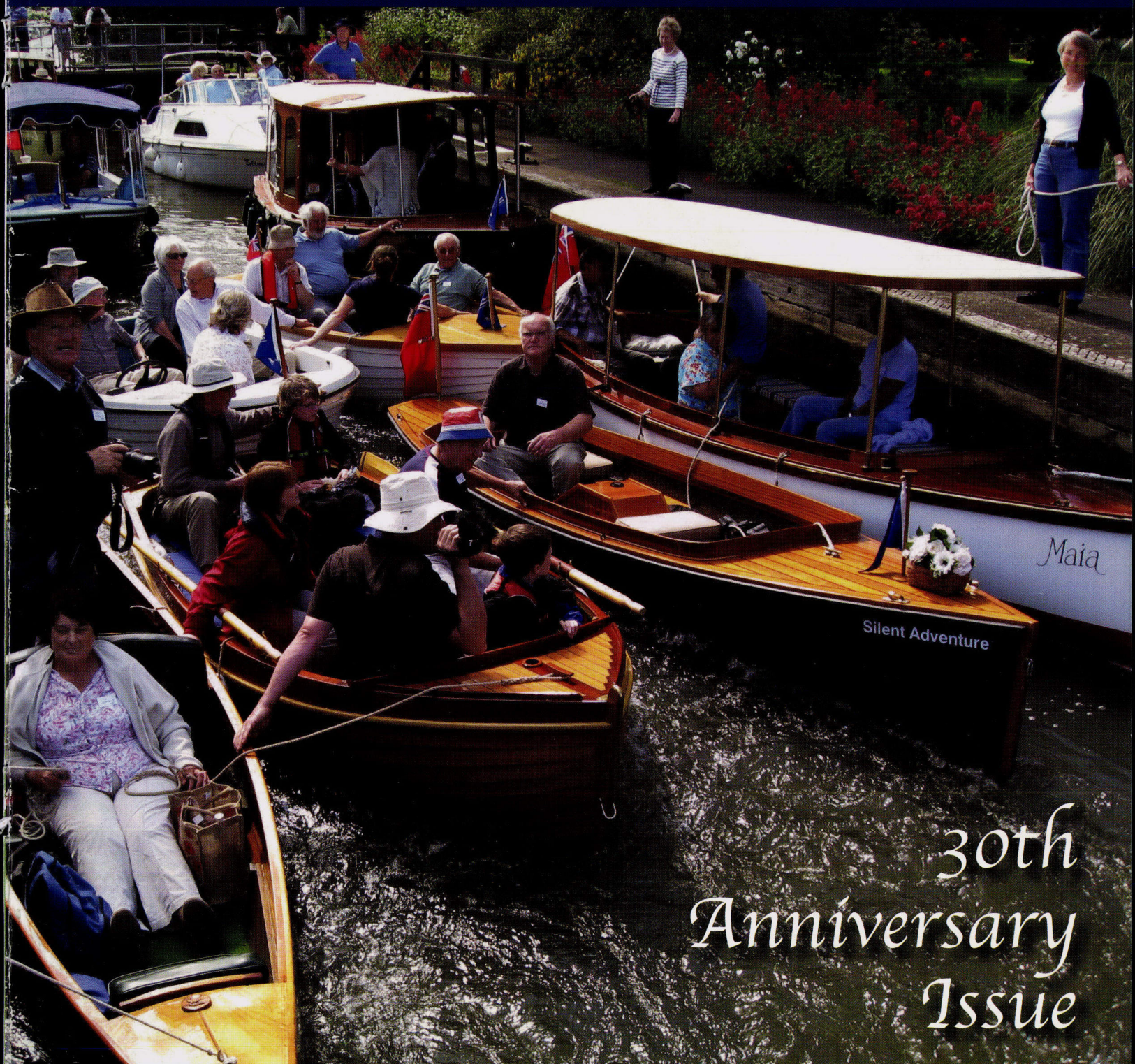


The Journal of the Electric Boat Association
Volume 25 Number 3 Autumn/Winter 2012

