

The Journal of the Electric Boat Association
Volume 23 Number 2 Summer 2010

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Electric Boat **NEWS**



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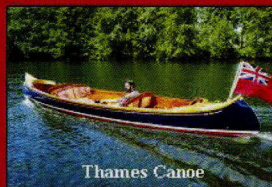
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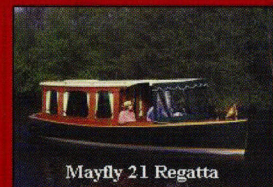
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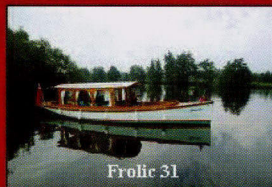
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EBA Calendar

July

- 17th – 18th EBA represented Thames Traditional Boat Rally
Henley-on-Thames,
Oxfordshire
- 25th EBA Event Thames Cruise
Benson, Oxfordshire

August

- 28th – 30th EBA interest Inland Waterways Festival
and Boat Show
Beale Park, Berkshire
- 30th EBA interest Steam, Electric & Boating
Festival
Sudbury, Suffolk

September

- 25th EBA Event Norfolk Cruise and Dinner
- 26th EBA represented Green Boat Show
Salhouse Broad, Norfolk

Please note that events and dates may change, while some are still being planned. For more details of the above, or notice of other events, contact the Secretary or check the websites.

Cover Picture: Eddy Current at the Beale Park Boat Show
Photo: Ian Rutter
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It was nice to meet EBA members old and new at the Annual General Meeting at Bradford-on-Avon in June, although we wish more had attended. A full report of the proceedings, including sunshine cruising on the beautiful Kennet and Avon Canal, will be in the next magazine. The EBA committee expressed particular thanks to the business members who have written

recently offering appreciation for the work we do on their behalf. After the loss of our sponsorship from the Broads Authority we are very grateful to those who have sent contributions to EBA funds.

One point raised at the AGM was that members don't always know what the EBA committee does – for instance that we regularly attend the Parliamentary Waterways Group and other bodies representing boating interests. Which leads to the question: What do members want from their Association? Are you happy with the magazine and website, and the balance of meetings, cruises and attendance at shows? I'd be pleased to have letters on this subject for the next magazine and all the committee members, whose details are on page 20, would welcome feedback from both private and business members. With three events on the Thames coming up, followed by Norfolk in September we're looking forward to meeting more members before the end of the boating season.

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Details of the other EBA Committee Members are on page 20.

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:

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The Great Ouse Cruise

The EBA fleet moored up at St Ives

NICK GOLDRING

EBA Secretary Barbara Penniall describes a great cruising weekend on the River Great Ouse.

The weekend had been forecast 'hot and sunny' and they were nearly right but 'scorching' would have been better. Yes, we had umbrellas up and this year it was not for rain but to offer shade. A very cheerful crowd gathered at Jones' Boatyard, St Ives, Cambridgeshire to launch a variety of boats. Mick Jones had offered their launching and trailer parking facilities in support of our cruise to promote electric boating and the Environment Agency had very kindly waived the licence fee. Both these areas of co-operation enabled us to encourage boaters to come from other parts of the country to join us and a flotilla of silent electric craft drew a great deal of attention over the weekend.

Roger and Julia Woodhouse had travelled from Sheffield with *Swan* their new Finnish skiff with a Torqeedo outboard and Nick and Yvonne, Barry and Val Goldring arrived from Berkshire with *Silent Adventure* a 16ft open launch and *Silent Explorer* a 19ft canoe. Bill and Veronica Selby (thank you again Veronica

for organising the cruise as our new Events Co-ordinator) had come from Hampshire with *Serena* their classic 110 year old 18ft launch converted from steam to electric propulsion and they were joined on the slipway by John Hustwick who had trailed his 18ft open launch *Rhapsody* from Essex. Jack Street brought his little Seahopper *Grab a Chance* from Surrey, Richard Hyde from Huntingdon launched his 14ft day boat *Oscar* and David and Diana Mole came from Northamptonshire with *Matilda*. Closer to home, Julia Briars-Filby cruised in with *Pilgrim Minor* her 16ft Interboat and Les and Elaine joined us in *Annie* their 27ft solar powered launch.

We had plenty of passengers, including Rolf Schmidt who had travelled from Scotland where he operates *New Era*, the solar powered trip boat on the Caledonian Canal near Inverness. Tony and Janet Dunning had travelled from Cumbria. Jeff Hide and his wife Jac have a boat moored at the Marina but were considering becoming electric boaters, so this was an ideal opportunity for them to experience electric boating first hand. They were very welcome to join us, have now become members of the Association and we hope will soon have an electric boat for future EBA cruises.

So with much laughter and lashings of sun cream we set off downstream and almost immediately entered St Ives lock. That was an impressive sight as ten electric boats and a couple of stray cruisers completely filled the lock, drawing the attention we now take for granted. This is a guillotine lock and in the past it has been an unwelcome drenching for those first out under the dripping gate, but on this day it was a welcome cool shower. From there we cruised towards Holywell, an area famous for its reeds and rushes which are gathered each July and August by the same family who have had the harvesting rights for many generations. After drying and sorting, the reeds are used for thatching and matting, and also chair seats. The village itself is named after the 'Holy Well' which can be found at the bottom of the hill below the church and is credited with having healing properties.

We cruised on in perfect weather, sometimes easing around corners on this particularly beautiful stretch of river, sliding under trees to gain a few minutes' shade and accompanied by a welcome gentle breeze. We passed the Ferry Boat Inn and I started to explain that the spirit of a young girl who hanged herself haunted this pub and was reputed to walk

from her grave under a slab in the bar to her place of death. However, I remembered that four of our company were booked into B&B there, so reflected it might not be the best time to recount that tale!

Our lunch stop was at the Pike and Eel Inn, boats moored and very welcome and delicious refreshments enjoyed by our relaxed and cheerful group. We bade the Hydes and *Oscar* adieu at this stop as they only had time to join us for the morning cruise and the remaining nine boats cast off to move gently on downstream. Almost immediately we crossed the Greenwich Meridian and cruised through to Brownhill Stauch. This is an unmanned guillotine lock and as we filled the lock we had lots of laughter and help operating the electric gates. Again, the sight of a lock completely filled with electric boats drew lots of attention and we spent our time answering questions and providing information about our environmentally friendly boating.

The Stauch marks the limit of the tidal stretch and the river opens up into low lying flood plains. We cruised on through fenlands towards Earith and on this stretch there is a good view of Bluntisham Rectory, former home of the detective story writer Dorothy L Sayers and the site of the Old Slepe Hall of St Ives, where Oliver Cromwell is reputed to have lived in 1631.

Our happy crews, nicely toasted by this time, drew into Westview Marina where we were warmly welcomed by Les and Elaine Fidler. Arrangements were made to retrieve cars left at Jones Boatyard and members regrouped after booking into their overnight accommodation. A wonderful spread had been organised by Elaine and Julia, and the time was spent eating, drinking and chatting during a perfect summer's evening.

Sunday dawned equally sunny and everyone met again for an early start. Boats were uncovered, although some had been left open as the weather was so good, and in excellent spirits we set off

again towards St Ives. Although we were retracing our route from the previous day, the morning light threw a new aspect on the scenery and of course we encountered different craft on the river and in the lock.

Refreshments were passed from boat to boat and as usual we were a cheerful procession drawing envious glances from anyone encountered on the way. Fortunately, Chris and Jo Fairman also managed to join us for part of the cruise with their skiff *Great Grebe*, and again we were a flotilla of ten electric boats.

