

The Journal of the Electric Boat Association  
Supported by the Broads Authority

[www.electric-boat-association.org.uk](http://www.electric-boat-association.org.uk)

Volume 19 Number 1 Spring 2006

# Electric Boat **NEWS**

 Broads Authority



*Electric Boats in China • Jet Set Design in the USA  
Run by the Sun in Canada*





# CLASSIFIED ADVERTISEMENTS



## FOR SALE

**13ft Exe Class** built of Douglas fir on copper fastened steamed oak frames with two laminated frames in centre. Mahogany transom and seating. Electric installation by Stelco, with 1.5kw 48v motor, 4 x 110AmpHr batteries. Two wheeled trailer. Full canvas cover. Cost over £12000 to build. Price £7000. John Murch 01202 291350 Poole, Dorset, email john\_murch@hotmail.co.uk

**Electric Skiff:** 16'3 x 4'2 black grp simulated clinker hull (moulded from original Yare rowing skiff). Pine/Jarrah planked decks and cockpit sole, mahogany inset transom. All woodwork epoxy treated both sides, high gloss varnish finish. Fitted Briggs and Stratton electric motor, 4QD controller, 4 x 12v (38 ah) batteries giving 24 volts. Side wheel steering, many brass original parts used. Complete with fully galvanised custom built trailer. £4,200. For picture see page 14. Contact Paul Morton 01603 721343 Mobile 07860 731767.

**Creative Marine Moth 31** launched in 2000, based on a 1902 design. Seats six in open at bow with two in the stern. Main cabin has seating for six around table. Separate WC with hand basin plus galley with sink and cooker. 12 hp electric engine with 24 batteries. Boat safety certificate runs until 2008. £97,500. Picture on page 21. Contact Philip Nugus 0207 734 5428

**Electric Zelec**, as new, unused. 5.5m loa, 5.25m lwl, 2.10m beam, 0.45m draft, displacement 825 kgs. CE Category D in sheltered waters. Up to 8 persons. Max design speed 5.5 knots. Range 10 hours at 4.5 knots, 6 hours at max speed. Complete with trailer and every conceivable extra. Suit new boat buyer. Cost £15,000. Will accept best offer over £9,000. Telephone Trevor Slown 01962 777077.

## WANTED:

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**Seeking low maintenance electric day boat** up to 18 ft long.

Please contact Nigel Cockburn 01628 621084 or vn@masoncockburn.plus.com

**BOAT SHARE – BOURNE END.** Considering buying Waterloo (see ad on page 14)) to moor at Marina. As past launch owner, 4 or 6 sharing seems more sensible. Per person costs say, capital c£1.5K; fees say £10-15 pm – about 60 days use each. Interested? Contact Peter Willingham 01628 850 999 07973 224 999 or ptw@acceleratedmortgages.co.uk

*Members wanting to buy or sell electric boats, motors, fittings or associated equipment are invited to submit a 50-word entry direct to the Editor (Note: No agents or brokers). The information contained in members' private advertisements is provided by the advertiser and the Editor is unable to vouch for their accuracy. It is the responsibility of prospective purchasers to satisfy themselves as to the accuracy of the information given and of the condition of goods advertised.*



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# EBA CALENDAR

## May

13th – 14th	EBA Event	Cruising weekend on River Great Ouse
13th – 14th	EBA interest	Lowestoft Boat Show
21st	EBA represented	Somerset River Festival Langport

## June

9th – 11th	EBA represented	Beale Park Thames Boat Show Pangbourne
17th	EBA Event	AGM, Cookham followed by a Thames Cruise
24th – 25th	EBA interest	WOW 2006 Lake Windermere

## July

8th – 9th	EBA represented	Evesham River Festival
9th	EBA represented	Steam and Electric Boat Day Sudbury, Suffolk
15th – 16th	EBA represented	Thames Traditional Boat Rally Henley

## August

25th - 28th	EBA represented	IWA Festival Beale Park, Pangbourne
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## September

9th – 10th	EBA Event	Norfolk Cruise weekend
30th	EBA represented	Green Boat Show, Salhouse Broad, Norfolk

## October

16th	EBA Event	Laying Up Supper
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Cover Picture: **Traditional style electric ferry on West Lake, Hangzhou, China**

Please note that dates and events may change. For up to date details, contact the Secretary or check the EBA website.

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The Electric Boat Association is on the Internet.

The World Wide Web Address is: [www.electric-boat-association.org.uk](http://www.electric-boat-association.org.uk)

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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:

Summer 1st June



**An international issue this time with reports not only from the UK but also from China, America and Canada along with advance news of two round the world voyages under solar power.**

On our home waters there's a long list of boating events taking place over the next few months, beginning with a mid-May cruising weekend on the

River Great Ouse. The EBA's September programme in Norfolk has changed, with a weekend of cruising near the beginning of the month and a new Green Boat Show at the end. EBA members in the West Country are looking for support at Langport on the River Parrett in May and for the first time the EBA will be at the Evesham River Festival in July.

If your preparations for the forthcoming season involve brushing up on your boat handling skills, you'll be interested in the experiences of our competition winner, Matt Strange. And, with or without an electric boat, you'll be very welcome at EBA events throughout the summer.

*Sylvia Rutter*

## Editor

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Something old Page 9



Something new Page 11



Something borrowed Page 12



# CATHAY ELECTRIC

**Australian EBA member Charles Fitzhardinge of Solarboat Pty is showing a range of electric boats at the China International Boat Show in Shanghai from 6th – 9th April. This is his report on the electric boating scene in China.**

Last year Solarboat Pty Ltd exhibited at the 10th China International Boat Show in Shanghai as part of an Austrade stand showcasing Australian marine industries. The show had 256 exhibitor stands and was attended by over 20,000 visitors. Although we only had poster displays, the interest in our electric boats and solar power systems was enormous.

Encouraged by this, in September we took some boats to Chun'An on the shores of the spectacular lake Qian Dao Hu (Thousand Island Lake) in Zhejiang Province, where the World Lake Tourism Forum drew several hundred participants from all around the world. We showed three American built Duffy boats, for which Solarboat are the Asian agents: the Duffy 16 Classic, the Duffy 16 Cat and the Duffy 21 Solar.

China is a wonderland for electric boats. There are over 2700 lakes larger than one square kilometre (300 with significant tourist development) and thousands of kilometres of navigable rivers and canals. These include the Grand Canal, built in the mid 8th century,



*Charles Fitzhardinge being interviewed at Qian Dao Hu*

a thousand years before the venerable Canal du Midi, and originally extending 1000 km from the rice and tea bowl of Hangzhou to the capital in Beijing. The rivers and canals carry a continual stream of barges laden with all sorts of bulk cargo. The lakes are mostly quieter, although many of these also have significant commercial traffic.

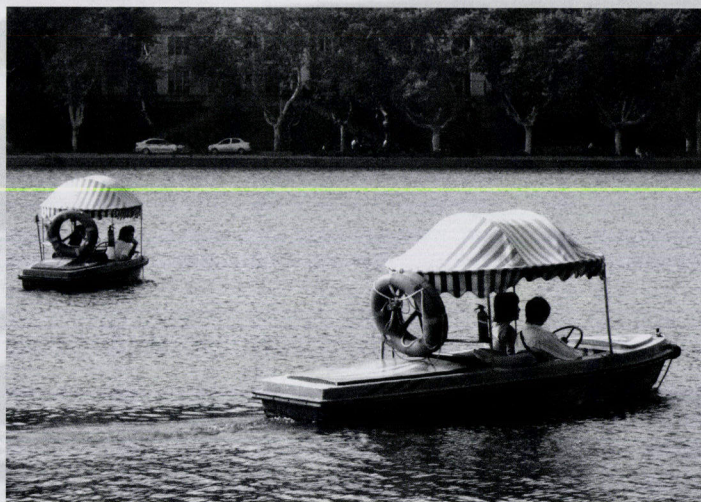
The lakes which interest us, however, are the 'tourist' lakes, ranging from the lakes in Beijing (e.g. near the Forbidden City, and at the

Summer Palace), famous beauty spots such as Hangzhou's Xi Hu (West Lake) down to small lakes found in the bigger municipal parks of many cities and holiday spots.