www.electric-boats.org.uk

Electric Boat **NEWS**

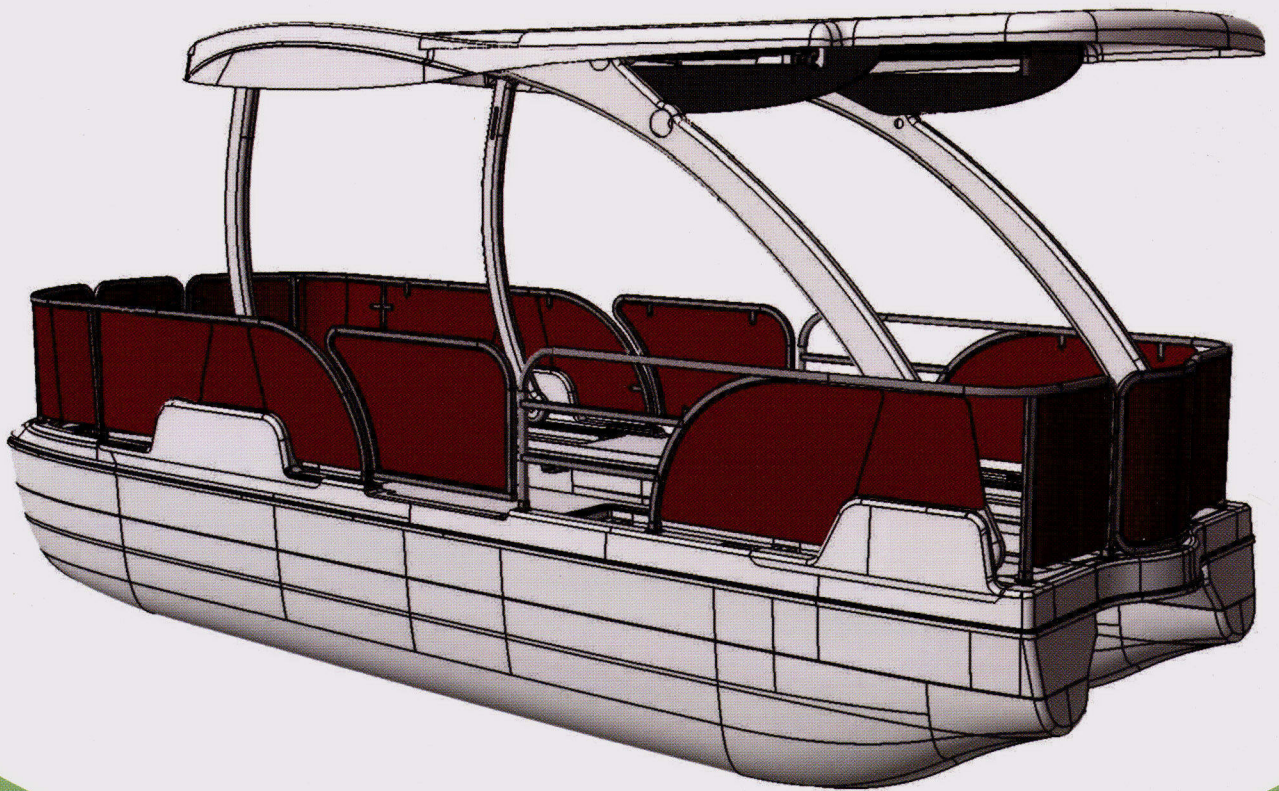


30th
Anniversary
Issue

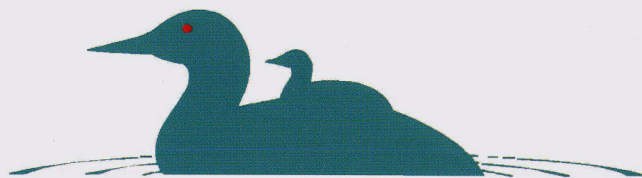
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EBA Calendar 2013

January

12th – 20th	EBA interest	London Boat Show ExCel
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May

19th	EBA interest	Broads Green Boat and Tourism Show Salhouse Broad, Norfolk
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25th – 27th	EBA represented	IWA Trailboat Festival Bodiam, East Sussex
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June

7th – 9th	EBA represented	Beale Park Boat Show Lower Basildon, Berkshire
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July

6th – 7th	EBA interest	River Festival Stratford-upon-Avon, Warwickshire
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20th – 21st	EBA represented	Thames Traditional Boat Rally Henley-on-Thames
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19th – 21st	EBA interest	IWA National Festival Grand Union Canal, Watford
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Please note that events and dates may change, while some are still being planned. For more details, or notice of other events, check the websites or contact the EBA Secretary.

Cover Picture: Electric Boats in Abingdon Lock
Photo: Ian Rutter
See article on page 11



Solar electric boating

Page 8



Record-breaking electric boating

Page 14



Promoting electric boating

Page 20

Contents

- 2 Wye Island Winner
- 5 Solar Challenge in Holland
- 6 News
- 8 Sunshine Cruising on Solarwave
- 11 30th Anniversary Celebrations
- 12 EBA 30th Anniversary Weekend in Pictures
- 14 Clean Quiet Cruising at the Click of a Switch - *30 years of the EBA*
- 18 Building a Brushless Outboard Motor
- 20 Promoting Electric Boating
- 23 Noticeboard

Copy Deadlines

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

Spring 31st January
Summer 31st May
Autumn 30th September

For more information about the EBA contact

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150 Wayside Green, Woodcote, Reading, Berks. RG8 0QJ

Tel: 01491 681449 email: secretary@eboat.org.uk

Details of the other EBA Committee Members are on page 24

From the Editor



In the middle of a boating season badly disrupted by bad weather, we were very lucky to have river levels back to normal, and even a few bursts of sunshine, for our weekend at Abingdon celebrating the EBA's 30th anniversary. It was good to meet so many members with and without electric boats and I hope the pictures in the centre of the magazine will bring back many happy memories. The

EBA history on the following pages shows how far the Association has come in its first thirty years and we look forward to ever increasing interest in electric boating in the years to come.

As this is my last issue of Electric Boat News I would like to say a big thank you to everyone who has contributed to the magazine over the last ten years. At the end of this year I'll be handing over to Don Wright, already known to many of you as our EBA Treasurer. Don has some good ideas about taking the magazine forward and I hope you'll support him as well as you have me with articles, pictures, letters, advice and information. I would also like to thank the EBA committee for the award of the St Davids Trophy (pictured above) which is now in pride of place in our living room.

Now that electric boats are being 'put to bed' for the winter it's time for the usual reminder not to forget them entirely but to make sure that batteries are kept charged up, and any maintenance jobs attended to, ready for the new season. Ian and I are looking forward to seeing EBA members at boating events next year and have already put the Trailboat Festival at Bodiam Castle on our list as an interesting new venue for electric cruising in 2013.

Sylvia Rutter,

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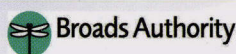
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Electric Boat News welcomes contributions from members and readers, although we cannot be held responsible for any damage or loss which may occur to this material. Items of interest include letters, reports of rallies, events, trips and cruises, articles and advice on building and running electric boats and on items of equipment. We also welcome manufacturers' reports on new equipment and boats.

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We are grateful to the Broads Authority for their support for the Electric Boat Association

Wye Island Winner

The Wye Island Marathon is a challenging 24 mile race for electric boats which takes place in Maryland every year. Jim Campbell of eCanoe LLC reports on last Autumn's event, when the competitors included a new EBA member, Ned Farinholt in his boat *Erged On*. Pictures are from Al Sutton.