Heading through St Ives lock, we decided that in view of the exceptional weather, the proposed mooring for lunch on a stretch of meadowland beyond the town might be rather crowded, but Julia offered us her mooring and

garden, for which we were very grateful, as for once we were looking for shade over lunch. Food was again produced, courtesy of Elaine and Julia and everyone tucked in with renewed appetites from a morning spent on a beautiful and unspoilt river amongst good friends.

Another short trip further upstream was undertaken by some of the boats and this stretch, towards Hemingford Grey opens yet another very different vista from the river. The boats cruised past Ingle Holt Island, but then decided to turn back towards St Ives, with its distinctive bridge chapel, one of only three in the country.

Trailers and cars were retrieved, boats recovered at Jones', and we reluctantly parted company, agreeing that this had been a brilliant weekend – the warmth of the sunshine only surpassed by the warmth of the companionship enjoyed by everyone present. Thank you to everyone who made it such an excellent cruising weekend.



A lockful of electric boats

NICK GOLDRING



Rhapsody, Silent Adventure and Swan

NICK GOLDRING



Sunshades on Serena

PETER BRENNAN



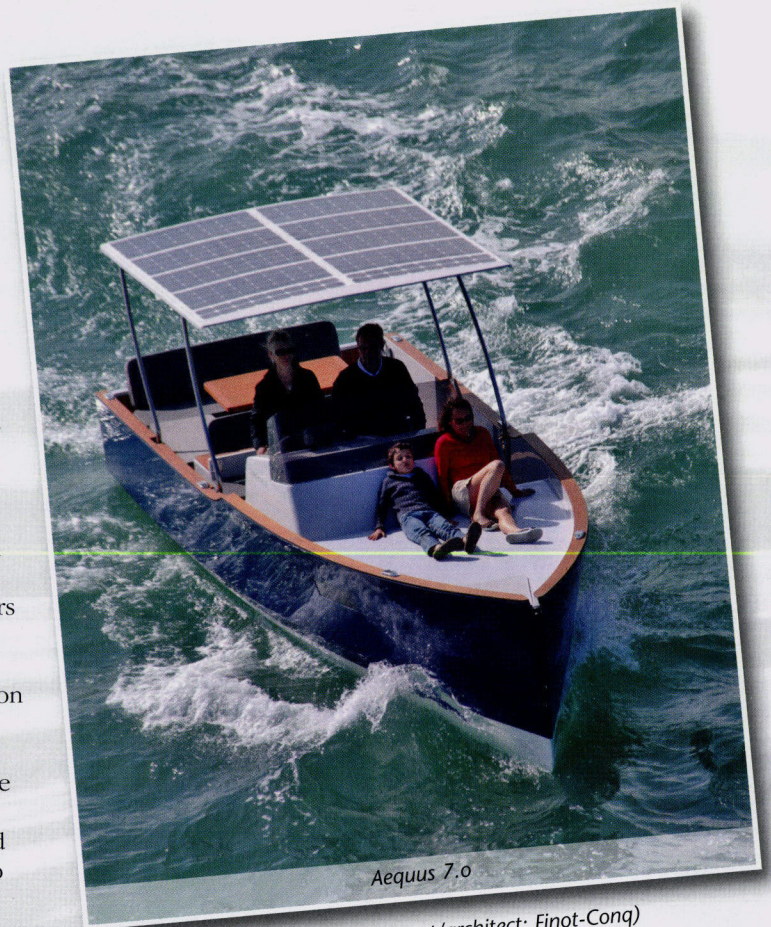
Cadhla in Dublin

New Electric Boats

Interesting new electric boats are appearing all over the world. Kevin Desmond reports on projects in Ireland, France, Canada and the USA.

In March this year the 60ft *Cadhla* (Gaelic for 'beautiful') arrived in the port of Dublin. She would have come earlier, had she not been blocked for three months in the Dutch ice in Sneek, where she was built to plans by Sam Field Corbett, owner of City Canal Cruises Ltd of Dublin.

A replica of a 1920s Guinness Grand Canal supply barge, *Cadhla* can carry 48 passengers on two decks and will provide tours from Charlemont Luas station to the Grand Canal Theatre, using the waterway built to serve the famous brewery. With a full kitchen and bar, the barge will also offer dinner cruises.



Aequus 7.0

(Photo: Bruno Hervouet/architect: Finot-Conq)



Zephyr 570

to run the electric motor or recharge the AGM batteries. With a composite fibreglass hull the Aequus 7.0 includes a twin-berth cabin, electric toilet and wash basin and a fully equipped galley with fridge, sink, stove and table.

Also in France is the new Zephyr 570 trimaran (pictured in colour on the inside front cover) which can cruise at seven to eight knots for eight to ten hours. The boat is

powered by two 1.8kW Torqeedo Cruise e-outboards fed by NiCad batteries, which in turn are recharged by a 300 watt wind turbine and solar panels.

The Zephyr 570 is the fruit of two years R&D by Naviwatt, a French design team, headed by naval architect Dr. Yannick Wiveleau and based at Logeo port in Brittany's Golfe de Morbihan. Following

its launch at the Atlantic Multihull Show this April, Naviwatt have received several orders for this innovative little vessel.

In Canada Infynite Marine of West Kelowna, British Columbia commissioned naval architect Neil Gilbert to design a low-wash, wide-beamed twin-hull around, among

other engines, the Torqeedo range of electric outboards. They then fitted it out with features such as 360° joystick steering and telescopic ladder. Their range of electric boats

comprises the i2, a 9ft tender weighing just 85lbs, the i3, a 12ft utility boat which can take three adults, and the i4, a 14ft day cruiser with a top speed of 12 mph which can cruise at lower speed for ten hours. It seats five adults with lots of storage but the strong and light laminate construction

The operators plan to run the service to the Guinness Storehouse in the future when more of the canal is dredged.

Ireland's first serious electric boat cost almost €1m to build, including €100,000 worth of batteries. A diesel-powered barge would emit 170 tonnes of carbon dioxide annually, but *Cadbla* will produce just 22 tonnes.



Infynite i4

City Canal Cruises received financial support for the project from Dublin City Enterprise Board, which has taken shares in the boat, as well as help from Failte Ireland and Waterways Ireland.

In France the new solar-electric Aequus 7.0 family dayboat, can be taken out to sea within a range of six nautical miles from the coast. The man behind it is former French yacht racing champion Bruno Hervouet. Having tested out electric propulsion on *Ma-Hill*, his 1930s CG Pettersson family cruiser, Hervouet commissioned naval architects Jean-Marie Finot and Pascal Conq (the pair behind four out of five winning yachts in the latest Vendée Globe yacht race) to design a boat capable of carrying seven crew offshore at 5 knots on 2kW. A six square metre solar panel roof provides the power

means that it is easy to tow behind a conventional car.

The USA now has its first multi-hulled hybrid ferryboat. Since December 2008, the *Hornblower Hybrid* has carried almost 7,000 passengers to and from the legendary former prison Alcatraz on Angel Island. Having purchased the 64ft former commercial diving craft in early 2008, Alcatraz Cruises took it to Bayside Boatworks in Sausalito, California where engineers Cameron Clark and Keir Moorhead replaced nearly 90% of its machinery and furnishings to the tune of \$4 million. A Marathon 320kW generator, a 400hp electric motor, 10ft wind turbines and 1.2kW photovoltaic solar panels now charge a 380V battery pack that supplements the boat's clean diesel generator.

