumbridge	Hayling Island, Hants	
Mr & Mrs Geoffrey Desborough	Windsor, Berks	Maia
Paul Fisher	Melksham, Wilts	
Mr & Mrs J L Waterson	Colchester, Essex	Georgie
Matthew Strange	Reading, Berks	
Colin Pearson	Reading, Berks	
anthony Gibson	Leicester	
David Morse	Shepperton, Middx	
ohn Kaye	Medmenham, Bucks	Tulip Rose

# BUSINESS NEWS

## Creative go on being .... well, creative

The latest launch to emerge from Creative Marine's Secret Boatyard is *Hamsini*, a Frolic 31 delivered at the end of May to customers on the Thames. *Hamsini* is the first Frolic 31 Classic delivered to the Thames since 1999 and is a teak build with nickel plated deck fittings.

At this years London Boat Show Simon and Roy of Creative sourced a new cooker/heater unit that has two ceramic hobs and a nifty lid that converts the cooker into a heater. This provides more than adequate heat for the saloon area on chilly summer evenings or autumn days. This cooker/heater is now fitted as standard on the *Frolic 31 Classic* and the *Frolic 36*.





Creative's latest, Hamsini leaving the Secret Boatyard for her new owners on the Thames (Photo: Julia Lawson)

Another new departure from this company is their newsletter Creative Dreams which aims to keep interested enquirers in touch with the latest building projects, together with details of any new models, designs and layouts, exhibitions being attended and trials organised. From an EBA viewpoint, this is a useful new way of spreading the word – including as it does details of forthcoming Association events, as well as asking the all – important question "Are you a member of the Electric Boat Association?"

Further information: Phone 01263 570100, Website: www.creative marine.co.uk

## French update from Kevin Desmond

Despite recent political upheavals in France, the electric boat business appears to be going from strength to strength. The French Electric Boat Association, established eight years ago, now numbers over sixty members with sixteen boatyards. The main success stories continue to be Ruban Bleu of Nantes and Saviboat of St Savinien.

#### RUBAN BLEU

Thanks to the dynamism of Jérôme Croyère, *Ruban Bleu* (= Blue Ribbon) now in its tenth year, continues to sell its range of boats: 450 *Ruban Blues* (3,6 m), 100 *Scoops* (4.6m), 150 *Aces* (3,8 m), and 20 *Zelecs* (5,5 m).

These are now in use at over 120 sites in France, but also near Barcelona, Berlin, Montreal and the Italian lakes. Croyère and colleagues continue to look to the future. While a 3 kW, 6-metre with a 12 passenger capacity is on the stocks, work being is carried out with two engineering colleges in Nantes for the development of a 5 kW electric outboard capable of powering a rowingtraining catamaran.

#### SAVIBOAT

Saviboat's Brigitte Foucaud has been equally active. Their 2.60m Port Miniature children's boats (resembling Brittany ferries, tugboats, Mississippi boats etc) have now reached a sales figure of 830 vessels, with 65 'mini-port' sites in France and also as far afloat as Tunisia, the Canaries, the Reunion, and Denmark. Some eighty of their 4.30m inboard-engined Derbys are cruising silently in France, and twelve of their 10-passenger Carimas are in service, one of them in Barcelona. Saviboat are currently working on a 3.80 metre boat called the *Ruby*. The Lot et Garonne boatyard built its first 4m90 electric *Gabarot* in 1996: to-date they have delivered 120 such craft, several to Spain and the Caribbean. They have just completed a *Fenelong*, 27 metre diesel-electric hybrid with a 75-passenger capacity for Cahors.

#### PROPELEC ELECTRIC OUTBOARD

In Spring 2001 Gilbert Devos of Roubaix announced his French electric outboard, the *Propelec*. Two models are available – the 2 kW P2000 and the 1.2 kW P1200. Both are asynchronous submerged motors, and so far this small enterprise has sold some 50 Propelecs largely to the Midi, but also in Italy.