Erged On

To promote the development of electric propulsion the EBAA (the Electric Boat Association of the Americas) runs the only electric boat marathon in the United States. Starting at Saint Michaels in Maryland, the course covers around 24 miles across the open waters of the Miles River section of Chesapeake Bay, around Wye Island and back across the Miles River to St. Michaels. The course was chosen in 2001 because of its varied real-life maritime conditions – open saltwater sections with possibly heavy waves and more sheltered waters around the scenic island as well as the hospitality of the Miles River Yacht Club, which lets contestants use their launch ramp and docking facilities with shore power stanchions for recharging.

Any electric-powered boat that can go the marathon distance in six hours or less (approximately 4 mph) is eligible to enter. Electric generators are not allowed (fuel cells are, but no entry has used this mode as yet). Solar power can also be used for direct motor power or to decrease battery drain, but the power required to complete the course in the required time is too great to be supplied by solar arrays alone. So batteries of various types are the major power source. Lead-acid battery banks have been utilized almost exclusively in the past, but home-rolled and commercial lithium-

based power has begun to appear on the scene in the past few years.

The Wye Island Marathon has attracted a lot of experimental home-built entries as well as commercially built boats, and one never knows what may show up at the starting line. Experimental entries are welcome as long as they have the proper hull registration and safety equipment required by the US Coast Guard. For safety, a fossil fuel powered chase boat follows the electrics to help with any emergencies and tow the stranded or straggler home if necessary.

Friday, September 30th 2011 was a warm and pleasant morning as I drove in to the Miles River Yacht Club and launched my 20 ft Old Town Tripper XL canoe off the top of the car and slid it into the water. That was the easy part. Loading the twelve 12V, 55Ah sealed lead-acid batteries weighing 468 lb total was harder. They were then jumper-connected in 48V triple parallel to power an experimental digital PWM controller I had designed for my small company, eCanoe LLC. A shortened and customized 36V Minn Kota Riptide trolling motor fitted with a Kipawa high-pitch

propeller provided the propulsion.

EBAA Executive Director Tom Hesselink had arrived with a fine Budsins custom launch complete with canvas canopy. Todd Sims of EPower Marine, winner of the 2010 marathon, had his Torqeedo-powered Calypso Classic in the water and Charles Iliff of Prop Talk magazine was busy duct-taping the splash covers to the latest PropTalk ElectraShell II – a 40-ft rowing scull fitted with a custom-rigged inboard motor, large lithium-ion batteries under the cowl, and two flying outriggers to prevent rollover in heavy waves. Phil Donahue's Sweetwater 20 ft Torqeedo-powered pontoon boat was the only multi-hull entry. Another contestant brought a very nice solar-powered kayak, but after seeing the course length and speed requirements



Budsins launch



Calypso Classic

decided not to compete, although he tagged along with the pack for a mile or two. And at the end of the dock was a beat-up aluminium 1967 Starcraft Utility named *Erged On*. It was short – only a 14.2 ft waterline length – and chunky with a 5 ft beam. Its hull began in a ‘V’ section, then flattened out completely at the vertical transom – not an efficient shape for a displacement (non-planing) vessel, and most everyone there knew that electric boats could not get up on the plane for 24 miles. No one had ever done it. Looking closer at the spartan interior of the craft, I checked out the Torqeedo Cruise 4.0R motor – the biggest one they made which can produce over 4 hp at 48 volts. It swung a big three-bladed prop and was powered by an unusual bank of yellow batteries fastened towards the rear with custom wooden thwarts. The battery box was labelled as containing ‘300 trillion ergs/30 megajoules/8 kwh’. I suspected then that an engineer was behind this new entry to the marathon. Later I was to learn that the box contained 16 LiFePO₄ cells in series producing 51.2 volts DC and rated at 160 ampere hours – more than enough to go the course at 60 to 80 amps draw. Still I was skeptical. A lot of newcomers had entered the marathon only to be foiled by the waves, the salt spray, or the long and confusing course. The wiry captain of *Erged On* introduced himself as Ned Farinholt, and I wished him well as he pushed off for the start.

The varied electric boats all got into a ragged line and the chase boat sounded the starting horn. Off we went into mild wind and chop towards the mouth of the Wye River, 4 miles away

across wide open water. In the first few minutes ElectraShell took a strong lead, closely followed by *Erged On*, then came eCanoe, Calypso, Budsin, the pontoon boat and the solar kayak. The waves picked up however, and at the 3 mile point the ElectraShell had to drop out due to splash problems, the salt water severely damaging its battery management electronics. As the chase boat arrived to help, *Erged On* took off on plane through the chop and was soon out of sight.

Despite the waves, eCanoe wasn’t doing too badly. The six-mile point (via my GPS tracking) went by at the 59 minute mark – just over 6 mph running an average power of 1500 watts. The only two boats in front of me were Calypso, visible in the distance, and *Erged On*, which had vanished. Just as I reached Wye Landing for the obligatory rest stop, I caught sight of Calypso pulling away with a 10 minute lead, but *Erged On* was nowhere to be seen. Had Ned gotten lost up the main channel of the Wye river and was actually behind? Mistakes in navigation had happened to entries in previous marathons, dashing the hopes of their confused captains.

The mystery was solved when I crossed the finish line and spotted Ned already on the dock, grinning like the cat that swallowed the canary. He had been able to keep *Erged On* up on the plane for the entire course, finishing

in 2 hours 40 minutes at an average speed of 9.93 mph. This shattered the previous monohull record of 3.19 hrs set by Denny Wolfe in 2007, and was way ahead of Todd Sims’ Calypso which finished second in 3.30 hrs, averaging 7.22 mph; eCanoe was proud to take third with an official time of 3.68 hrs, averaging 6.47 mph.