Energy usage on the boat is monitored by a system that selects the most efficient power source for specific boating conditions or circumstances. The vessel can operate on propulsion batteries alone for over an hour providing a silent cruise around the bay. When the boat is idling at the dock, the diesel generator shuts off and the electric motors run off energy stored in the batteries. That cuts fuel consumption to between five and seven gallons an hour instead of the 25 gallons per hour which is typical of other ferries of the same size. Passengers are even offered the chance to keep fit and to contribute to the ferry's energy by pedalling exercycles! For more eco-friendliness the boat features recycled carpeting, LED lighting and even counter tops made of recycled vodka bottles.

Alcatraz Cruises is currently developing the USA's first hydrogen-powered vessel for service in New York. It has yet to be formally named and should be completed in early 2011 when it will ferry tourists to and from the Statue of Liberty and Ellis Island.



Hornblower Hybrid

New Parliament and the Waterways

The new Waterways Minister is Richard Benyon, MP for Newbury, who previously served as Shadow Minister for the Environment, Fisheries and Wildlife. Mr. Benyon is a farmer and landowner on the Kennet and a Vice President of the Kennet and Avon Canal Trust.

The new Secretary of State for the Environment, Food and Rural Affairs is Caroline Spelman, whose Meriden constituency includes part of the Stratford upon Avon Canal and the Grand Union Canal.

Barbara Penniall has written to both Ministers on the EBA's behalf, and also to Britain's first Green Party MP Caroline Lucas.

On 15th June the Inland Waterways Association held a reception for MPs elected to the new parliament to stress the importance of the inland waterways and the problems to be overcome if they are to continue to flourish. Hosted by the Rt Hon Alun Michael MP, a former Waterways Minister, it was attended by 24 MPs representing all the major political parties, with many others asking for a briefing at a later date. IWA representatives from around the country were able to discuss with MPs the benefits which specific waterways could bring to their constituencies.



Richard Benyon

Boating and Camping

For anyone planning a long trip on the Thames in a small boat, a new book, 'Tiny Campsites' recommends three Environment Agency locks as good places to pitch a tent. Cookham Lock is singled out for particular praise, achieving the highest ratings for both quality and welcome. Author Dixie Wills found the facilities 'pleasingly unsophisticated' and noted the choices of pitch location, the abundance of wildlife and the provision of necessities such as toilets, showers, water tap and refreshment kiosk. Two other EA lock sites are featured in the book – Rushey and Pinkhill in Oxfordshire.

The book is from Punk Publishing and the ISBN number is 978-1-90688-906-7. It is available from bookshops or via the website www.tinycampsites.co.uk. More information on lock facilities is on the EA's website www.visitthames.co.uk

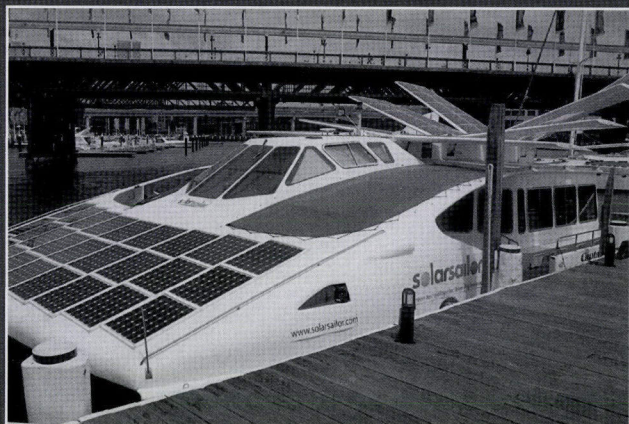
Electric Boat In Japan

EBA member Rolf Schmidt has sent news of an interesting electric boat he spotted in Japan earlier this year, taking visitors around the moat of Hikone Castle, 25 miles north-east of Kyoto. Powered by two electric outboards, the vessel is a replica of a 'yakata-bune', a pleasure boat from the Edo era (1603-1867) which originally would have been punted with a pole. Passengers sit inside in traditional Japanese style, not on seats but on mats on the floor. Rolf says that the castle and the adjacent Genkyu-en garden are the main visitor attractions of the town of Hikone. The castle moat is about one and a half miles long and connects via a canal with Lake Biwa, the largest fresh-water lake in Japan.





SolarSailor



EBA member John Bridge took this photograph of the SolarSailor ferry at Darling Harbour in Sydney. Launched in 2000, the ferry makes use of solar and wind power with solar wings covered in high efficiency flexicell solar panels. In strong winds the wings can be folded down over the back deck, reducing windage while still collecting solar energy.

The SolarSailor concept has now been introduced to China, as Kevin Desmond reports. Four 24 metre solar hybrid catamaran ferries, combining diesel engines and electric motors, are being built by a local shipyard for use in Hong Kong harbour and the largest SolarSailor built has just been launched in Shanghai. The 32 metre *Suntech Guosheng*, pictured on the inside front cover, has space for 186 passengers and is currently being used as a VIP boat, carrying visitors to the Shanghai World Expo up and down the Huangpu River.

GREEN DEVELOPMENTS ON THE BROADS

The Broads Authority has been testing a new non-toxic, silicone based anti-fouling paint, not yet on the market. The environmentally friendly 'revised' Seajet Speed hull coating was applied last winter to one of its navigation ranger's launches by EBA business member Goodchild Marine. After a year patrolling Breydon Water the launch was lifted out to reveal a clean hull, free of algae. The system, which has to be professionally applied, has a slippery silicone surface which means that any fouling finds it hard to anchor and is easily dislodged when the boat moves through the water.

The Authority has been given a total of 500,000 euros from the European Regional Development Fund to promote 'green' tourism on the Broads. The money will be used to fund a variety of projects including increasing the number of electric charging points on the waterways and a new website - www.enjoythebroads.com.

Electric Ride on the BBC

On 19th June journalist and producer Richard Scrase set out with presenter Peter Curran to drive an electric car on a 4,500 mile journey across Europe, visiting over a dozen countries from Norway to Portugal. The team were planning to return in time to join the Brighton to London Eco-Rally on 7th July and have been providing regular updates for Radio 4 on electric car technology and the infrastructure required for such a long journey. Richard has promised to let us know about any electric boats they encounter on their travels.

For more details of the journey see www.bbc.co.uk/radio4/features/electric-ride/map

PlanetSolar Visits Hamburg

The world's largest solar powered boat, featured in the last issue of EB News, was launched on 31st March. A 110 metre crane was needed to lift the 85 ton catamaran out of its vast hangar at Knierim Yachtbau in Kiel and lower it into the water. Since then the boat has been undertaking sea trials in the Baltic and in May it was the guest of honour in Hamburg for the port's birthday celebrations, taking part in parades and attracting a huge crowd of spectators.

Testing will continue over the summer to prepare the boat for its round-the-world voyage in 2011, a 50,000 kilometre journey following an east to west equatorial route to take advantage of as much sunshine as possible.

For more information and pictures see the website www.planetsolar.org



PlanetSolar in Hamburg

A New Show at Windsor



Otter 26 Classic

A new event in the calendar launched the boating season on the Thames this spring. Held alongside the river at Windsor Race Course, the British Leisure Show included cars, bikes, caravans and holiday homes as well as boats of all types, including electric ones. Report by Sylvia Rutter with pictures from Ian Rutter.

A new show, a new EBA member and a new boat: Goodchild Marine had travelled from Norfolk with the brand new Otter 26 Classic, in the process of being built as a modern replica of the traditional Edwardian gentleman's launch. Designed by EBA member Andrew Wolstenholme, the boat is powered by an SEM 3kW 48V electric motor with a built-in 45 amp battery charger and shore supply cable for overnight charging. The cabin has seating for at least six people with the seats doubling as full length berths. With a galley and toilet area aft, it is ideal for peaceful cruising on rivers and inland waterways where its silent running won't disturb the wildlife.