Most of these lakes offer boating, often including small (2-6 passenger) 'drive yourself' electric boats as well as pedal, paddle and rowing boats of various types, and traditional 'sampans' rowed or sculled by a professional boatman. The larger lakes usually also offer tour ferries, commonly providing access to islands within the lake, or just a cruise around the lake. These are usually of a traditional shape



*Hire and drive base at Hangzhou*



*Hire and drive electric boats*





*Traditional electric ferry at Hangzhou*

(although unfortunately some modernisation is resulting in a loss of character), carrying 20-60 passengers. A great number of these ferries are electric.

Inland from Shanghai, in the delta of Chang Jiang (the Yangtze River) are a number of 'small' cities (in China this means around 3-5 million inhabitants!) on or near the Grand Canal or nearby Tai Hu (Big Lake). Best known of these are Hangzhou and Suzhou. Marco Polo is alleged to have said "In Heaven there is Paradise, on Earth, Hangzhou and Suzhou" so struck was he by their beauty. Unfortunately, the intervening centuries have seen considerable development of these towns, not all of it good. Over the past two decades, both have become major centres of mainly 'hi tech' industry, and they now extend far beyond their ancient boundaries. However both cities are delightful (both are on the Grand Canal and there is an interesting overnight ferry between them – a real experience for the adventurous).

Suzhou has its famous gardens, which are well worth a visit, but for us, the jewel is Hangzhou and its centrepiece Xi Hu (West Lake). This enormous area of lake and park, surrounded by green hills, is right on the edge of the old town. If you go there, try to stay on the lake close to the old part of the city. You can walk around the lake edge to soak up the local life, try the many local restaurants, go to the tea and silk museums, but most of all try the boats.

Apart from the local authorities' 'rescue boats' all powered boats on the lake are electric – well over 200 of them. These include traditional



*Modern style 60 passenger electric tour ferry*

Chinese boats in various styles as well as less interesting conventional ferries. The ferries run at 110V DC, with two motors each. The lake speed limit is 6 knots or 10.5km/h. At this speed each motor is drawing about 40 amps, that is consuming 4.5kW. There are a number of runs available. For 50 RMB (£3.30) you can visit most of the islands on the lake, get off on each, and try a different ferry for your next leg.

Alternatively you can try a self drive boat. These are small and crude – a simple three position switch offers Off, Full Ahead, and Full Astern. Power is low, so you can't get into much trouble. The signs say you must be accompanied by a Chinese National, apparently to prevent you making off with the boat. The Chinese have to leave their identity card as security, but foreigners are loath to leave their passports – try a driving licence, or get a local to come with you if all else fails.

We have now formed a partnership with a Chinese boat builder and plan to begin building a small range of electric and solar boats in China this year. These will be sold on both the Chinese and the international markets. Our first boats will be catamaran style, with both front and side loading (the Chinese tend to load from the front, carrying on sampan practice). Our initial production will be boats of about 5 metres long, carrying 10 passengers. These will be offered in a basic 'Hire' version and as a more

luxurious 'Cruiser'. This will be followed by a larger 6.2m boat which will be offered in 'Tour boat', 'Cruiser' and 'Workboat' versions. A 30-passenger tourist ferry version will probably come after that.



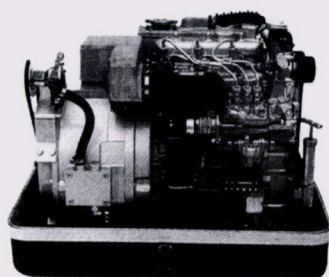
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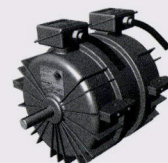


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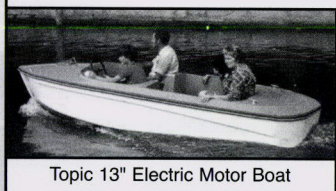
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# THE JET SET

## Kevin Desmond looks at how an aerospace approach is taking electric boating into the 21st Century.

In 1962, William Powell (Bill) Lear of the Swiss American Aviation Corporation, presented the Learjet, his innovative approach to a corporate jet aircraft. Last year, his daughter Shanda and her husband Terry Baylor presented the Lear204, their equally innovative approach to an electric day boat.

Between 1930 and 1950 Bill Lear was granted over 100 patents for aircraft radios, communications and navigation equipment – particularly the autopilot. In 1967, with the Learjet selling into the hundreds, he moved to Reno, Nevada where among his later inventions was an anti-pollution steam turbine engine, an 8-track tape player for automobiles, and the Lear Fan, an aircraft built entirely from composites.

Bill and Moya Lear's daughter, Shanda, grew up around the aircraft industry and obtained her pilot's licence when she was only 17. But Shanda's great love was singing, particularly jazz, and in this milieu she met and married Terry Baylor, lead trumpet player on the early Righteous Brothers albums and on their first tour.

Terry is also an experienced aerospace and marine pattern maker and designer. During the past forty years, he has worked with Columbia Yachts, Erickson Yachts, Arthur Marine and Willard Boat Works. He also developed the pattern and all the tooling for the 1975 Lyle-Hess designed *Nor'Sea 27* ocean cruising sailboat.

In recent years, Lear-Baylor of Garden Grove, California have also done tooling and pattern making for Boeing, NASA, Disney and Universal Studios. With this background, it is inevitable that the Lear204 should incorporate proven aerospace standards – an approach never previously seen with electric boats on either side of the Pond.

On the premise that a boat under 20 ft. long will not hold much usable weight without leaving an excessive wake, the Lear204

measures just over that length at 20 ft. 4 in. with an 8 1/2 ft. beam and 22 in. draft. It is designed to cruise at an optimum 5 mph for over ten hours on one charge. Six 8D AGM maintenance free batteries provide energy to an advanced 36-volt 5hp DC motor with solid-state microprocessor driven motor controller. To recharge the batteries, a microprocessor-controlled charging system is integrated into the boat.

Lear-Baylor Inc. has been granted a US Patent on the 5-bladed, 1,000 rpm propeller, made out of pressure cast urethane.



*The Lear204 underway*

The high-lift rudder has been specifically designed for low-speed manoeuvring. The retractable hardtop goes up and down at the push of a button, securing the boat in 45 seconds and so doing away with a time-consuming canvas cover. With the top down, and the boat height from the water at only 39 inches, it can withstand high winds and go under bridges. There is also the EZ2CY double-track window system. Add to this seats contoured to the body, wide beam

legroom, swim ladder, premium sound system, fridge-freezer and many other amenities and you get 'the second generation Lear vehicle'.

The Lear204 made its official debut early in 2005 at the Dunes in Newport Beach, California. The retractable roof model retails at US\$60,000. A fixed hardtop version is available for 11,000 dollars less.

"Our company slogan is 'the future of electric marine'" says Baylor. "We believe just as the Lear jet revolutionised the business aircraft industry, the Lear204 will redefine the current concept of electric boating."

**For more information see the website [www.learbaylor.com](http://www.learbaylor.com)**



## THAMES FACELIFT

Over the winter the non-tidal Thames has been getting its biggest ever facelift with 17 projects worth £4.3 million underway along the 135-mile stretch of river. Extra mooring facilities, new lock gates and new walkways are being installed. Sandford, Goring, Boveney and Cleeve locks will have out of hours power so that boaters won't have to hand wind when the lockkeeper is off duty. The power will be available to cover early mornings from 7 a.m., lunch hours and evenings until 10 p.m. in the summer.



Work in progress at Cleeve lock

## STOUR SKIPPERS SOUGHT

The River Stour Trust is looking for volunteers to crew their two Edwardian style electric launches. One of the boats is based at Flatford and the other at Sudbury, offering trips to members of the public on Sundays and Bank Holidays from Easter to October each year.



Rosette

Training is given to RYA Helmsman standard and new crew are always placed on duty with someone more experienced. If you want to find out more about helping to crew or acting as bankside help, please contact John Tritton on 01206 393130 for *Stour Trusty II* at Flatford or John Morris on 01473 822612 for *Rosette* at Sudbury.