That evening we all gathered at the yacht club for dinner and discussion. I learned that Ned was indeed an electrical engineer with an extensive career in radar, microwave and telecommunications. He retired in 1997, now lives in Winchester, Virginia, and has an extensive family. In 2007 he got into sailing on Chesapeake Bay where he read a Prop Talk magazine article on the Wye Island Marathon. He already had a little Torqeedo auxiliary on his sailboat, so he electrified an 18 ft racing canoe. Unfortunately, it was over powered even with the smaller Torqeedo Cruise 2R motor and sank. Undaunted, he purchased the aluminium Starcraft Utility as a more stable craft and did all the power/weight/speed calculations before investing in a larger Torqeedo Cruise 4R motor and a big bank of lithium batteries. Water trials showed the craft to be stable and fast enough to get up on the plane. So he brought it to the marathon, not knowing he would make big waves in the field of electric boating.



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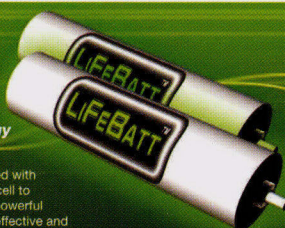
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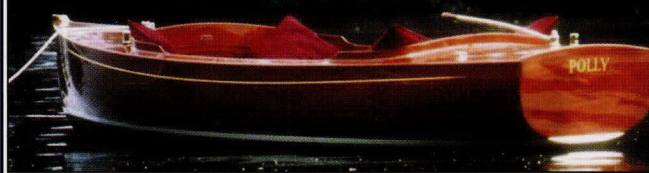
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Solar Challenge in Holland

Kevin Desmond reports on a long distance race for solar powered boats which took place this summer on the Dutch canals.

The Dong Energy Solar Challenge 2012 was held from 9th to 14th July in the province of Friesland in northern Holland. Some thirty teams from as far afield as Brazil and China as well as from the Netherlands, Germany, Belgium, Finland and Poland took part. The 220 kilometre race follows a canal circuit which starts and finishes at Leeuwarden, passing through another ten towns. This year's winner was Gowrings Continental BV (T82) in a record time of 10 hours, 40 minutes. The second boat was clocked in just over four hours

later. In third place was an American team from Cedarville University.

The idea for the Frisian Solar Challenge began in 2004. Bouwe de Boer, who was responsible for the energy policy of the province of Friesland, was inspired by the World Solar Challenge in Australia to plan a race circuit based on the route of the Frisian Eleven Cities ice-skating rally. The competition was open to all businesses, universities and students doing research in the field of solar energy. The first race saw 24 participants but only four teams finished within 24 hours.

In 2008, some 39 boats took part in the second race, including a team from Imperial College in London who described their experiences in an article for EB News in Spring 2009. This time, 24 teams reached the finish within 24 hours. The 2010 race got a

lead sponsor and the name changed to the DONG Energy Frisian Solar Challenge. 43 teams participated and, although the race course became harder by extending the stages, the solar boats were a lot faster.

The only other significant solar boat race is the American Solar Splash, the World Championship of intercollegiate solar/electric boating. This was initiated in 1994 by George Ettenheim of Marquette University through the Solar Energy Division of ASME. It was originally held on Lake Pewaukee, Milwaukee when it attracted ten universities from the U.S. and Japan. A team from Southampton University competed in 2009. Sixteen universities now take part each year in the two-hour endurance races and the 300 metre sprints.



Bright Sparks Wanted

The Broads Authority and 4NRg, a Lowestoft research and development company, are running a competition to find new ways of generating energy using sun, wind and water as well as recycling animal and crop waste. This is part of a wider project funded by the Broads Authority's Sustainable Development Fund to explore the potential for renewable energy in the Broads, particularly in remote areas where it is expensive to connect to the National Grid.

The competition has an adult category and one for children aged from 9 to 15 and it is hoped that inventors, students, businesses and schools will get involved. The best entrants will be helped with technical and professional business advice from 4NRg to develop their ideas into commercially viable products. The best entries in the youth category will win days out on the Broads.

To apply, and for more information, visit the website www.4nrg.co.uk/BrightSparks.html. You can also call the competition team at 4NRg on 01502 509222 or email sarah@4nrg.co.uk. Closing date for entries is 31st December.

PlanetSolar to follow the Gulf Stream

After the successful completion of its round the world voyage in May, and summer visits to Barcelona, Majorca, Sardinia and Malta, the world's largest solar powered boat is now in dry dock for annual maintenance. Following nearly 40,000 miles of intensive solar navigation, all the essential components on board are being inspected by the technical team at the shipyard in La Ciotat near Marseilles.

Meanwhile, a team of scientists from Geneva University is making preparations for Turanor PlanetSolar's next voyage from Florida to the Arctic. Using laser technology close to the surface of the ocean, the team will study changes to chemical and biological elements in the Gulf Stream, which is fundamental to the regulation of our climate. A totally non-polluting boat is the ideal base for this important research. In 2013 PlanetSolar will once again cross the Atlantic, attempting to beat its own speed record of 26 days, before following the Gulf Stream up to the Arctic Circle. In the course of the voyage, stop-overs are planned in Miami, New York, Reykjavik, Oslo, London and Paris.

Honour for Electric Pioneer

On 13th October, EBA member Kevin Desmond was among the guests at the unveiling of a plaque to Gustave Trouvé, who in 1881 designed the first battery-powered electric boat. An article by Kevin in the Summer 2007 EB News described Trouvé's many inventions, including an electric car, the first electric outboard motor, the endoscope and a portable electric safety lamp. His motors and batteries powered the flights of the world's first electric airship and he created dazzling special effects for opera and theatre performances.