Goodchild Marine were also showing the Aqua X-Plore 870, an electric drive open launch which can be fitted with a weatherproof canopy if required. With a Torqeedo Cruise 2.0 electric outboard, which can easily be lifted out to clear weeds, and 780 AH battery set from Pb, the boat has been designed to appeal to bird watchers, wildlife photographers or fishermen. At 8.7 metres long with 2.45 metre beam it can take 12 passengers or alternatively just a few passengers with a lot of equipment and camping gear.

Another new boat was available from EBA business member Henley Sales & Charter who were showing an example from the range of Bahama boats built on the Ile de Ré in France. The Bahama 23 Riviera can be supplied with an inboard or outboard electric motor. It comes in a variety of colours and is easy to trail and launch

thanks to its lightweight construction. Also for sale was an interesting electric boat believed to date back to the late 1950s.

Gillan was probably originally a seagoing launch, built of mahogany on oak with a flared bow, and has been restored for use on the inland waterways with a 2.2kW Vetus propulsion unit.

EBA members Stanley & Thomas, who had a canoe and a Thames slipper launch on display, were on their home territory but managed to meet a local boating enthusiast who hadn't realised that they were based so close to Windsor. Kernowrat, EBA members from Cornwall, were showing a range of chandlery, outboards and battery chargers and had the Waterroo River Dart Electric on their stand too. They had a successful show, selling four

PortaBotes, which fold to just four inches flat to fit on top of most cars and are ideal for electric outboards.

Other interesting boats at the show included the Krüger, with a Torqeedo motor and AGM batteries, from Lindon Lewis Marine at Shepperton, an American PolarKraft aluminium boat designed for fishermen with an electric outboard which you can steer with your feet and – also from America – a pontoon boat from Bennington Marine which can be operated with an electric outboard for peaceful cruising.

The organisers were delighted to welcome more than 21,000 visitors over the three days of the show and are already planning next year's event, with more space for exhibitors, which will be held from 11th to 13th March.



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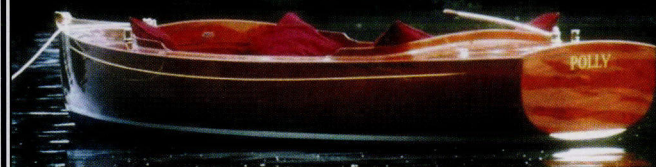


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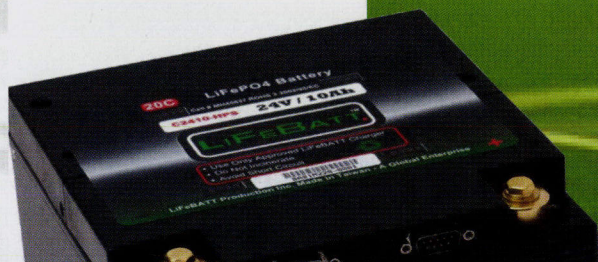
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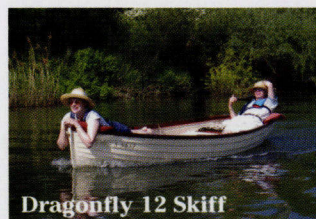


The Thames Electric Launch Company

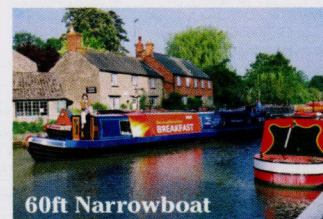
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After the rather mixed weather at last year's event, the organisers were very pleased to have three fine sunny days for the 2010 Beale Park Boat Show. And with the sun sparkling on the water a lot of visitors were tempted out on the seven acre lake to try out a variety of boats – including a number of electric ones being shown by EBA members. Report by Sylvia Rutter with pictures from Ian Rutter.

John Arnold demonstrating the Cruise 4



Boats at Beale

A steady stream of visitors were queuing up to try out Torqeedo outboards on a variety of boats. John Arnold, with assistance from his son Liam, was demonstrating the new Ultralight kayak motor which proved very popular and also the Travel and the Cruise 4, which is designed for boats up to seven tons in weight but good fun when showing off its power on a small Zodiac inflatable.

Kernowrat also had outboards for people to try out on the water and were marketing two boats which are easy to store and transport: the polypropylene folding PortaBote imported from the USA and the new EzyBoat for which they've just been appointed the first UK dealer. Built in Germany, the fibreglass EzyBoat is just over 14 feet long (4.4 metres) but folds up to almost half that length for storage and is easy to tow, even by small cars, on its integrated trailer. The boat is stable and buoyant, can comfortably take four adults and is ideal for use with an electric outboard.

Also on the water was the new Otter 26, built by Goodchild Marine which had been on display at the British Leisure Show in March (see report on page 8). The boat is now being marketed as the 'Phantom' by Henley Sales & Charter which had two other interesting electric boats for sale: *Muskoka*, built as a one-off

by Brackley Boats of Ontario and fitted out by Classic Boatworks with a Best electric motor and *La Tienne* a Frolic with a half canopy built by Creative Marine in 2007.

Our new *Eddy Current* (pictured on the front cover) had made its first long trip by water to join the boats on the Thames Electric Launch Company stand. Built by Patterson Boatworks in Hawkshead of cedar strip planking on oak with mahogany

decks and cabin, the boat has been fitted with an advanced AC electric propulsion system by Ian and in addition has a Fischer Panda generator to give unlimited cruising range. Thames Electric also had a Dragonfly 12 skiff, an Electric Explorer 13, a Mobiboat and an Interboat 16 on display but the craft which attracted most interest was the new Seacrest Henley 16 day boat, which has a compartment below deck



Muskoka



Launching the EzyBoat in four 'ezy' stages



e Park

with space for storage and a toilet, and can be operated with an electric outboard mounted on the stern.

Other EBA members at the show were Salters, with a Skipper 15 day boat and electric Mystic cabin launch on display, Stanley & Thomas with three Thames launches for sale, Henwood & Dean with their by now familiar replica of a Mongolian yurt and Bossoms with the new Windrush 25 cabin launch, unveiled at the London Boat Show. Pb were kept busy dealing with enquiries about batteries and on the next-door stands Gordon Hall of EnviroBoat Developments and EBA Chairman John Hustwick and Secretary Barbara Penniall talked to a steady stream of visitors asking questions about electric boating.

As the show was closing on the Friday, boats were summoned on to the water for a live insert into the Meridian Television local news opt-out. Steam launches, canoes and sailing craft joined the electric boats in an elegant – if at times slightly chaotic – parade for the cameras. For the skippers and passengers it made the perfect ending to a busy day and no doubt helped to attract the crowds for the rest of the weekend. The organisers were pleased with the attendance figures of over 7,500 and look forward to welcoming more exhibitors and visitors on 3rd to 5th June next year.



'Hello Sunshine' –
the local constabulary
check out Solar Flair II



Electric Boats in Wales

Barbara Penniall reports on the Inland Waterways Association Trailboat Rally at Newport.

A small field nestling in the Welsh mountains with a very pretty canal running alongside set the scene for the 2010 Welsh Waterways Festival and IWA Trailboat Rally. We had been invited to attend this event by the Monmouthshire, Brecon and Abergavenny Canals Trust and in order to promote electric boating in areas we had not yet supported, we were happy to travel to Newport, South Wales.