## EVESHAM RIVER FESTIVAL

The EBA will be at the Evesham River Festival & Boat Rally at Workman Gardens, Waterside, Evesham over the weekend of 8th – 9th July. Around a hundred decorated boats will be taking part in boat handling competitions with an illuminated boat parade and a fireworks display in the evening. Trade and craft stands, line dancing and a pig roast will be among the attractions on the river bank.

Moorings will be available from the Friday lunchtime but these must be booked in advance. For boat entry forms, contact the Festival Secretary, Sunnymede, Abbotswood, Evesham WR11 4NS, Telephone 01386 422422.

## AWARD FOR BARTON BROAD

The Broads Authority's millennium project to improve the water quality on Barton Broad has been given a national award. The Clear Water 2000 project won the Natural Environment category and was commended in the category for Innovation in the 2006 Waterways Renaissance Awards presented on March 22nd. The awards were established four years ago by The Waterways Trust and the British Urban Regeneration Association to recognise and encourage best practice in sustainable waterway development, regeneration and education throughout the UK.

The Prince of Wales, Patron of the Waterways Trust, who wrote the foreword to the awards brochure, was able to inspect the project for himself last year when he visited Barton Broad on board the Broads Authority's solar powered passenger boat *Ra*.



The Prince of Wales and the Duchess of Cornwall on board *Ra*

## BEALE PARK THAMES BOAT SHOW

Over 170 exhibitors will be at this year's show from Friday June 9th to Sunday June 11th on a beautiful stretch of the Thames at Pangbourne in Berkshire. As well as electric boats there will be dinghies, sailing boats, narrowboats, classic craft and modern cruisers on display, both on land and in the water. Visitors will be able to get afloat with free boat trips on the river and can take the opportunity to Try-a-Boat in a variety of craft.

**Tickets, which include half price entrance to Beale Park Wildlife Park, cost £7 for adults and £2 for under 16s.**

**For advance tickets at £6 and £2 telephone 0118 976 7498.**

**For more information see [www.bealepark.co.uk](http://www.bealepark.co.uk).**





## RIVERETTES ON THE BRIDGWATER CANAL

The owners of the Maunsel Canal Centre tearooms on the Bridgewater Canal have taken delivery of their first Water Roo 'Riverette' for self-drive hire to their customers. Val and Chris Whitecombe met Water



*The Riverette*

it suitable for boating novices exploring the canal. Chris is also talking about the future conversion of their narrow boat to electric drive.

Roo owner and Riverette designer Jim Sawers, along with the EBA, at last year's Bridgewater Festival. After a demonstration they decided the boat was ideal for their requirements: the simple impeller drive can cope with the grass verge and the

manoeuvrability in confined areas makes

## IWA NATIONAL FESTIVALS

The Inland Waterways Association has announced that its 2007 National Festival & Boat Show will take place over the August Bank Holiday weekend at Hemingford Meadows opposite St Ives on the River Great Ouse in Cambridgeshire. The Festival will continue IWA's work of promoting waterway restoration in highlighting the Fens Waterways Link, a network of 240 km of navigable waterways connecting Lincoln and Ely.

This year's National Festival, celebrating the IWA's Diamond Jubilee, will be held on the Thames at Beale Park, Pangbourne from 25th to 28th August.

## GRANT FOR THE MARY GORDON

The Heritage Lottery Fund has awarded £23,600 to the Mary Gordon Trust for a series of planning and consultation programmes towards the restoration of this historic vessel. The *Mary Gordon* is one of the oldest surviving electrically powered pleasure launches



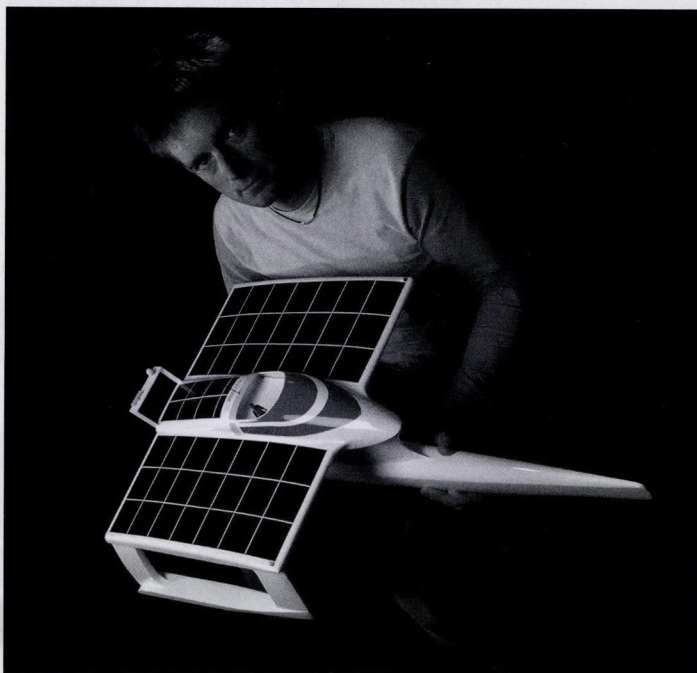
*The Mary Gordon in 1944*

in the UK and listed on the National Register of Historic Vessels. Plans are for the restored boat, fitted with an electric motor as it was when first built in 1898, to be moored at the Sea Cadets headquarters on Brayford Pool in the heart of Lincoln. It will be available for use by schools and groups for education and recreation, demonstrating the importance of the waterways in Lincoln's industrial development and the environmental benefits of electricity for propulsion.

**More information from Peter Harrold on 01673 861458**

## AROUND THE WORLD BY SOLAR POWER

At a press conference on March 16th the Swiss-French Planet Solar Association unveiled exciting plans for a round the world challenge. They are organising a solar-powered round the world tour with stopovers in 2008-9, which will take 120 days, and in 2010-11 a voyage without stopovers, powered by solar energy and hydrogen,



*A model of the round the world solar boat*

to take 80 days and follow the route of the Vendée Globe race. "We'd like to be the Phileas Fogg of the 21st century" said the project's founder Raphaël Domjan from Neuchatel, "but our project aims to reach beyond the dreams of Jules Verne and be of service to mankind and the environment in an effort to overcome conventional fossil fuel dependency".

The light but sturdy 'wavepiercer' boat for this trip, a 30 metre by 16 metre trimaran with 180 square metres of solar panels, will be built by MW-Line in Yvonand, Switzerland with support from engineering schools and research institutes.

**More information from [info@planetsolar.org](mailto:info@planetsolar.org) and the website [www.planetsolar.org](http://www.planetsolar.org)**



# THE OPTIMIST

## An optimistic story from Stephen Appleby.

Even being an optimist, it was stretching the laws of probability that, at 81, I should ever manage to have a boat of my own on the Lancaster Canal. As a member of the Lancaster Canal Trust, lobbying for the restoration of the remaindered section known as the Northern Reaches, I sometimes drive the narrow boat we run



*Vagabond Sailing Dinghy about 50 years ago*

for publicity purposes, but a boat of my own .... that was just dreaming.

Fifty years ago, a friend of my son-in-law built a Jack Holt Vagabond Dinghy. He enjoyed sailing it for many years until one day, on Lake Coniston, it was damaged, sunk, retrieved and taken home for repairs and repaint. Ten years later, when it was still on its side in his garage, he asked my son-in-law if he would like to have it to do up. He replied: "Not for me, but I know someone who would". Thus a wreck arrived at my carport in Kendal, sans mast, sans centreboard, sans rudder, sans everything. It leaked like a Haws watering can – but no cost so far!

Lacking the energy at my age, I sought advice from a local wooden boat builder. He thought it was worth repairing so I gave him a ceiling figure and told him to make a job of it. He replaced most of the bottom and strengthened the transom, removed the centreboard case and mast step and added a new hog and keel before sending it home for me to paint. Following his advice it had a total of eleven coats of yacht paint outside plus four coats of varnish inside. It looked good.