The plaque marks Trouvé's birthplace in the small town of Descartes in central France and was unveiled by the Mayor, Jacques Barbier. The ceremony coincided with the publication in France of Kevin's 200-page book 'A la Recherche de Trouvé. La quête d'un génie français oublié' ('Searching for Trouvé. The quest for a forgotten French genius') available on-line from the publisher www.pleinepage.com. Kevin, who signed 21 copies at the ceremony, has an English language version ready and is looking for a publisher. The French publication has just been awarded the Jacques Paul prize for a scientific work by the Académie des sciences, belles-lettres et arts de Bordeaux.



Mansura Trophy

The first zero emission cleaning boat, pictured in the last EB News, is one of the entries for the 2013 Mansura Trophy for hybrid boats. The Solar SeaCleaner 400 from Swiss-based EBA business members Grove Boats collects floating waste from harbours and swimming pools in a basket between its two hulls. Its electric motors are supplied by solar panels on the roof, which provide enough power for a full day's operation.

Trophy entries from France range from an 18 ft tender to a 54 ft sailing catamaran, along with a trawler equipped with twin 145kW propulsion motors, a 40kW battery bank and an 85kW DC generator. London based yacht designer Dr. Andrew Spyrou is entering the Dragon 82, a hybrid yacht under construction in China.

The Mansura Trophy is organised by the Royal Thames Yacht Club and the Royal Yachting Association in association with Bosch Engineering and with support from The Green Blue, a joint environmental initiative from the Royal Yachting Association and the British Marine Federation. All entries for the Trophy, which will be presented in March next year, must be received by the 7th January 2013. Full details and entry forms can be found at www.mansuratrophy.com



A New Base for Tamarack

Tamarack Marketing and Sales Manager Jake DiBari at the helm of the new Loon on the Erie Canal



EBA business member the Tamarack Lake Electric Boat Company has moved its manufacturing base from Ontario, Canada to Rome, New York State. On August 21st the company officially marked the start of full-scale production of its 'Loon' solar boat in a grand opening ceremony attended by the Mayor of Rome Joe Fusco and State Senator Joseph Griffo.

Tamarack has spent the past year working on prototypes and setting up networks with suppliers and is now assembling the boats at its headquarters on the old Erie Canal. The company, which has been supported by the New York State Energy Research and Development Authority, now occupies 5,000 square feet in a former warehouse and hopes to increase this to 10,000 square feet.

The 10 passenger Loon has a 50-mile range and a cruising speed of around eight miles per hour. Its batteries are charged by four 200 watt solar panels on the roof, which can be lowered for easy ground transport. The company currently employs four people, but has plans to expand to seven by the end of the year and to thirteen by end of 2013.

Bodiam for Boaters



25-27 May 2013

IWA National Trailboat Festival in association with the National Trust and organised by the Kent and East Sussex branch of IWA

For more information look at www.waterways.org.uk/bodiam2013 or contact Les Etheridge 01622 831734



A royal kip of 25 miles of river crisscrossing the Eastern Rother through the beautiful landscape of Kent and Sussex close to the Cinque Port of Rye. Tasterdence once a bustling port and shipbuilding centre and Battle of Hastings invasion site of 1066 at Battle.

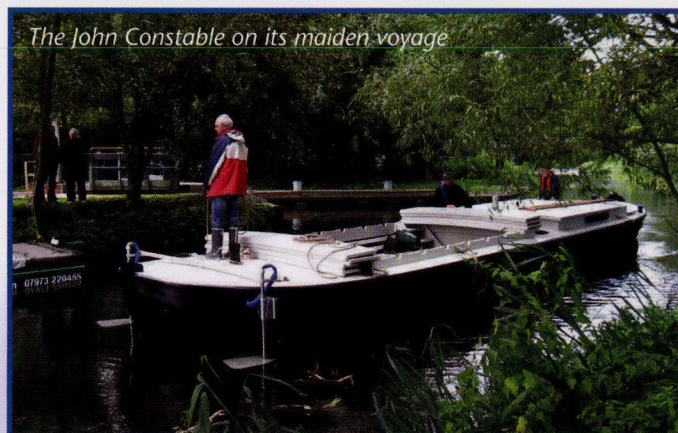


Boating at Bodiam

Beautiful Bodiam Castle is the site for next year's National Trailboat Festival, with moorings directly in front of the castle on the Eastern River Rother. Organised in conjunction with the National Trust by the Kent & East Sussex Branch of the Inland Waterways Association, the festival will be held over the Spring Bank Holiday Weekend 25th – 27th May. Trailboaters will have the chance to explore 12 ½ miles of the little-used River Rother which runs through peaceful countryside between Bodiam and Rye.

For more information see www.waterways.org.uk/bodiam2013 or contact Festival Chairman Les Etheridge on 01622 831734

The John Constable on its maiden voyage



Electric Lighter for the River Stour

EBA business members the Thames Electric Launch Company have installed an electric propulsion system in a traditional lighter for the River Stour Trust. On its maiden voyage last month, the *John Constable* became the first lighter for a hundred years to travel through Great Cornard lock.

The 46 ft lighter is a modern replica of the cargo boats which carried goods on the River Stour and feature in the paintings of John Constable. Built of oak by the Pioneer Trust at Brightlingsea, using Constable paintings and the remains of an old sunken lighter as reference, it will operate as a trip boat on the River Stour from The Granary at Sudbury. TELCO have fitted two Aquamot electric outboard 7.5kW AC brushless motors which will not interfere with the traditional lines of the boat. First trials have been very successful and the lighter will start regular trips in 2013.