The EBA was able to take three solar boats to the Festival – *Solar Flair II* was displayed by the stand and as always acted as a magnet to draw people to the Association to enquire about our environmentally friendly form of silent boating. The 21ft *Solar Flair III* was on the water, skippered by Tony Rymell who regularly made short trips on the canal, demonstrating not only the pleasure of electric boating but the added advantage of solar powered electric boating.

Unfortunately, our third solar craft, *SB Collinda* (pictured on the inside front cover) had been unable to pass under the canal bridge to reach the Festival site, so she was trailed to an imposing position on the field where she proudly sported the EBA banner. It was thirteen years since she crossed the Channel on a cloudy day and it did not pass unnoticed that this particular Bank Holiday commemorated seventy years since the Dunkirk Little Ships had made their own Channel crossing.

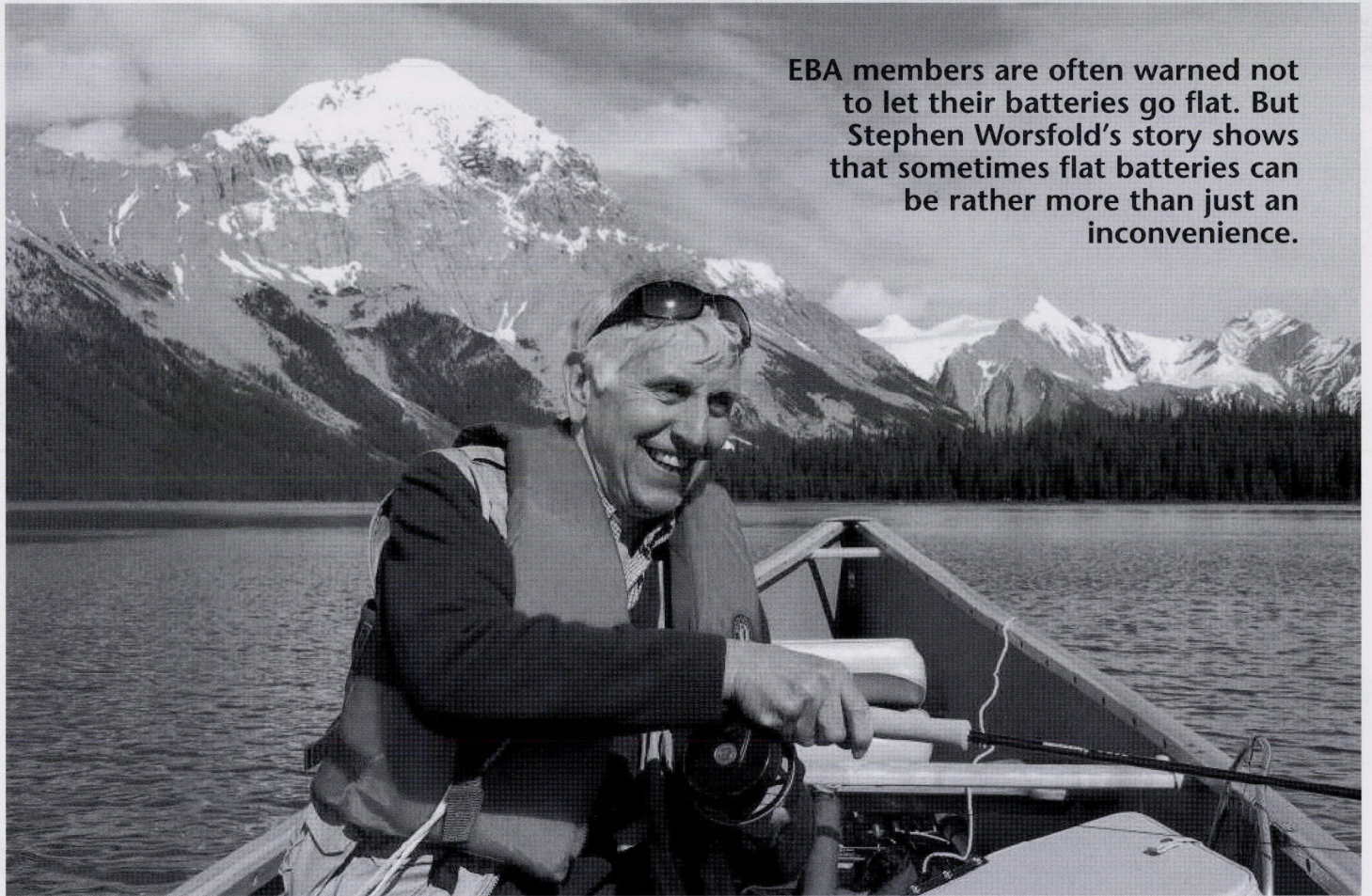
Nick and Barry Goldring, accompanied by Yvonne and Val, had taken their 16ft open launch *Silent Adventure* to support the EBA and the Trust's own electric trip boat the *Edith Elizabeth* was sold out all weekend as visitors wanted to try electric boating for themselves.

Apart from the first day, which was typically Bank Holiday cold and wet, the

remainder of the weekend weather was hot and sunny and certainly drew the crowds to the Festival. Castle Narrowboats, EBA business members operating an electric hire fleet from nearby Gilwern, had offered a short holiday as a prize for people joining the Trust over the weekend. There was plenty for visitors to see and do and we signed up new members and answered a lot of enquiries, particularly about solar power. Janet and Tony Dunning were on hand to help when John Hustwick or I appeared to be flagging and Adrian Dalziel was everywhere, helping Tony with the boats or answering questions on the stand.

With so many cheerful and supportive members with us at the Festival, the weekend passed very quickly, accompanied by much laughter, some great boating and consumption of quantities of Welsh cakes!

Changing Batteries in Grizzly Bear Country



EBA members are often warned not to let their batteries go flat. But Stephen Worsfold's story shows that sometimes flat batteries can be rather more than just an inconvenience.

Stephen Worsfold on Lake Maligne

I had been looking forward to fishing somewhere in the Canadian Rockies for years. And when the day finally arrived it was bright, sunny and fresh. Lake Maligne in British Columbia was every bit as wonderful as I had hoped, with snow on the mountains. But no sign of the rowing boat. Instead, a beautiful new mahogany electric one.

We motored gently and calmly across the lake, no dash for speed but with the joy of silence, clean air, crystal clear water and absolute tranquillity. The fishing started slowly so I took a turn at the helm. We found a place we could drift and fish some two to three kilometres on. Although conditions for fishing were not ideal (bright sunshine and cold water) persistence was rewarded. I managed two nice trout. But hours had passed and with the evening drawing in we started our journey back.

It was then that I realised just how much faith we had put into our silent servant

when boatman Gordon announced sheepishly: "Flat batteries!"

The problem was entirely man-made of course. No-one had seen fit to check or recharge the batteries. We did have spares and all we had to do was to swap them over, but we were a kilometre from land in very cold water. We chose to avoid the risk of drowning or the loss of a battery and head for the shore. Easy enough with a little paddling but to stop and land was quite different. You see, this was Grizzly Bear and Black Bear country, home of the Cougar and goodness knows what else. On land we would be as defenceless as new born babes should one of these fearsome creatures decided to charge from the nearby bushes and challenge us for my fish.

Having landed, Gordon started to unload the spare batteries while I stood heroically on guard with a paddle, pointing skyward to exaggerate my stature. There were endless terrifying moments as I stood there

blocking the path of all creatures hiding in the undergrowth. Hauling the first spare from the stern to the bank, Gordon looked at me for rather a long time, smiled and then asked: "Do you have any idea how big these bears grow" and "Do you know how quickly they can run? They're a good deal taller than me and a hell of a lot faster." "Your help is much appreciated" he added politely, then ... "My idea would be if a Grizzly should charge, to trip you up so that he gets to you first. Create a diversion so to speak. Otherwise take hold of the other end of this battery please and we'll get it done quicker."