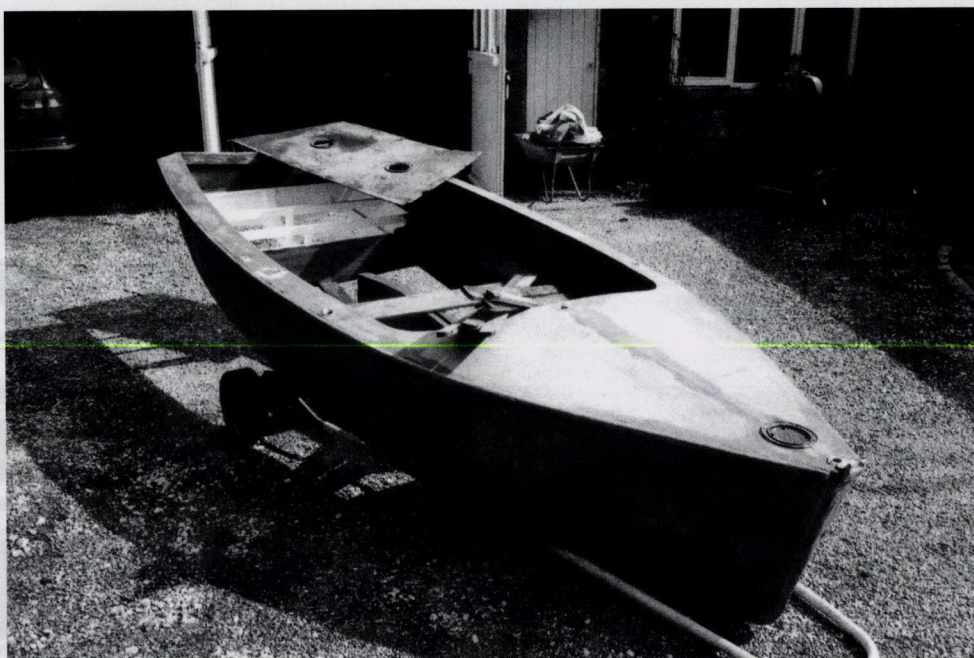
Next came the technical stuff. The canal has lots of weed growth, so I needed an outboard rather than an inboard engine to be able to lift the prop out for frequent de-weeding. As I have angina, the basic hull had to be as light as possible to lift out, using a trailer winch. Since there is no slipway it would have to slither down the grassy bank a couple of feet and up the same way, so I bought a Snipe trailer. It was

to be kept at home safe from vandals, but petrol outboards are heavy to lift in and out. Lakeland Electric Boats suggested that, although the total weight of a small electric outboard plus batteries would be heavier than a petrol unit, the motor alone and single small batteries would individually be much lighter. Ideal!

I have finished up with a Motor Guide 301b thrust motor, plus four small 12v 24Ah batteries each weighing only 22 lbs. They sit in two battery boxes under the thwart. Two are coupled in parallel to the main switch via inline plugs and another two likewise. If one pair gets low, I switch to the other pair and know I have enough juice to get home again. In the circuit is a horn and an LCD to show the state of charge. This setup gives me a range of five miles on each pair of fully charged batteries, at full power, i.e. about 3 1/2 mph. This is quite adequate on the canal where the speed limit is 4 mph and there is negligible water current. Motor and batteries, mudpole and boathook, and all the other clobber, ride home in the car boot. Soon I plan to add a canopy.

The outboard and ensign flagpole are both mounted off-centre to allow room for each on the transom, but this does not affect steering at all. A frivolous addition is a small clip-on table with four holes for glasses for the bubbly and a dish for the cucumber sandwiches. Less frivolous is the EBA pennant on the prow. The whole outfit: boat, equipment and new trailer has cost under £1800.

If you see an old chap sailing into Kendal on the yet-to-be newly restored canal, in a silent but smart old boat with 'OPTIMIST' painted on its bows, you will understand why he looks so happy!



*The Wreck*





Finishing Touches

## LETTERS

**From Tony Fogarty, Norwich**

Dear Sylvia,

Paul Lynn has introduced the idea of an index for measuring the performance of a solar-powered boat.

My experience with Moonglow, a 27' 4-berth cruiser, might be interesting. I have 300W of rigid Chinese solar panels on a frame on the mooring – much more efficient than on the boat as they can be orientated to maximum benefit. I also have a 400W Air-X wind turbine mounted on the boat (which avoids any possible problem with planning permission).

I cruise at 3.5-4mph as this is a leisurely speed and does not waste electricity. This requires an average of 40Ah (25-50) at 24v – 0.96kW, call it 1kW, on the tidal River Yare on the Broads. Paul's suggested speed of 5mph would need a lot more.

On his SBI I would rate as  $3 \times 0.3/1 = 0.9$ , at 3.5-4mph but half this at 5mph. I only have to plug in to charge after a long journey, otherwise my 4-6 hours cruising a week is more than catered for by the sun and wind – my maximum recorded energy input on a sunny windy day is 77Ah at 26v = 2kWh. The solar panels seem to give a lot more energy over a period than the turbine and are the better investment – but energy from either is deeply satisfying.

To be more realistic, a measure of the actual energy taken in by the batteries might need to be incorporated into the model. The speed of 5mph is also debatable. As the SBI depends on the capacity of the panels it can be as big as can be afforded and depends on the size of the boat if carried (inefficiently) on the boat – which makes the index of questionable value.

Best wishes

**Tony Fogarty**

**Paul Lynn comments:**

Tony's experience with solar panels and wind power is very interesting. Of course, I accept that any definition of a Solar Boat Index is bound to be to some extent arbitrary, but we have tried to come up with something which is simple, easy to understand, and reasonably logical. Tony notes, quite rightly, that the SBI value for a particular boat will depend on the speed chosen. We have selected 5 mph for rivers and lakes because this is the legal limit on the Thames, although I gather

there are various limits on the Broads. And whatever standard speed is chosen, it allows sensible comparisons of solar performance of a wide range of boats.

**From Tony Rymell, Crewkerne**

Dear Sylvia,

On the weekend of 20-21 May 2006 the River Parrett Festival will take place at Langport, Somerset. This will be a very important event for the future of boating in Somerset and could have implications for boating on currently non navigated waterways in other parts of the country.

For many years Somerset County Council, the District Councils and the Inland Waterways Association have been discussing developing recreational boating on the rivers and drains of Somerset. The will is there and probably some of the money required could be in place in the near future. The Environment Agency will be required to build a tide-excluding sluice on the river Parrett within the next 15 years, so much of the infrastructure for boating will be in place. The very sensitive nature of the wetland areas of the Somerset Levels has led to a preference for non ICE propulsion for boats on the waterways opened up by the positive policies toward boating being shown by the local authorities.

Please, EBA members, help this West Country campaign by proving to our local councillors (who will be attending in numbers) that electric boating is a practical and sustainable answer. Bring your boat for one or two days, show everyone that electric boats do exist and that my little boat is not the only one (now you know why she is called Somerset Dream). You will be made very welcome. The slipway is brand new and will be easy to use. If staying in Somerset for a night or two, help can be offered to find suitable accommodation from B&B to 4 star hotel. Langport is easy to get to from the M5 or A303 and full details will be sent on receipt of your completed free entry (download the form from the EBA website or from any of the others found by putting "river festival langport" into your search engine).

I and other EBA members in the southwest look forward to seeing you at Cockle Moor, Langport.

**Tony Rymell**

**The EBA team will be at Langport with the EBA stand on Sunday 21st.**



# GETTING THE YOUNG ON BOARD

**Young people are enthusiastic and knowledgeable about solar power but have few opportunities to experience it in action. Paul Lynn has designed and built a small catamaran which might help to fill the gap.**

It's almost 20 years since I ran a Design and Technology Club for our local Primary School in Bristol. We built a variety of solar-powered models, small-scale items using just a watt or two of photo-voltaics. I was amazed and delighted by the children's enthusiasm and awareness; even 8 year-olds seemed thoroughly switched on when it came to solar power.

But where are the opportunities for young people to turn theory into practice? In those days there were few commercial products apart from solar-powered calculators, and even now they are restricted to a few simple toys, torches and radios. Not much sign, you might think, of the booming annual world production of PV modules, which has just passed one gigawatt (one thousand million watts) and is growing at 30% per annum.