#### RAVEL

Recently Christian Marinot of RAVEL visited Cuba with a view to that country adopting French electric boats for its vital tourist industry. Equally, Bordeaux University technicians are currently carrying out work on the propulsion chain for an electric ferryboat to ply its trade on that City's River Garonne. This will compliment Bordeaux's hi-tec electric tramway going into operation in 2003/4. Kevin is the founder editor of EB News and is based in Bordeaux, France. Further information on any of the items referred to can be obtained by contacting Kevin direct on Tel: ++33 556 68 34 12 and Email: desmond.writer@wanadoo.fr

#### **Electrics at Crick**

In a few short years the Crick Boat Show has developed into the premier show for anyone interested in buying a new canal boat, or getting any of the thousands of bolt-ons for the boat you already have – from a full heating system to a painted mop to lean on your decorated Buckby Can 'just like the old boaters

did'. And the diesels didn't get it all their own way, because Linda and Emrhys Barrell's Thames Electric Launch Company were exhibiting, extolling the virtues of electric power on the inland waterways. Afloat was an example of TELCO's new *Interboat 19* which is available in both diesel and electric power. This (sadly on this occasion, diesel) version was used to carry the official party, led by TV personality John Craven who performed the opening ceremony. Further information:

Phone: 01491 873126, Email: thameselectric@goring.co.uk, Website: www.thameselectric.com While at the show, your Editor found time to talk to Andy Edwards, Technical Director of Reading Marine, who are based at Aldermaston Wharf

on the Kennet Navigation. Andy currently has on his hands a 70ft narrow boat which – before the closure of Zetek – was originally destined

to be powered by a

fuel cell. Reading



The Interboat 19 afloat at Crick Boat Show (Photo: Tony Ellis).

Marine are now thinking of fitting a hybrid electric system and consideration is also being given to various ways of managing the boat which will overcome any uncertainties about the hybrid system among the wider boating public. Further information: **Phone: 0118 971 3666,** 

Email: ReadingMarine@compuserve.com

#### BOATS ON SHOW continued from page 11

#### STELCO YACHTTECHNIK

Rupert Latham of Stelco Yachttechnik (UK) was on hand to explain the finer points of the 29ft Sapphire electric launch *Little Susie* as reported in Business News in the Spring edition of EB News.



Rupert Latham of Stelco Yachttechnik (UK) with the 29ft Sapphire electric launch Little Susie

*Little Susie* is based at Val Wyatt's marina at Wargrave on Thames. On meeting the craft, its slim lines (29ft by around 5ft) become very obvious – almost room for a Sapphire and a canoe to pass through a narrow lock, breasted up. The Sapphire has a 3kW separately

excited electric motor with 350ah of batteries. Fitted with a canopy, side curtains, tonneau and 4 Lloyd Loom chairs, cushions and backrests, the Sapphire is available at \$34,500 (inc. VAT).

Further information: Stelco Yachttechnik (UK), PO Box 203, Salhouse, Norwich, NR13 6HF, Phone/Fax: (office) 01603 737830, (workshop) 01603 722117.

#### HENWOOD & DEAN BOAT BUILDERS

As with the Salters stand, Henwood & Dean's beautiful 25ft electric



launch *Lady Helen* suffered from relative lack of visibility. This carvel craft, built of mahogany on steambent oak, first appeared at the Thames Traditional Boat Rally in July last year (see EB News Autumn 2001).

Henwood & Dean's Lady Helen

Further information: Phone: 01491 571692, Fax: 01491 411514, Email: hdboat@globalnet.co.uk, web site: www.henwoodanddean.co.uk.

# WATERCRAFT-Tightening up loose thinking about electric boats?

Earlier this year, our friends at Watercraft magazine printed a Letter to the Editor



from Martin Corrick which asked the above question and is reprinted below. Ever vigilant on behalf of the cause, our Chairman sent the subsequent reply to Watercraft, with the aim of overcoming the misconceptions of the letter from Martin:

## Letter from Martin Corrick

Interesting to see your articles on electric power and it's worth exploring. However, rather a lot of loose thinking is going on here. For example, powering small boats with lead acid batteries is not necessarily more ecologically friendly than other means. The batteries are charged from the national grid, whose power comes from dubious sources including nuclear and there are tremendous transmission losses. Then add the losses in the charging equipment, in the batteries themselves and the motor, plus manufacture and disposal of the batteries every 3 years or so... One mustn't be fooled by the fact that the visible pollution is happening somewhere else.