I did what he said and within minutes we made our way back to the boat house just before dark. And I saw bears that evening by the roadside as we returned home.

Stephen Worsfold is Director of The River Thames Guide. See www.riverthames.co.uk



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1. **PRODUCT GUIDE & EBA BUSINESS MEMBERS**
(free upon request)
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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
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120 Years of Electric Outboards

Kevin Desmond tells the story of electric outboard motors and the companies involved in their development.

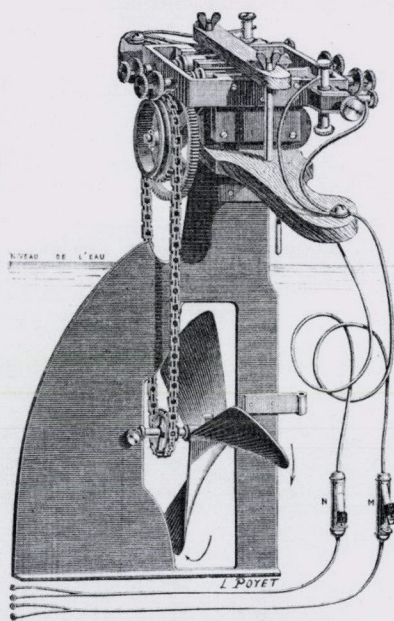
In 1880 when Gustave Trouvé decided to adapt his 5kg efficient electric motor for marine work, he designed it so that it could easily be removed from the back of the boat for modifications and improvements. In this way, he unwittingly invented the electric outboard engine.

Used in a modest but impressive fleet of Seine-based craft, the Trouvé motor inspired others to follow suit, including his fellow Frenchman Monsieur Galliot and an Englishman called McLachlan. All we know about the maker of England's first electric outboard is that he appears to have emigrated to Toronto in Canada (then part of the British Empire) where his company, by 1902 called the McLachlan Gasoline Engine Company, made stationary and launch engines.

Over in the USA three Americans had each tried out their version of an electric outboard: Griscom in 1882, La Roche in 1883 and Jones in 1884. But the first outboard, electric or petrol, to be made on a production basis was Frank Allen's ELECTRIC OAR in 1895 which featured an electric power plant driving a propeller via a flexible bronze shaft through a long angled tube. It weighed 35 pounds but associated batteries could add more than 250 pounds to the package.

Since then there have been at least 30 different electric outboards on the market, most of them no longer produced. They include Jewel Electric of Chicago, Illinois (1913-1918); Ashbrook Electric, Chicago; Silverstreak (Mayfair Boats, New York); Evinrude-Elto of Milwaukee, Wisconsin (1932); Grimes Electric Oar of Syracuse, NY (1933); H-S (Howarth, New York); Hav-A-Ride, Rochester, NY (1933); Fisher (Fargo, N. Dakota - 1934); Electrol (LeJay - 1936); Eclipse (Bendix of Newark, NJ - 1937-1940); Touromarine (Red Bank, NJ - 1937-1938); Silvertrol (Silver Creek Precision Corp, Silver Creek, NY - 1946, marketed by Sears and Roebuck as the Elgin in the late 1950's); My-Te (Indianapolis, Indiana - 1959); Lazi-Trol (Byrd Industries of Ripley, Tennessee); Bantam (1964); Bucol (Buc-O Mfg Lake Alfred, Florida - 1964); Electro-jet (Schnacke Mfg Corp Evansville, Ind - 1964).

Some brands have survived. The Minn Kota electric trolling motor began life in



The Trouvé outboard

1934 in Fargo, North Dakota. Its inventor Mr. O.G. Schmidt was a man of many ideas, who produced and sold a copper soldering torch from his home in Wheatland, North Dakota. Due to its success, manufacturing operations were then moved to Fargo. Because of its proximity to the Minnesota/North Dakota border he named the business the Minn Kota Manufacturing Company. Minn Kota has led the way in product innovation and cutting-edge technology. In 1934 it produced the first electric gear-driven motor; in 1935 the first electric flexible cable motor, which remained the standard bearer for decades; in 1965 the first electric motor with reverse switch; in 1968 the first remote control adaptable to other brand motors; and in 1985 the first electronic speed control, sold as an accessory (Maximizer).

In 1925, Hermann Preinerstorfer, who, with his brother was running a workshop repairing automobile electrics in Gmunden, Austria, produced a 200 watt, 24 volt outboard motor for use in a boat on the nearby Traunsee. In 1946 he hand-built his first batch of 250 watt series-wound electric outboards, which like other outboards worked above the water. He called them ACCUMOT and painted them light blue. Two years later the first underwater unit, 280

watts output, was produced. Called the 'Fantom' for its silent running, thousands of units were sold. It was first used in commercial hireboats on the Austrian and German lakes and then around Europe. Accumot models are the 760 watt Turbo, the 300 watt Fantom, the Nautilus 500 and the 150 watt Tivoli. In recent years, Austrian electric outboards ranging from 4kW up to 10kW have come from Dieter. H Seebacher's Aquawatt Yachtbau in Mooseburg.

In 1961, G.H. Harris of Jackson, Mississippi was tired of sculling his small fishing boat around nearby Ross Barnett Reservoir so he began toying with the idea of building a foot-operated electric motor to move his boat along at fishing speeds. It wasn't long before his invention caught the attention of the people at the Herschede Hall Clock Co. in Starkville, makers of high-quality grandfather clocks. They struck a deal with Harris to build and sell his new design, and called it the Guide-Rite. Soon afterwards this was changed to Motor-Guide. Changes and improvements have followed, including rack-and-pinion steering, a bow-mounted motor for trolling and variable speed control.

Since 1896, the Shakespeare Company of Fayetteville, Arkansas, USA (founded by William Shakespeare) had been innovating and manufacturing fishing gear, called 'Wonderod', 'Wondereel', 'Wondercast' etc. In 1968 they introduced the 'Wonderroll' electric outboard which was to remain in production until 1986. The most popular model was the Wonderroll 606 which would run for several hours from a 12V battery of about 30AH.

Morton Ray, tinkering with boats on his local Lake Barcroft in Virginia after retiring from the US Army, was disappointed by the unreliability of ex-gasoline outboard conversions. So in 1973, he single-handedly built the first prototype of his electric outboard in the basement of his home in Annandale. This was a 3-speed battery-switching control system, 9" prop and exposed GE motor. He made the patterns, the furnace to melt the aluminium and the moulds, machining the castings and other parts on a Sears lathe. When he poured the aluminium into the moulds, it was his wife Dot's job to hold one end of the shank! The next year the five speed model with

Continued on page 16 ►

enclosed cowl was introduced. In 1988 the company moved to Cape Coral in Florida where they developed a lower speed gear case turning a 12.5" propeller and a couple of years later started using pmc speed controls. Their latest endeavour is a highly efficient 2hp outboard.

Other recent US electric outboards include the Amemco and the Whisper XT from the Epic plant in Annapolis, MD.

Two electric outboards are currently being manufactured and sold in Canada. From New Westminster, British Columbia, comes the Otter while from Ottawa, Ontario, comes the Fuzion outboard (0.5hp/2hp/6hp) from Griffin Leisure Boats.