My experiences with *Solar Flair*, the 21 ft (6.4m) catamaran

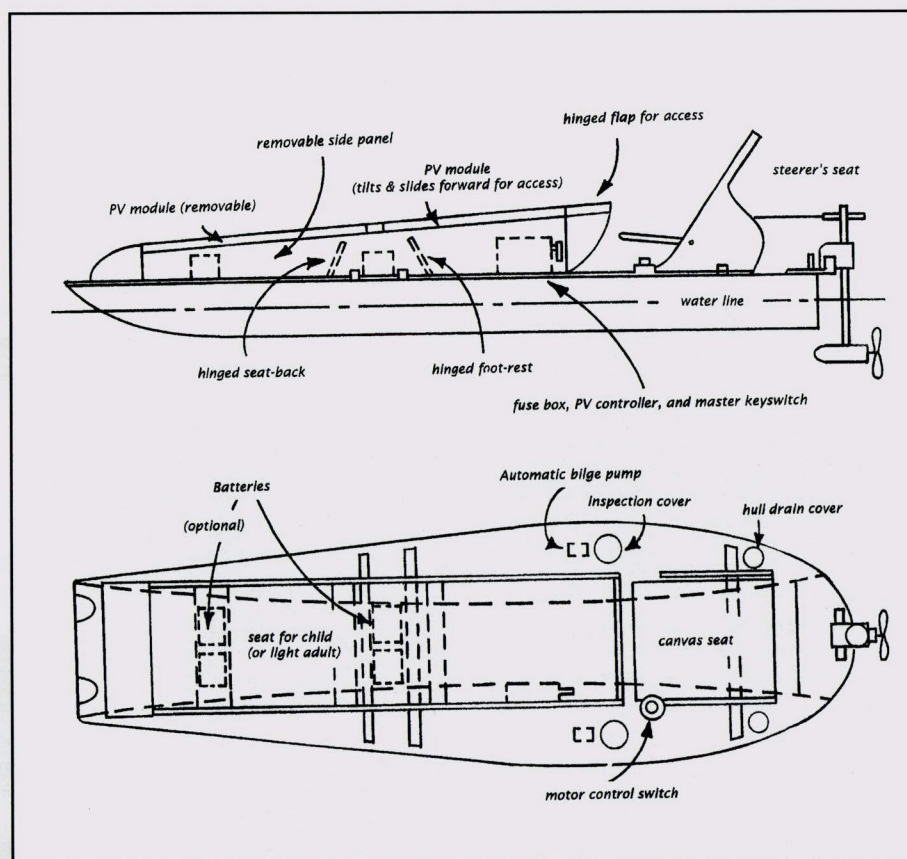
in which Ulrike and I made the first solar-powered journey along the non-tidal Thames in 2003, convinced me that solar boating need not be difficult or unduly expensive. Here, surely, is an application to appeal to young people. I decided to design a small and affordable craft aimed at this untapped, but presumably enthusiastic, market. And since everything I know about solar boating comes from that first cat of mine, I am calling the new venture *Solar Flair II*.

My first boat was experimental and she was quite hard to understand and control. *Solar Flair II* had to be smaller, simpler, and lighter, preferably car-toppable, and easily controlled by a young

crew. Fun was more important than technical sophistication. I like catamarans for their efficient hulls, stability, and easy mounting of PV modules. So I settled on a prototype made from marine ply and capable of carrying two crew plus one PV module, or alternatively (with better solar performance) one crew plus two PV modules.

The basic design is shown in the figure. The steerer sits at the

stern to avoid shading the PV modules and to allow ready access to the motor in case of weed or other problems. The boat is steered by swivelling the motor. I removed the normal control switch from the tiller handle and remounted it on the deck beside the steerer's seat. PV modules, side panels, seat, and of course batteries and motor, are all easily removable to make the boat light and car-toppable. One of the most unusual features is the shape of the catamaran floats, shown in the plan



view as heavily flared towards the stern. This gives extra buoyancy to support the steerer, and ensures good longitudinal trim with various permutations of PV modules, batteries and crew.

The batteries are small and light (11 kg each) and an extra pair is added when a second PV module is used.

Further details are as follows:

- Length overall: 13 ft 6 in (4.1m)
- Maximum beam: 3 ft 9 in (1.15m)
- PV module(s): BP Solar, each 75W peak





- PV controller: Steca 30A
- Batteries: 2 (or 4) units, each 12V, 36Ah
- Motor: Minn Kota E30
- Twin automatic bilge pumps: Rule 360
- Hull: 4mm marine ply, 6mm bottoms
- Car-top weight: 50 kg
- Launch weight: 90 kg plus batteries
- Predicted Solar Boat Index (SBI): 1.5

There are a hundred and one options and design choices in such a project. A designer is always a bit uncertain about what will happen when paper plans are transformed into a prototype. My main concerns were stability, fore-and-aft trim, and freeboard when fully loaded – not to mention the ability to move at reasonable speed. So a neighbour's swimming pool provided, in July 2005, a welcome chance for some initial tests in gentle conditions without risking public embarrassment. Fortunately calculations were confirmed and the boat behaved well – almost too well when the motor was switched to full power and the swimming pool suddenly seemed to shrink alarmingly. It certainly looks as if 5 mph (8 kph) will be

possible with a small electric outboard, and with luck 2006 will see the boat in proper use. I just need a couple of young and intrepid enthusiasts to act as crew.

The total retail cost of materials and parts including two 75W PV modules, motor, and four batteries is about £1500 – say 2200 euros. Hardly a giveaway, but not expensive either in boating terms. It's a straightforward job for anyone with woodworking and DIY skills. I like to think that plenty of small solar boats will appear fairly soon on our rivers and lakes, crewed by young people between the ages of 8 and 80.

The aim of this project is to show that a small, simple, inexpensive solar-powered craft is entirely practicable. There's nothing special or difficult about *Solar Flair II*. Re-based on a plastic catamaran hull, using up-to-date materials and manufacturing techniques, she would look like a commercially viable project. Are there any professional boatbuilders out there who would like to cause a minor sensation at the next Boat Show? And think of the fun you would give the kids!



# HANDLE WITH CARE

**The prize of a one-day boat-handling course, funded jointly by the EBA and the Bisham Abbey Sailing and Navigation School, was awarded to Matt Strange at last year's Biennial General Meeting. This is Matt's account (with photos by Ian Rutter) of his memorable day of boat handling at Bisham.**

At 9.15 on 17th August I arrived at the school with my wife Jane, who had decided she would like to do the course too as a 'paying customer'. Individual fees are £160 and you just need to bring a packed lunch and sun lotion (or waterproofs). You can do the training on your own boat but, as it would have been a bit of a squeeze in our 6ft. 8 in. electric Seahopper *Jubilee J*, we opted for the school's training boat *Green Parrot*, a 22 ft diesel cruiser. Bisham also has a narrowboat and a Dutch barge available for training but no electric choices yet, although most of what we learned applies to any vessel.

Jane, with no helm experience and only some crewing, plus the dubious benefit of my frequent pearls of nautical wisdom, was effectively learning from scratch. I was brought up on the Solent and have dabbled with most things from *Jubilee J*, small motor and hire-boats to an aircraft carrier (a story for another day). However, now living by the Thames with little formal training beyond RYA dinghy-sailing and learning to escape from a sinking helicopter, my motive was to 'forget' what I thought I knew and unlearn any bad habits. I decided to approach it as if I knew nothing – and I know I learned far more by doing so.

Our instructor Phil struck us as friendly, reassuring and confidence-inspiring – and hopefully patient! An unintended pun, since he had appeared in the television programme *Holby City* the previous evening, playing a farmer admitted to hospital as an emergency.

Jumping in at the deep end, Jane (under Phil's instruction) was asked to move the *Green Parrot* from its rather tight mooring, under power and using spring lines, and re-moor on an open pontoon. Challenging for anyone, but having never done this before, she did it perfectly. Then, just to add to the 'surreal' aspects of the day, *Stima* motored silently by – to the sound of Ian Rutter quipping that the EBA Treasurer was checking that EBA funds were being properly employed!