One can challenge some of the claims made for power outputs, too. One horsepower is 746 watts, so you'd need around 1500 watts to get the equivalent of a 2hp outboard or 7500 watts for the 10hp that a small diesel might produce. So a claim that a 3-8kW is equivalent to 10-25hp cannot be true: 3-8kW is approximately 4-11hp – less than half that.

There's yet another issue. In my 40 year experience, auxiliary power is often needed rather suddenly and a lot of it at that. To me, a pair of oars and a frightened man still makes better sense as auxiliary power on very small boats, an outboard on middling ones and a diesel on big ones. Possibly diesel-electric power might beat the lot of them, if and when the manufacturers produce a good unit for boats.

Martin Corrick, Brimscombe, Glos.

Reply from John Hustwick

Martin Corrick's letter in Watercraft 33 made a number of points about pollution and that electric boats may not be more ecologically friendly than boats powered by other means.

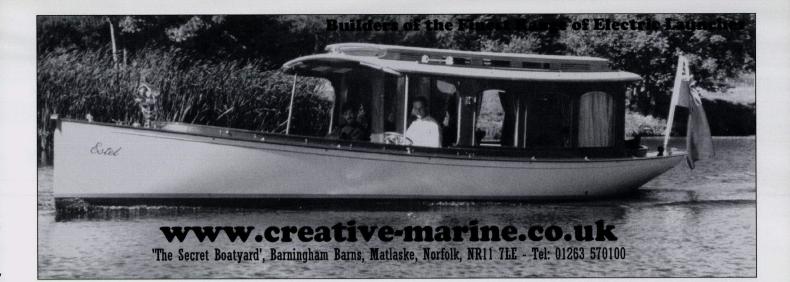
Electricity is generated at power stations where the large scale engineering makes the control of pollution much more effective and of course, as wind generation becomes more prevalent, there is even less pollution. Solar power can also be used to charge batteries and even power small electric boats. He only has to look at railways in Britain to see that they consider electricity a better way to power trains than diesel engines. The deep cycle traction batteries used in electric boats will last at least 7 to 10 years if properly looked after, not 3 years as mentioned.

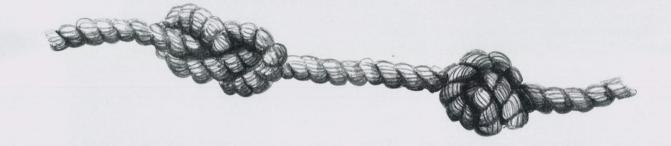
Electric boats don't pollute the water they cruise on, unlike those with internal combustion engines, especially those where the exhaust is discharged below the waterline. Also, a lot of oil can be pumped overboard from dirty bilges. Most electric boats only use a very small amount of grease in 'sealed for life' bearings on motors, not litres of oil in sumps and gearboxes. A number of our waterways are used to supply drinking water, which means chemicals and energy must be used to treat it to remove fuel and oil pollution. Compare a lock full of electric boats with a lock full of diesel powered boats to see (smell) the difference in pollution.

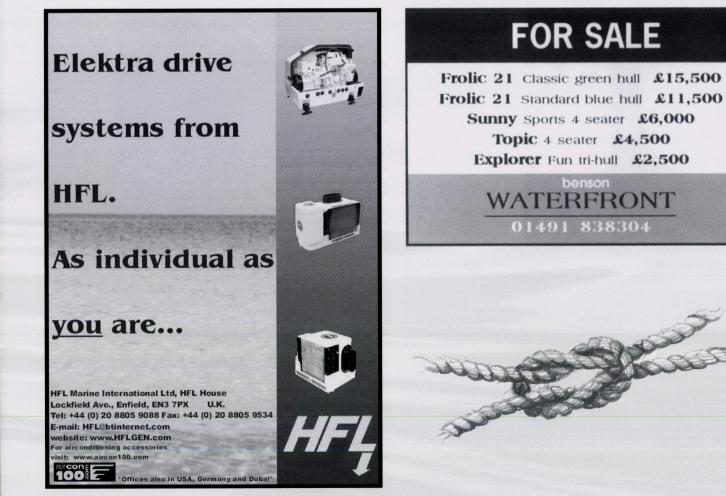
Boats used on inland waterways do not need large amounts of power to travel safely at the legal speed limit. Look at the horse drawn barges of the old days. High powered engines for boats on these waterways cause more pollution because the engines are being run at speeds and powers well below their most efficient operating conditions, which doesn't do the engines much good either. Another point to remember is that when you are stationary in an electric boat the motor is stopped and you are not using energy, unlike a petrol or diesel powered boat where the engine is still running at idling speed.