In 1988, British inventor – and EBA member – Cedric Lynch adapted his permanent-magnet radial armature motor into an electric outboard to win a 12-hour marathon contest on a London canal. In 1991 Lynch electric outboards gave the highest performance in comparative tests conducted by Motorboats Monthly. During the 1990s, certain companies considered the remarkable power/weight ratio of the Lynch might be advantageously adapted into a series-produced outboard. Selva of Italy displayed their 3kW Lynch-based Electro Selva 4 at the London Boat Show but, although people liked the motor, cost prevented its going into production. British Seagull, who had been making outboards since the 1920s, also looked at a Lynch-based outboard but again cost held them back. Indian-based EBA business member Agni Motors, with whom Cedric Lynch has been working for several years, are planning to launch their own electric outboard. It will have alternative transmission ratios and propellers so that it can have a large slow-running propeller for a heavy boat or a small fast-running one for a light boat.

EBA business member the Thames Electric Launch Company has its own Electron, a conversion of a Tohatsu petrol outboard. The prototype proved itself when TELCO director Emrhys Barrell fitted it onto the back of a Zodiac Zoom inflatable to set a world speed record of 30 km/h.

Since Gustave Trouvé, not much had been happening in France. Then in the late 1990's, French textile industrialist, Gilbert Devos of Roubaix took an interest in 'green' pleasure boating and a team from the Nord de la France University developed an AC motor. This was a challenge when very low voltage AC motors rated in kilowatts were rare. With additional input by the Odoux workshops at Tourcoing and by Xavier Cimetière of the Ecole Centrale of Lille, before long a 36-volt 1.2kW engine was

ready for manufacture. This was followed by 48-volt 2 kW and 3 kW motors, which were sold in Italy, Poland, Finland and Belgium. Propelec went on to create a range of pod motors of 25kW and 7.5kW for barges and a floating restaurant. Since 2007, Propelec in collaboration with its Czech subcontractor, KARVIN has renewed its range of outboards, but with synchronous motors covering a range of 1200 to 5500W for half the weight.

The white/green Combie Multie Traktie outboard was a key element in the re-introduction of electric boating in the



Morton Ray with his outboard

Netherlands in the 1980s. In the two decades which followed, the small Gebofa Maritiem factory continued to produce their well-tried fore/aft throttle model. These were available with 700W, 1200W, 2000W and 4000W output, either 24V or 48V. Combi have now introduced the Combi Nautic E-Thruster range, starting with 900watt and 1.5kW units, with 2.5kW and 3.5kW units currently under development.

In 1999, Henry Dekker of Wanneperveen developed his electric outboard which he persuaded the Hungarian company Intermotor to manufacture. The owner of Intermotor has two sons, Vilmos and Attila, which is why he named the outboard Willi and the inboard Atty. The outboards range from the 2kW Willi I up to the 11kW Willi V. Their most important innovation is the 90% efficiency of the synchronous motor and controller.

Although AEE Marine BV has been in business since 1982, including being Combi

agents, it was in 2005, following a year of R&D, that Piet Bibo's family firm produced an 800, 1100 and 1800 watts outboard range, with long or short shaft/saildrive options. They called them ELVA – from the Dutch 'Electrisch Varen' (Electric Travelling). 2007 saw the introduction of a 3500 watt unit, followed by one of 6000 watts in 2008 and they have just developed a 10kW motor. After 1800 watts, ELVAs are pod motors. The company has now moved to a 900 square metre workshop in Andijk beside Lake IJssel in Northern Holland. And the general electric boat and engine

supplier, ARKA, again in Giethoorn, is offering an engine range up to 55kW in brushless PM synchronous technology.

In 2004 in Germany, Friedrich Boebel, and Christoph Ballin, both working for garden-tool manufacturer Gardena, looked at an electric outboard that Ballin had installed in his restored wooden boat. As the design was 50 years old they thought that using state-of-the-art technology they could do much better. Six years later Torqeedo offers outboards ranging from ultralight 1hp kayak motors (7 kg including the integrated lithium battery) up to powerful 9.9hp equivalents. The full story of EBA members Torqeedo is in the Autumn 2009 issue of Electric Boat News.

In 2004, when Briggs & Stratton Corporation discontinued the production of their 3hp electric outboard, the Chinese suppliers of the motor and controller went in search of another partner and found Parsun Power Machine Co. Ltd in Suzhou, near Shanghai. Parsun Marine was already mass-producing petrol-engined outboards ranging from 2.5hp to 40hp. Adapting a

standard, high volume 'leg' from their petrol engines, they replaced the engine with a Brushless DC motor and controller. The 4.8kW, 48-volt unit also uses their existing water cooling system from the engine to provide a very powerful electric unit. The Parsun outboard was first marketed in 2007 and is distributed by Mars Electric LLC, based in Wisconsin, USA. and run by John Fiorenza, one of the original designers of the Briggs & Stratton electric outboard. Another brand of electric outboard made in China but sold in Europe is the Sevylor, with two units, the 360W SBM30 and the 180W SBM18.

With some twelve different makes of electric outboard currently available, there is no telling where electric outboard engines will go from now on – perhaps hybrid with integral solar panels to recharge the integral battery when the boat is stationary or water-emission fuel-cell outboards.



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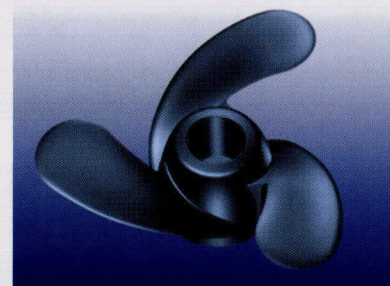
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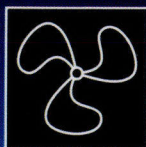
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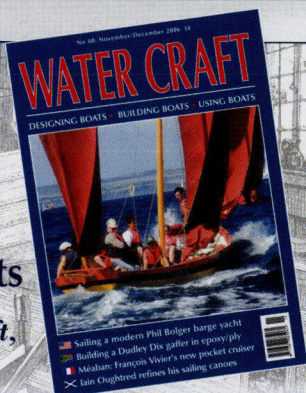
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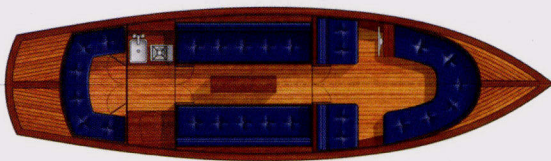
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Viking Marine provided mechanical design and fabrication for the conversion of Dutch Barge SARA for electric propulsion (see article in summer 09 issue).

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Noticeboard

Welcome to New Members

Private Members	Location	Boat where notified
Patrick Aust	Huntingdon, Cambridgeshire	
Helen Best	Hayle, Cornwall	Halfling – 19ft plywood launch with cuddy
Andrew Bien	London	14ft sailing dinghy
Peter Campbell	Kirkcudbright, Dumfriesshire	
Dr Gregory Clapp	Turramurra, NSW, Australia	Ariadne – Slipper Launch
Mike & Wendy Early	Seaford, East Sussex	Ruby – under construction
Olav Ellerbrock	Hamburg, Germany	Isle of Ceylon – small wooden or GF boat for rivers and lakes
Anthony Gascoine-Leopold	Basingstoke, Hampshire	Timtura – 23ft electric launch
Val & Barry Goldring	Slough, Berkshire,	Silent Adventure – 16ft open launch
Steve & Judy Hanchet	Stroud, Gloucestershire	Bright Water – 61ft diesel electric liveaboard narrowboat
Jeff & Jac Hide	Ely, Cambridgeshire	
Phil Hughes	Pontypool, Torfaen	Trydan Nefyn – centre cockpit Dawncraft
James & Denise Ledgerwood	Farnborough, Hampshire	
Maurice Lenders	Maidenhead, Berkshire	
Gary Marsland	Stevenage, Hertfordshire	Merganser – 30ft steel narrowboat, 500W solar panels, Torqueedo Cruise o/b
Colin Mathieson	Nova Scotia, Canada	Bluebell – 16ft Jim Thayer Victoria hull being fitted out in electric rather than steam
Steven Mullie	Kirribilli, NSW, Australia	
Richard Nash	Bristol, Avon	Zoro – 12ft Porta-boat with electric outboard
Steve Pantons	Redhill, Surrey	
Aiden Trickey	St Martins, Guernsey, Channel Isles	
Peter & Tricia Watts	Maidenhead, Berkshire	Florence II – flat-bottomed 15ft Sears launch with Minn Kota RTEM 80

Lakes Green Boat Gathering

Following last November's devastating floods, rebuilding work at Coniston has led to the cancellation of this year's Green Boat Gathering. Gordon Hall would like to thank members for their support in the past and will look forward to seeing you in 2011, when the provisional date for the Gathering is July 2nd and 3rd.