Ian and Sylvia were in attendance to take some notes and pictures for EB News and for a fleeting moment Jane and I felt something akin to celebrities as the camera flashed and we posed for another shot, with ropes in hand. Phil, the real superstar, took this in his stride and

started with some basic ropework tuition. Then, as the training began in earnest, we all came down to earth – or rather into the oily diesel engine compartment. Engine checks, stern glands, cooling water and so on, all checked off. Somewhat more complex than checking the battery isn't flat.

We then bade farewell to Bisham and Sylvia and Ian – whose comments about the smoke and noise from the diesel in comparison to electric power faded as we moved away from the bank. I knew that the EBA committee had influence – but it obviously goes higher than I had suspected as we motored into a beautiful, dry, sunny and warm day on the river. We really couldn't think of anywhere in the world we would rather be.

The day progressed well. Phil had an inexhaustible supply of relevant anecdotes to back up the theory and stories for every event, only matched by the lock-keepers as we passed through Hurley and Temple. His teaching style was relaxed but effective and much of the time we weren't even aware of being taught – deck work and safety aboard, for example, were largely learned 'as we went' rather than in a regimented order. We moored by a grassy bank, Phil teaching us the best way to do this, bow first at about 30 degrees, approaching in a such a way as to protect the prop and make for an easy exit should there not be enough depth or a shelving bank.

Mooring using spikes and lines was covered. Interestingly to me as a 'round-turn-and-two-half-hitches' man, Phil showed us an alternative – dropping a clove hitch over the pin, then turning a bight in the loose end,

passing the loop through, half hitch style and passing the emerging loop back over the pin to 'lock' the hitch. Pay attention at the back! Actually, simpler than it sounds, reliable and easy to undo. A very neat hitch and one I resolved to practise.

Other knot work included the ubiquitous bowline, something I've been constantly forgetting since I was a Scout. I think I can now remember the way the rabbit goes round the tree, though Phil had an alternative way of tying this too – easier for us left-handers.



Ready to board the *Green Parrot*



Jane at the helm





Another area Jane and I have often struggled with, and subsequently have an irrational phobia about, is lassoing a lock bollard from a distance without looking complete idiots. We practised this quite a lot – it was an eye opener that just a slightly different technique makes it so much easier.

We then retired to the boat and sat in the glorious sunshine with the water lapping round the hull to discuss safety issues and other matters included in the syllabus which we couldn't practise – there is a distinct lack of tunnels around Marlow, for a start. Then we each received a copy of the excellent RYA Inland Waterways Handbook and other leaflets that come as part of the course, to be perused over lunch, as the day got hotter and the sky more blue. As part of the lunchtime session, Phil even gave superb instruction on the technicalities of the Porta Potti!

After lunch, we moved away from the bank and continued tuition, including 'man overboard'. We took it in turns to recover a dropped fender (ignoring Jane's preference for a live casualty) which took a tumble at random points. I had 'reciprocal courses' and 'figures of eight' in my head from reading too many magazine articles over the years – things I knew would confuse me forever. Again Phil had an alternative approach, more direct, quicker and appropriate to the river and its current, rather than the open sea. Essentials were well covered, such as not swamping the MOB and putting the engine in neutral as you coast alongside them. Anchoring was another skill and one I had avoided over the years for fear of losing the anchor or looking a twit. Phil made it far less daunting – though I'm now more concerned about the quantity of riverbed that I will be depositing over my nice clean deck.

The day was increasingly warm and the quantity of boats was in inverse proportion to the quantity of clothing now being worn thereon. We agreed that this is a hazard to (male) helmsmen not covered on the course.

Later in the day we practised the 'Ferry Glide' – using the current to glide into a mooring. So much for bow thrusters, though my attempts would make a pole vault more useful on board. Phil even took the time to show us the manual operation of a lock; as primarily Thames boaters, this will be essential. He showed us other such skills and tips during the day, learned through his own experience – things you simply can't learn from a book.

As we returned down river toward Bisham, it was interesting to note that whereas previously I had looked upon everyone in a lock as having

more experience and expertise than myself, now, knowing the right way to do things, I noticed that these 'experts' made mistakes, often potentially dangerous. Helpful as ever, Phil took the time in Hambleden lock to teach someone a better way to hold a line round a bollard. No charge, and they were very grateful. With this in mind, a high point for me was when Jane motored the *Green Parrot* into Hurley lock like a consummate professional boatwoman. After Hurley our confidence was soaring and we entered Temple lock like a well-oiled locking machine.

We moored back at the school at 6.15, some nine hours after we had left. We were tired, as it had been a very full and active day, but we felt immensely proud of ourselves. Especially as Phil told us back in the classroom that we had passed the RYA Inland Waters Helmsman's course and issued us with pass certificates. Enough in their own right and you have to pay the RYA to get a posh version – but I suspect that we will do just that. It also made us eager to do more training in due course, which is one of the objectives of the school, to encourage people to develop their skills further.

Although the day was long, it had all passed quickly and enjoyably. Nothing had been rushed and it is a credit to Phil that he took the extra time with us, despite having a long drive home afterwards. I got the impression that this is a 'can do' attitude pervading everything the school does.

Beyond the engine checks, almost everything that is taught is applicable to electric boating. Phil mentioned he has trouble telling when an electric boat is in gear which makes tuition interesting – but as ever, he even had a tip for that!

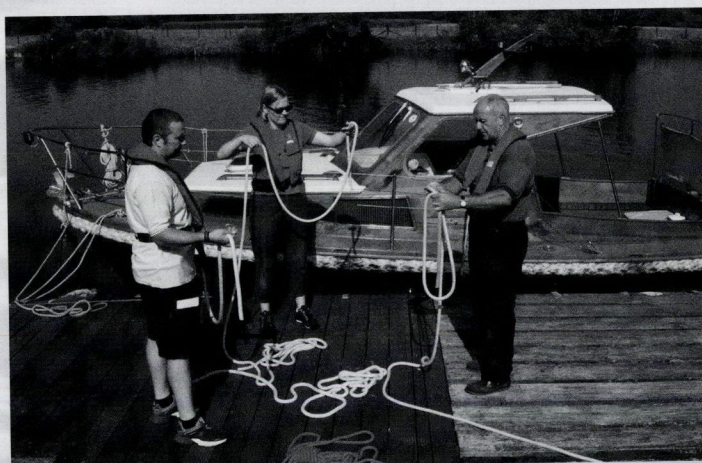
Both Jane and I would thoroughly recommend this course. As Phil said, when it comes down to the fundamental boat-handling skills, rules of the road and so on, inland boating in close confines such as on the busy Thames, is far more of a constant challenge than anything encountered on the coast or open sea. I would go as far as to say that this course is essential for boaters on any waterway to get more out of their boating.

My thanks to everyone involved, from the EBA to Roy May of Bisham Abbey Sailing School and his staff, especially Phil, for giving us the opportunity to do something I had long thought about, but had never yet achieved.

**For more information on courses see the website [www.bishamabbeyssailing.co.uk](http://www.bishamabbeyssailing.co.uk) or telephone 01628 474960**



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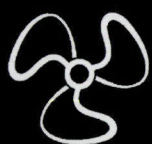
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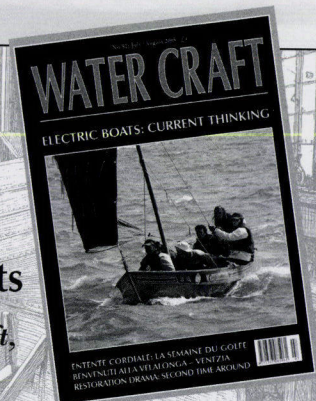
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# TECHNICAL REPORT

## ELECTRIC CONTACT

**In the seventh of a series of interviews with members, EBA Technical Officer Paul Lynn talks to Rod Birks about *Winsome*.**

**EBA:** It's good to be discussing a Norfolk Broads boat. Can you tell us something about *Winsome's* origins?

**RB:** Yes, certainly. We don't have a detailed history of *Winsome* but as far as we know the hull was built pre-1920 as a 16 ft (4.9m) length, 5 ft 11 inch (1.8m) beam Broads day boat and has had the registration B689 from time immemorial. The present superstructure was added around 1950 and for many years she was hired out by May's boatyard in Potter Heigham. In 1998 Judy and I saw her in the boatyard in a rather sorry state with a 10 HP Ford petrol engine which had been fitted in 1937. May's did her up for me and by 1999 we had a going vintage wooden boat with a vintage engine. We had some fun with it but the engine was really too powerful since on tick-over you could well be over the Broads' speed limit.