Finally, another type of pollution he doesn't mention is noise. Electric boats are very quiet and don't disturb people along the waterside, or on other boats. There is also far less disturbance caused to the wildlife in and around the waterways by electric boats, which is all part of protecting the environment.

John Hustwick Chairman, Electric Boat Association







# TECHNICAL NEWS



Moonglow

# *Moonglow* – energy and speed – Tony Fogarty reports on the vital statistics for his Broads cruiser conversion

I described the conversion of *Moonglow*, a 30 year old grp 27 foot cruiser, in the last edition of EB News. To recap, the boat is powered by a 24 volt system with Elecsol batteries, giving a nominal 810 ah via a Brusa controller and Lynch motor.

While the diesel engine was still installed I had to get an estimate of the power needed by measuring the pull (using a spring balance) when being towed at different speeds. I got a tow boat from a local hirer and the speed was checked by a Broads Authority River Inspector, using a radar gun. The results were as follows:

MPH	PULL(LBS)	WATTS
3	62	358
4	72	573
5	112	115

NOTE: readings carried out against the current

It was decided that if the system were 50% efficient, a system capable of double these figures was necessary, with 2.4kW at 5mph. As the Lynch motor was calibrated at 8kW there did not appear to be a problem.

Once the installation was complete it was discovered that the controller limited the output due to overheating when using a 1:1.2 reduction pulley gearing to the shaft. Changing the gearing to 1:1:6 would be better.

*Moonglow* is moored on the outskirts of Norwich on the River Yare which is tidal to Norwich, with a rise and fall of about 2 feet. This is complicated by whether the tide is a neap or a spring, and whether it is ebbing or flowing. Comparisons have to be carried out over a short period on the same stretch of the river. Further, the state of charge of the batteries is important. When making comparisons, it is important to start with a freshly charged bank. Wind can also add to the problem of comparison.

To compare the effects of different gearing has to be done quickly using the same tide. Unfortunately this was not fully appreciated when I did the trials. A summary of the results follows for the different gearing: 1:1.2, 1:1.4 and 1:1.6. Speed was measured with a Magellan 300 GPS and the amps were measured with a Links 10 battery monitor:

AMPS AT:			
1:1.2	1:1.4	1:1.6	
61	47	43	WITH THE CURRENT
	19.6	22.8	
72	40	30	AGAINST THE CURRENT
	72	61	
	1:1.2 61	1:1.2     1:1.4       61     47       19.6       72     40	1:1.2       1:1.4       1:1.6         61       47       43         19.6       22.8         72       40       30



These figures appear to show that in principle, the higher the gearing, the less current is required for the same speed. However, the figures are suspect – some runs being done at different times and at different tides (some on the ebb and some on the flow). I include these as a cautionary tale for anyone trying to carry out the same exercise.

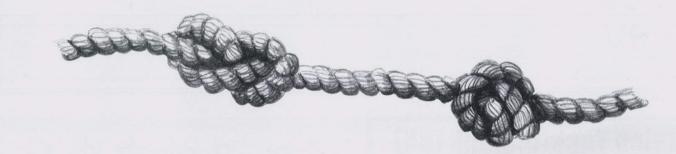
I have now reverted to the 1.4 gearing as this gives the highest maximum power for a burst of about 2-3 minutes.

Recording the power required to attain different speeds at different times has produced some interesting graphs\*. What was thrilling to discover was that theory seemed to be matched by practice. At low speeds the power required is proportional to the cube of the velocity. As the volts from the battery are constant it is sufficient to compare the amps for each speed.

In principle, any modification to the boat that will affect efficiency can be measured by this method. Ideally, trials should be carried out on a still day on a lake without any current, thus eliminating some large variables. It would be interesting to compare results for different boats with different engines – any takers?