Sunshine Cruising on Solarwave

The last issue of EB News included a letter from Michael Köhler about his solar powered catamaran *Solarwave*. EBA member Charly Teuscher, who keeps his own solar boat on Lake Geneva, spent a week on *Solarwave* in the summer and has sent this report and pictures of his cruise in the Greek islands.

Electro-solar navigation has its enthusiasts all over the world, and one such is Michael Köhler, who has designed a catamaran which uses only solar power. The Austrian sailor wanted to be free from the constraints of the winds (or their absence) and was only converted to electro-solar navigation progressively. Inspired by the solar sails of space satellites, and having noticed the efficiency of the few photovoltaic panels he had taken on board to charge his battery, Michael first thought of replacing the diesel engine of one of his sailing

boats with an electric engine.

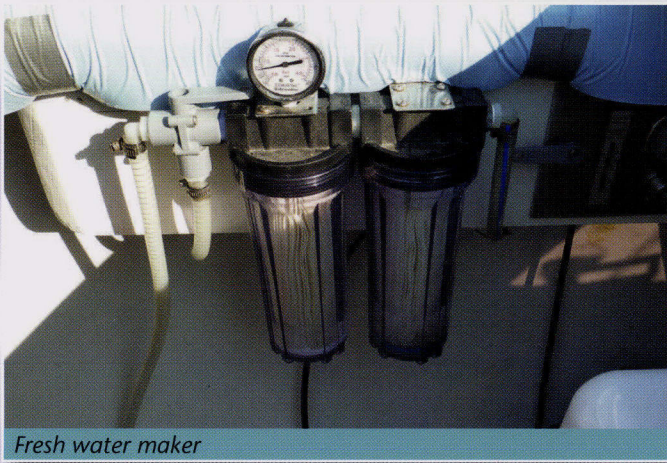
But in the end, he put all his energy into the design and construction of his catamaran *Solarwave*, which is the quintessence of all his sailing experience and the technology available at that time. As the wind's energy cannot be stored to be used at a later stage, photovoltaic panels were the most obvious and most practical option to use the kilowatts generously beamed by the sun, and allow more freedom in navigation – Michael's ultimate goal.



Solar panels



Part of the battery pack



Fresh water maker

Passionate about electro-solar navigation, Michael and his partner Heike Patzelt both have deep sea licences and many years of sailing experience. Michael has sailed the planet's oceans and seas for over 30 years, and has around 60,000 nautical miles under his belt.

Solarwave is a motor boat that behaves like a sailing boat which can also sail in a straight line, whatever the wind. With only half power (2 x 5kW) she can sail at up to 4 knots against headwinds of Force 8 on the Beaufort scale.

The boat offers a convivial, relaxing cruising experience thanks to its silent engine and the fact that there is no need to trim the sails! It is a gentle, eco-friendly mode of transport, ideal for Epicureans. It can take six guests, sleeping in three double cabins, and has room for three bathrooms, a large cockpit with kitchen and an outdoor dining area on the rear deck. It comes fully equipped with household electrical appliances and a 220V inverter to charge the guests' mobile phones. Fresh water is produced by reverse osmosis. Batteries and all the appliances are supplied by solar panels only; the emergency generator has never been used.

The *Solarwave* odyssey started in Cologne in January 2010, when Michael and Heike sailed from the Rhine to the Danube to the Black Sea (via Romania and Bulgaria) and the Bosphorus. They made it to the island of Chios in Greece, where they spent the winter. A successful first leg of the journey, passed with flying colours.

Then, in July 2011, *Solarwave* arrived in Preveza, north-western Greece, from where guests can embark on a cruise that will take them to Corfu and the Ionian Islands with their rocky outcrops, cypresses and olive trees, in the footsteps of Ulysses. Sailing on transparent, azure waters, the passengers have plenty of time to take in the beautiful landscapes. With stopovers in quaint little harbour towns, seaside tavernas or deserted coves, this is a Mediterranean dream come true. Heike is an outstanding cook who knows how to prepare delicious dishes influenced by the local specialities, a real culinary delight!

Initially, Michael and Heike had planned to go on a round-the-world journey (without wanting to break any records). However, the final cost proved to be too high for such an adventure, and the pair gave up the idea. Instead, they decided to advance the cause of solar-powered boats in the Mediterranean, where tourists and sunshine are both abundant, rather than be on their own in the middle of the Pacific Ocean.



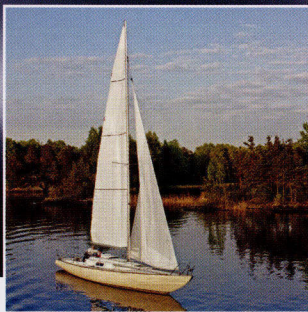
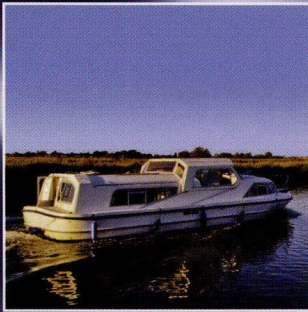
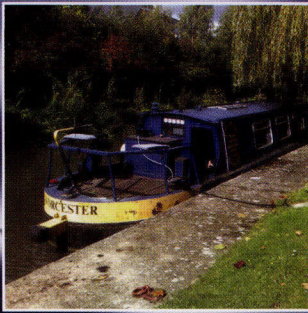
AquaWatt motor