**EBA:** So she was looking like a worthwhile project waiting to happen and presumably you already had an electric conversion in mind?

**RB:** That's right. We were very attracted by the idea of silent cruising, and learned of the Broads Authority's grant scheme to encourage conversions to electric propulsion. With Tony Fogarty's help and advice we landed a substantial grant which covered about 40% of the total cost.

**EBA:** Who did the conversion for you?

**RB:** I was recommended to John Williams, who turned out to be an excellent choice. He fitted a Vetus special pack comprising motor, controller, two batteries and charger, and while he was doing the electrics he generously allowed me to put a tent up on his land and use it as an HQ while I restored the woodwork.

**EBA:** That's a very nice touch! Could you give us a few technical details?

**RB:** The motor is a brushless Vetus EP2200K rated 2.2kW at 24V. This is supplied by two 12V, 225Ah batteries connected in series, both mounted centrally in the boat, one in place of the original fuel tank near the stern, the other towards the bow.

**EBA:** So you have a nominal 225Ah at 24V. Have you made any measurements of motor current versus speed?

**RB:** Yes, I was pleasantly surprised to find that a current draw of only about 18A gives *Winsome* a speed of 5 mph (8 kph) in calm conditions.

At 24V this equates to just under 450W suggesting that the hull was rather well designed all those years ago. Actually there is a variety of speed limits on the Norfolk Broads, ranging from as little as 3 mph in some sensitive areas to 6 mph in more robust ones. So we spend quite a lot of our cruising time at less than 5 mph, with even lower power requirements.

**EBA:** That's good news. It seems that if you use your batteries to, at most,

80% of their nominal capacity (180Ah) you have about 10 hours cruising at 5 mph, and even more at lower speeds – which seems very generous.

**RB:** I agree. In fact there is plenty in hand for the type of cruising we enjoy.

**EBA:** It sounds as though *Winsome* is working out very well for you, and making her contribution to the present surge of interest in electric boating on the Broads.

**RB:** Yes, we like to think so. The restoration and conversion of an old wooden boat is always a labour of love, but I have no regrets.

**EBA:** Thank you very much for talking to us.





# NOTICEBOARD



## WELCOME TO NEW MEMBERS

Private Members	Location	Boat where notified
Colin Ives	Wigan, Lancs	Lune
Richard Havard	Newport, South Wales	Vintage carvel motor launch
Peter Hogg	Marlow, Bucks	Pussy Willow
John W Foss	Preston, Lancs	
John McManus	Chesham, Bucks	
Geoffrey F Uttmark	New York, USA	
Stephen W Borlase	Henley-on-Thames Oxon	Old Melody
Nigel Cockburn	Maidenhead, Berks	
Trevor Slowen	Winchester, Hampshire	
<b>Business Members</b>		
Puffin Marine	Berkshire	



## NEW SOLAR SECTION ON THE WEBSITE

Technical Officer Paul Lynn is compiling information on solar-powered boats for a new section on the EBA website. If you have a solar boat and haven't yet been in touch with Paul, please let him have details by email on paul.lynn@btconnect.com or tel. 01761 462089.



## BINDERS FOR EB NEWS

The EBA can now offer binders for copies of Electric Boat News. Binders are in navy blue with gold lettering and can hold five years' issues of the magazine. See the advert on page 14 for details of these as well as sweatshirts and polo shirts, ties, pennants and brooches which are also available from the shop.



## BUSINESS MEMBERS' REPRESENTATIVE

Business members are reminded that Dave Millin is their representative on the EBA Committee, which meets every two months. Dave has attended every meeting since he was appointed as Vice-Chairman – Business Members in 2004 and reports all comments and ideas sent to him. If business members have anything they would like discussed in committee they should e-mail Dave on davidmillin@fsbdial.co.uk



## E-MAIL ADDRESS LIST

EBA Secretary Barbara Penniall is compiling a list of e-mail addresses which will make it easier to contact members at short notice, as well as reducing postage costs. If you have an e-mail address which is not in the 2006 Directory of Members please send it to eboat@mail.com.



## Information sheets from the Electric Boat Association

- 1. PRODUCT GUIDE & EBA TRADE MEMBERS**  
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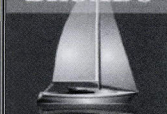
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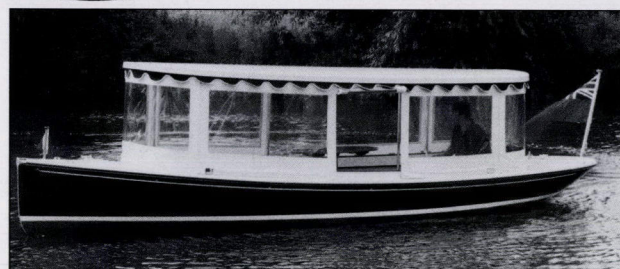
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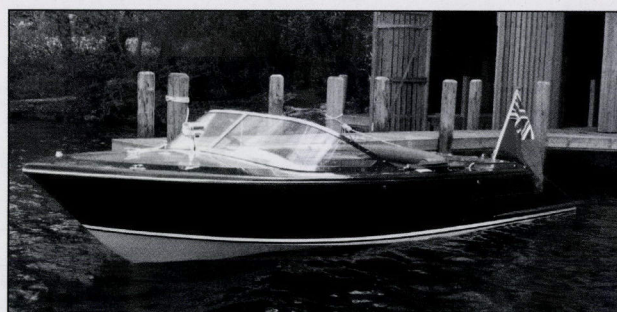


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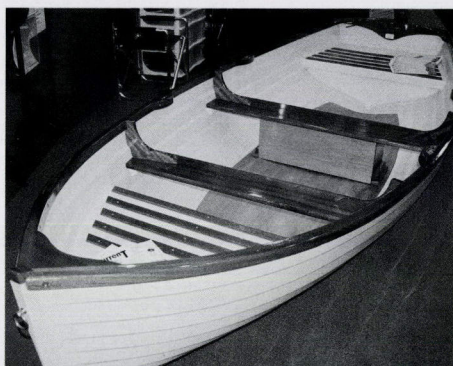
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# THE FLIGHT OF THE LOON

**Canadian EBA member Monte Gisborne describes an interesting voyage in a brand new solar-powered boat which gets its name from a North American bird rather like our grebe.**

"C'mon" I said to my family "hop in the electric vehicle because we're going on vacation!" These words seemed odd as they fell from my lips, but what was even more odd was that it didn't seem to surprise them at all. They clearly had become unfazed by my antics; numb, really, to my incessant efforts to rid ourselves of any dependence at all on oil. To go on a 6-day electric odyssey, a 'voyage of discovery', to travel around our beautiful province and to learn something about our people and ourselves seemed out of bounds even to a stalwart electric vehicle enthusiast like myself. But to bring the family on such a mission? Had I gone insane? Family vacations are well-known to consume incredible amounts of fuel... but for the next six days we were going to be in a nearly-constant state of travel and not a drop of expensive gasoline would be purchased en route.

The electric vehicle for this mission would be 'the Loon', my own design of solar-assisted electric boat which was about two years in the making. The route would be the historic Trent-Severn Waterway, an incredibly beautiful system of man-made canals and nature-made lakes which spans 240 miles through the thick of rural cottage country in southern Ontario, Canada, our province of residence.

The day was August 13th and, having only recently launched the Loon, I hadn't had as much time as I would have liked to test it out fully. However, the 20 ft pontoon boat seemed quite seaworthy (or is that 'lakeworthy'?) and a number of bugs had already been ironed out to the point that the boat had completed a three and a half hour run without incident. All systems seemed to go and, with very little apprehension, my wife Denise and daughter Deanna boarded the vessel; if there was any doubt in their minds, they kept it entirely hidden from me. After all, they have seen my electric vehicles succeed and they had witnessed the 'back-to-the-drawingboard' moments as well, only this time they had a more personal investment in the outcome.