\* I have prepared 3 graphs – the first and second for a run with and against the same ebb and the third for a separate run with the current, with y being the current in amps, x being the speed in mph and R2 the correlation .

Any member interested in obtaining copies should give me a call on 01603 502007.



# LETTERS TO THE EDITOR

## Performance figures for Solar Flair

You kindly published an article about my solar-powered catamaran *Solar Flair* last autumn and winter (volume 14, nos 3 and 4), and I thought this short update might be of interest.

After attending the delightful EBA picnic rally on the Thames in June, my wife Rike and I made use of the Environment Agency's distance markers at Bourne End to measure our boat's performance accurately. I now estimate maximum speed in strong sunshine (no battery power) and with two people aboard as 5.6 kph, which is rather less than my earlier claim. Speeds in the other 'modes' are correspondingly reduced. I would just add that 5.6 kph (3.5 mph) still seems a very respectable speed sitting so close to the water!

In recent months I have tested several standard electric outboards (Motorguide T2200, Minn Kota Endura 30 and 55) and have quite a lot of information about their efficiency when coupled directly to PV modules in strong sunshine. I have also experimented with various propellers, aiming to improve power transfer from PV to motors, and have done some preliminary work rewinding the armatures of these motors to achieve better matching.

Whilst standard outboards will never rival the excellent Lynch motors for efficiency, they are robust and easy to use and seem to offer a cheap way into 'direct solar boating'. If any of members or readers want advice or further information, they are welcome to contact me by e-mail at: palynn@ukf.net **Paul A. Lynn** 

#### Mooring and trailer wanted

Tam looking for a mooring (with charging facilities available) for my 20ft electric launch in Henley area. I am also trying to get hold of a second hand trailer in good condition.

If anyone can help, please phone me on mobile: 0797 121 8397 **John Kaye** 

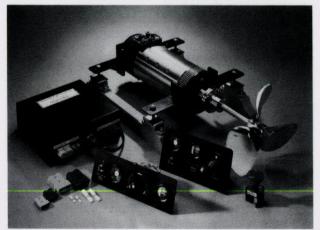
ELECTRIC BOAT ASSOCIATION SHO
-------------------------------

EBA Tie – navy blue with narrow green/white diagonal stripe	\$9.50
EBA Pennant – good quality cotton, royal blue with 'Electric Boat Association' and grebe in white	£10.00
EBA Brooch – delicate blue and white grebe edged with silver Safety pin clasp, 25mm high	\$5.50
EBA Sweatshirts and Polo Shirts	
Good quality, both in pale blue with royal blue logo	
Please state Small, Medium, Large or Extra Large – sweatshirts	£20.00
– polo shirts	\$16.00
Why not add the name of your boat for an extra	\$2.50
All prices include post and packing (UK only)	
Please send cheque for & made payable to the Electric Boat Association to:	
Barbara Penniall, 150 Wayside Green, Woodcote, Reading, RG8 0QJ	
Tel: 01491 681449 Fax: 01491 681945 email: eboat@mail.com	
Tie     Pennant     Brooch     Sweatshirt     Polo Sh       (Please indicate quantity and size required plus additional boat name as appropriate)     Polo Sh	irt
Name Tel No:	
Address	
STT.	

# Stelco Yachttechnik (UK)

Stelco silent power throughout Europe

Consultant to the marine industry for the design and installation of electric and hybrid propulsion systems for private launches, motor cruisers, canal boats and large passenger ferry boats

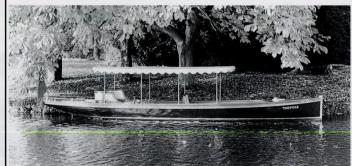


Separately Excited DC direct drive silent motors Controllers, high frequency chargers, DC generators Overhauls, upgrading of existing systems, battery testing Spare parts, complete systems from 1.5 kW to 4.0 kW always stocked.

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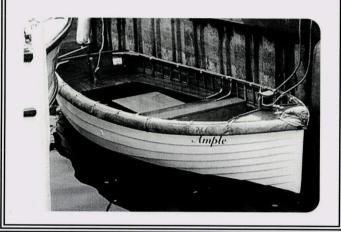
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