Charly Teuscher with wife Marion on *Solarwave*

Technical details

Type SOLARWAVE 46, Catamaran
 Length 13.90 m
 Width 7.50 m
 Draught 0.90 m
 Air draught 4.50 m, including antennas
 Weight 12 t
 Photovoltaic panels: 38 KIOTO 210W panels, single crystal, 57 sq m, 800 kg.
 Output: 50Kw per day.
 Batteries: 1,900kg, lead-gel batteries: 2 x 48 volt 420Ah packs, 2 x 12 volt 190Ah packs; lithium-polymer: 1 x 48 volt 200Ah.
 Motors: 2 x 10kW air cooled AquaWatt.
 Navigational instruments: Raymarine C 80, with integrated marine map, radar, VHF, AIS identification, Garmin GPS, Inmarsat telephone, LED navigation lights, Transocean 8 life raft (satellite-linked), all instruments in duplicate.
 Speed: Cruise: 4 -6 knots (2-4 Kwh consumption), maximum: 8 knots
 Range: In good weather, infinite.
 Fresh water: 325 litre tank, produced by reverse osmosis, re-mineralised



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30th Anniversary Celebrations

The EBA marked the 30th Anniversary of the founding of the Association with a weekend of celebrations on the Thames at Abingdon. Our base was the Upper Reaches Hotel, which had plenty of mooring space and a good public slipway nearby. On 30th June members with and without boats gathered for a champagne toast to the EBA followed

Adelaide built by Farrow & Chambers of Grimsby in 2008, *Eddy Current*, built by Pattersons of Hawkshead with electric propulsion system by owner Ian Rutter, and *Stima*, a Stelco 700 Deltic launch. They were joined by *Pebble*, a

to the launching site were river launches *Mr E* and *Silent Adventure* along with 19 ft canoe *Silent Explorer* belonging to EBA Webmaster Nick Goldring.

Saturday's cruise was a short one upstream, during which we were able to completely fill Abingdon Lock with electric boats (see the front cover picture) before returning for a celebration dinner in the evening. On



Paul Wagstaffe cuts the celebration cake

by a buffet lunch, after which the celebration cake was cut by one of our earliest members, Paul Wagstaffe, who was awarded the MBE in 2006 for services to inland waterways.

The largest of our assembled fleet of electric boats was 60 ft canal boat *Free Phase*, which came by water from its base at Welton Haven on the Grand Union Canal, and was almost christened *Never Ready* until finally completed by its owner Derek Wright after 12 years and 2 months in the making. There were three cabin launches: Edwardian style

16 ft Duffy 'Back Bay' fibreglass launch built in California and *Maia*, one of the very first electric Frolics built by Rupert Latham in the early 1980s. Of the open boats the smallest were 12 ft wooden clinker built *Camerander*, named after its youngest crew members Cameron and Alexander, and 12 ft 6 in *Sparkle* owned by EBA Secretary Barbara Penniall. Also trailed

the Sunday we were joined by EBA business member Richard Pond in his electric boat based on a classic motor launch design and, briefly, by cabin launch *Lillie Langtry*. Our Sunday cruise took us downstream through Culham, which we again managed to make an 'electric only' lock, before we found a good place to moor on the Clifton Cut to enjoy a riverside picnic lunch. Some boats then carried on to their moorings further downstream and the rest of the fleet returned to Abingdon to make their way home by land or water.

EBA 30th Anniversary Weekend



Pebble



Free Phase



Sparkle

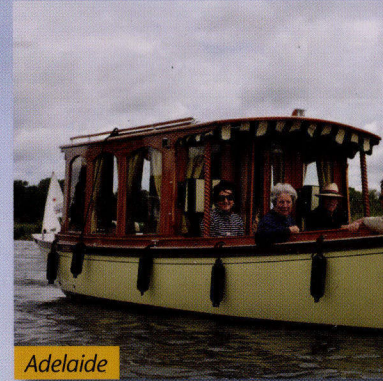


Eddy Current



Lillie Langtry

Ian Rutter and Nick Goldring took the pictures of EBA members celebrating the 30th Anniversary of the Association on the River Thames



Adelaide



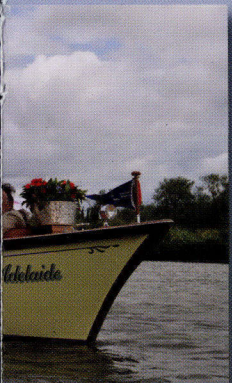
Lunchtime picnic on the Sunday



Richard Pond



Mr E



Stima



Camerander



Silent Adventure



Maia



Silent Explorer

Clean Quiet Cruising at the Click of a Switch

Kevin Desmond and Barbara Penniall recall some of the significant events in the first 30 years of the Electric Boat Association.

The idea for an association began in October 1981 during a seminar on electric boats held at Stratford-upon-Avon, organised by Michael G. Mayer of the Lead Development Association. At that time, Rear-Admiral Percy Gick, a former Fleet Air Arm wartime fighter ace, was cruising in his electric launch *Patricia*, having earlier converted his 23 ft Trentcraft cruiser to electric propulsion and named her *Electra of Emsworth*.

Three months later, on January 26th 1982, a meeting was held in the House of Lords, arranged by Jestyn the Viscount St Davids. Lord St Davids' 27 ft electric narrowboat, *Silver Sail* would ultimately complete 365 days total cruising, covering 3,500 miles. 23 interested parties from the electric vehicle and boating industries came together at Westminster to discuss electric boat potential, and the need for an association was established.

A meeting held on May 20th 1982 at the Electricity Council in London marks the official birth of the

Electric Boat Association, with Giles Baker of Anglo-Welsh Narrowboats elected as Chairman, Michael Mayer, Secretary and Lord St. Davids, Chairman of the Users' Group. That same year, a steam-engine enthusiast called Rupert Latham built his first electric boat, the 18 ft *Papagena*, and almost a thousand Latham-equipped electric boats have followed since.

A new member joined the Executive Committee in 1983 – Paul Wagstaffe, then Secretary-General of the Ship & Boat Builders' National Federation, who has since become one of the Association's stalwarts.