Mooring and Charging Facilities

Members planning long trips on the Thames are reminded that you should telephone Environment Agency locks before 4 p.m. if you want to reserve an overnight mooring and hook up. The EBA joined the Association of Waterways Cruising Clubs on members' behalf, so recharging facilities may also be available at an AWCC club. This arrangement would be entirely at the discretion of each individual club, so please contact EBA Secretary Barbara Penniall beforehand to check details of any suitable clubs on your route.

Notification of EBA Events

To save on postage and administration costs, the EBA will from now on only send mailshots in connection with AGMs and will rely on email to notify members of other forthcoming events. Anyone who hasn't given Barbara an email address should keep an eye on the EBA calendar and contact her for more details of any events they are interested in.

Calling all Story Writers

EBA President Malcolm Moss is looking for stories about renewable energy, aimed at children, for the Fun and Education section of his website www.mossolar.com. Malcolm will pay £25 for each story put on the website and contributions must be received by 31st March 2011.

EBA Shop

The EBA Shop now has smart sleeveless fleeces with the EBA logo for sale at £24 each. See the ad on page 14 for details of how to order.

Two Tunnel Trip

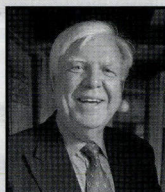
The Inland Waterways Association is organising a trip using electric tugs through the Dudley and Netherton tunnels on Saturday 18th September. It will last around five hours, with a break for lunch between the tunnels. EBA Membership Secretary Tony Dunning is dealing with bookings on behalf of the IWA North Lancs & Cumbria branch, so if you're interested please email Tony on membership@eboat.org.uk or telephone 01946 820875 for more details (as soon as possible as places are limited.)

American Association Back in Business

Kevin Desmond has sent news that, after several years in the doldrums, the Electric Boat Association of America has been revived, thanks largely to the efforts of Tom Hesselink of Budsin Woodcraft in Marshallberg, North Carolina. The EBAA, originally formed in 1992, now lists seven boat builders, four boat dealers, three motor manufacturers and two component suppliers on its embryonic website www.electricboats.org. Plans are in hand to expand the site and include an Electric Boats Discussion Forum.

Aitken Clark

The EBA is sorry to report that our Past President, Professor Matthew Aitken Clark, died in April at the age of 74 after a short illness. Professor Clark was invited to become EBA President in 2001, following his retirement as Chief Executive of the Broads Authority. He was an enthusiastic supporter of electric boating and he and his wife Frances were happy to accompany us in May 2003 on one of our social cruises from Hartford Marina. During the four years he was President, Professor Clark used his influence with the many organisations with which he had been involved to support the cause of environmentally friendly boating and we were very grateful for his advice and help. We extend our condolences to Frances and their daughter Catriona.



Aitken Clark

Electric Boat Association



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Founder Editor
Kevin Desmond

Classified Advertisements



For Sale

Frolic 21 built by Creative Marine 2007. Navy blue hull, white topsides with solid mahogany capping, trim and table. Half canopy. Upgraded to quiet Best Motor and eight batteries in 2008. All in excellent condition with cushions, side curtains, cover and Snipe trailer. Winter stored, Windsor. Reluctant sale as moved from Thames. £24,000 ono. Val Mason Tel 01225 471630.

Merlin 20 ft very elegant Edwardian launch built 1926 by Brooke Marine, Lowestoft. Extensively rebuilt, first in 1990 by Sandersons of Reedham, then with a major restoration in 2005 by the Swallowtail boatyard (Colin Buttifant, Ludham). Now in almost concours condition, epoxy splined above the waterline, sikaflex below. Full two pot epoxy paint to topsides, Epiphanes varnish. New Vetus electric engine 2005, with 24 2 volt batteries (running two 12 volt packs in series), giving a running time of about 10 hours. Cover (Jeckells) new in 2006. Own purpose built four wheeled road trailer. Much loved, but owner has too many boats (or so his wife says!). Must go to a good caring home. OIRO £25,000. Contact Tom Moore (Norfolk Broads) Tel: 01692 535268. Email drtom@freenetname.co.uk

Capricorn Creative Marine Mayfly 16 Traditional electric launch, reluctantly for sale by the present owner due to ill health. Built approx. 8 years ago and last year had a complete set of new batteries installed. In good condition with regular maintenance (antifouling etc) carried out each year. Dark blue hull and deck with off white interior. Mahogany inset decks and transom. Tiller steering. Bronze/gunmetal deck fittings including navigation lights, flag sockets and burgee. Seat cushion set. Ridge cover. Mooring ropes, fenders etc. Trailer also included. £16,000 Tel. 01263 713379.

Timtura Edwardian style closed electric trailable launch (2007) based on John Williams Festival 23. Seating converts to large double berth, small galley, fully upholstered with lined curtains. Fibreglass hull, roof and interior with hardwood window frames and curved rear windows. Powered by electric Azi-Prop drive by Fischer Panda giving excellent manoeuvrability. Lying under cover at Pangbourne. For further details contact Tony Gascoine-Leopold on gascoine.leopold@gmail.com or telephone 07954 606616.

Pictures and details of all these boats are on the EBA website www.electric-boats.org.uk under 'Free Ads'.

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.

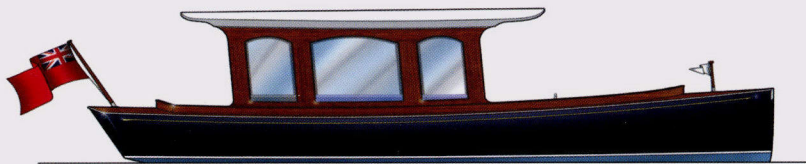
It is the responsibility of prospective purchasers to satisfy themselves as to the accuracy of the information given and of the condition of goods advertised.

Goodchild Classic & Passenger Launches

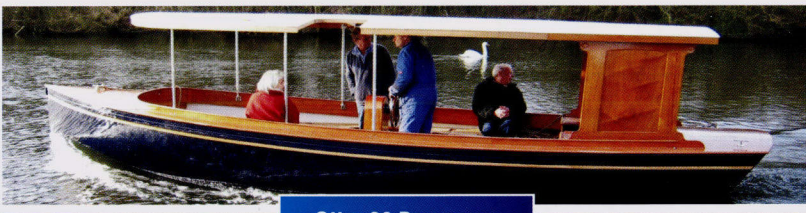
New all-electric environmental range



Aqua X-Plore 870



Otter 26 Classic



Otter 26 Passenger

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