We live on the shores of Lake Simcoe which was the departure point of this great trek, specifically Bayshore Village, near Orillia, Ontario. Lake Simcoe is a rather large lake, known for kicking up swells easily and with little notice. As we cast our lines on this beautiful summer day, Simcoe seemed to welcome our vessel's passage and about two hours later we

were entering the Trent Canal near the village of Gamebridge. The Trent System presents ever-changing scenery, ranging from simple pastoral settings through cottage country to urban backdrops. We had previously arranged our first night's stay at Sunset Cove Marina, and we arrived there late in the afternoon, having successfully completed our first and shortest leg of approximately 15 miles. The canal system includes many locks, many of which are over 100 years old and manually operated. To complete this first leg, we had to pass through five individual locks, some separated by as little as a mile and each taking about half an hour –

time spent in the sun with the solar panels working all the while to try to catch up with the discharge rate. At peak, my solar array can put out 738 watts, which equates to about 15 amps of charge. What I found most interesting is that, while travelling during periods of direct, intense sunlight, the 15 amps subtracts off the 35 amp, 5-knot cruising rate, meaning that the East Penn deep-cycle lead-acid batteries only have to supply 20 amps. Understanding the effect that Peukert observed which states that capacity is inversely proportional to draw, reducing my battery's draw from 35 to 25 amps increases the boat's range by *more* than 40% –

perhaps the most important benefit of all to having the solar panels.

The crowd that ensued when we docked at Sunset Cove were quite amazed by the sight before them. The Loon is a striking craft with lots of shiny aluminium and quite unlike any other boat plying these waters. The usual questions were asked: "How far can you travel?" (answer: 30 miles on a cloudy day, more on a sunny day) "How fast can it go?" (answer: 5 knots cruising, 8 knots full speed) and of course "How cheap is it to run?" (answer: free if you're only travelling about 10 miles per sunny day, otherwise 3.5 cents per mile if all the energy has to come from the utility grid). At first the Loon appeared to come off as something of a novelty, i.e. not to be taken seriously, stacked against the preponderance of gas-powered boats. What drove it all home for a lot of boaters (myself included) is that we would bump into the same crowd everywhere we went for the duration of our trip, making the point that my boat could do *everything* their boat was expected to, the only difference being that it



*Monte Gisborne with wife Denise and daughter Deanna about to set off on the Loon*





takes us a little longer. But isn't spending time on the water the purpose of boating? Many a dockside chat centred on just this point.

Day two: Sunset Cove Marina and Rosedale Marina are separated by about 25 miles of waterway without another marina between them.

I knew from the outset that this was going to be a challenge, especially since we awoke to find that our battery charger had cut out during the night due to overheating and the realisation that the battery's state of charge was somewhere between half and three-quarters. This is probably every Ever's worst feeling – the doubt that exists that he or she (or in my case, one he and two shes) has the poop to make it through the day. Falling short meant subjecting my family to the indignity of begging for a tow and (even worse!) electricity from an unconvinced public. What ignominy lay ahead for the Gisbornes?

The boat's batteries were nearly taxed to the limit about four miles from the Rosedale Marina. To make the best of the situation, the Loon had to be throttled back to about two or three knots to get the battery volts up so that the low-voltage disconnect of the Briggs and Stratton brushless DC outboard could be curtailed. The reliable 3-horsepower, 150-pound thrust motor (roughly equivalent to a 10 horsepower gas motor) proved to be an excellent workhorse, with high electrical efficiency and a kort nozzle to quietly make the most of every available electron. In Rosedale, a fan was purchased which put an end to the battery charger's overheating situation and we slept well knowing that our problems were properly dealt with.

The next day's 17-mile leg to our end terminus, Bobcaygeon, was a relaxing one. The weather was holding out nicely and, even if it did start to rain, the six solar panels overhead would provide excellent shelter. Time was spent the following morning filming a segment for the local TV news programme and after that was wrapped up we headed back home, reversing the route that we had just taken.

There was little fanfare as the Loon approached its familiar berth at slip 43 in Bayshore Village Marina. About the only sounds that could be

heard were the whoops and yippees that we made ourselves having had a less-than-fully-enjoyable return trip on Lake Simcoe due to the 10+-knot winds we encountered. Safe and sound at our home port, the experience fresh in our minds, we seemed a little wiser,

empowered with the knowledge that family fun doesn't have to involve the burning of fossil fuels. We didn't think that our 8-year-old daughter would have to struggle to put pen to paper when asked upon her return to school: "What did you do that was different this summer?" If this experience has taught us one thing only, it is that water and electricity (and family fun) do mix!

So where to from here?

So convinced am I that the world would benefit from a boat such as the Loon that I have decided to produce more of them. This refined version sells for £15,000 and is a

truly remarkable boat, highly suited to waterway travel. For delivery for spring 2006, I will make a limited run of ten available to the marketplace, built by my start-up company, the Tamarack Lake Electric Boat Company, using my proprietary electronics and the tried-and-proven components

as used on the Loon. We also have future plans for the original Loon, such as travelling the Rideau Canal, other segments of the Trent-Severn Waterway and maybe even an American waterway or two. One day I'd love to join my U.K. friends on a cruise...

Tamarack Lake have also secured the rights to distribute the efficient and powerful Briggs and Stratton 3 hp electric outboard, the same motor that propels the Loon. It is very reliable and comes with a 2-year warranty. Furthermore, the company has developed another boat, based on a 12-foot

inflatable, which also uses the same electric outboard motor and sells as the 'Heron' for about £5,500. Distributors are presently sought for all products produced and sold by my company.

**For more information, contact: Monte Gisborne, B.Tech.  
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*The Loon entering Rosedale Marina*



*At Sunset Cove Marina on the return trip*



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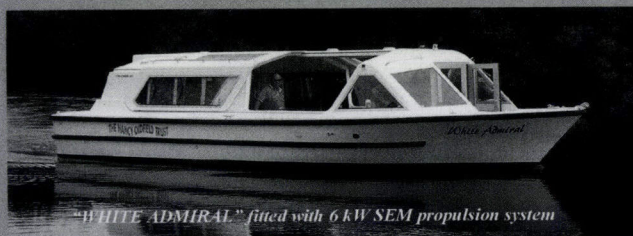
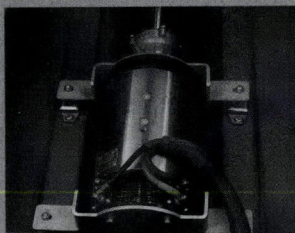
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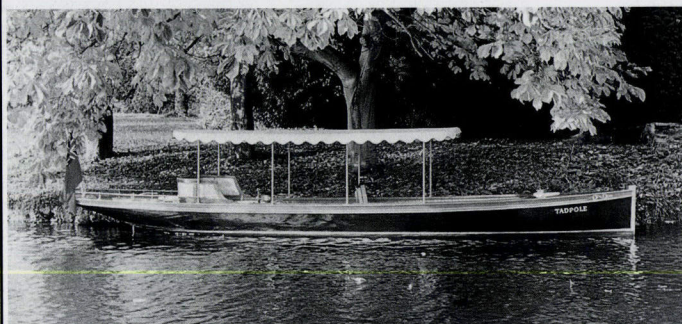
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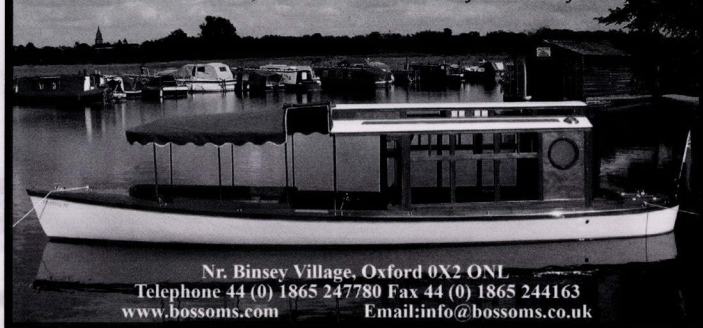


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