In July 1983 Kevin Desmond and Kevin Ridgeway piloted Admiral Gick's 32 ft *Patricia* from Emsworth across a calm Solent to Cowes (22 miles in 5 hours). This was the first electric boat to cruise offshore since 1886. HRH Prince Philip went on board and was intrigued by her quietness of operation. (25 years later Prince Philip attended a ceremony at the Royal Thames Yacht Club to present the Mansura awards for hybrid electric boats.)

At the 1984 Boat Show at Earls Court, Bossoms Boatyard hosted an EBA stand backed by the Electricity Council and the Emsworth Shipyard. That May the IWA rally on London's Regents Canal included

a six-strong EBA fleet. Michael Mayer had to step down for health reasons and was replaced as Secretary by George Noyes of the LDA.

In October 1985 an electric boat seminar 'Recent Advancements' was held at the British Waterways Board Centre. There were ten speakers and a demonstration of various boats.

In November 1985, Kevin Desmond teamed up with Rupert Latham to pilot the 21 ft Frolic *Cliveden* non-stop up the Thames from Staines to Binsey. They totalled 71 miles over 24 hours without recharging and the following year they took *Frolic 998*, accompanied by *Mystic Z411* around the Norfolk Broads for 24 hours and upped their record to 101 miles.

In December 1985, Rear-Admiral Gick became EBA Chairman and, two years later, the EBA's first President, with Kevin Desmond then undertaking the role of Chairman.

In December 1987 an EBA/BWB endurance contest was held at Little Venice. Five outboard skiffs cruised in bitterly cold weather for four hours and instead of a mass-produced Mercury, Mariner or Minn Kota winning, the prize went to an ingenious home-made unit from young inventor Cedric Lynch who completed 28 laps.

Another initiative in 1988 was the start of the Wargrave Rally, organised by EBA member Ken Barge. A flotilla of richly decorated electric boats, gave welcome publicity to the Association, as have subsequent rallies, now a regular feature in the EBA calendar and held all over the country.

July 1988 saw the first issue of Electric Boat News with Kevin Desmond as its founder Editor. The magazine's new logo of a Great Crested



Viscount St Davids on Silver Sail



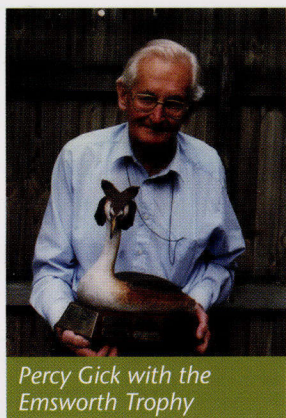
Prince Philip on board Patricia



1990 'Wargrave' rally at Hambleden

Grebe was chosen because the grebe is one of the shyest birds on the waterways and only an electric boat can get very close. To commemorate the tenth anniversary of his 600 mile cruise

in *Electra* of Emsworth Admiral Gick donated the Emsworth Trophy for the longest cruise of the year by a boat under battery electric



Percy Gick with the Emsworth Trophy

propulsion.

In November that year, Lady Arran piloted her 15 ft electric hydroplane *An Stradag* to a new two-way world record-breaking average of 50.825 mph at Holme Pierrepont, Nottinghamshire (see picture on inside front cover). Cedric Lynch had designed and built the revolutionary motors and with media coverage in 88 outlets and prime position on the Pool at the Earls Court Boat Show, the publicity gained was immeasurable.

April 1991 saw 130 delegates attending Eastern Electricity's seminar in Norwich 'New Developments in Electric Boating'. EBA membership rose to over 100, with members in 14 different countries. Earls Court 1992 had nine different electric boats on four company stands, including the Thames Electric Launch Company (TELCO). Gillian Nahum became the new Chairman and the new EB

News Editor was Emrhys Barrell.

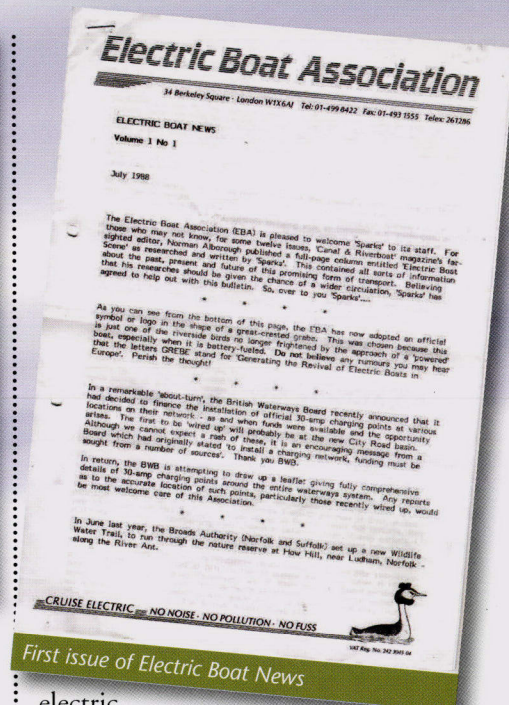
Earls Court 1993 featured an EBA boathouse right on the central feature poolside, with four boats alongside. An electric boat was shown at the Ideal Home Exhibition in March and well known environmentalist Dr David Bellamy gave interviews to a succession of national and local TV, radio and press.

Mike Cooper-Read of Eastern Electricity became the first recipient of the St Davids trophy, a silver cup awarded for 'a significant advance in the field of electric boating' which was donated by Lady Arran in memory of the Viscount St Davids.

In 1994, sixteen electric boats cruised past at Cookham, led by the National Rivers Authority's converted diesel-electric hybrid *Lambourn*. Soon after, a second NRA (now Environment Agency) launch, *Colne*, was custom-built by TELCO. That summer Phil Horsley of Chloride became the new EBA Chairman and Roy Devereux Editor of the News. A Seminar: 'Electric Boats - The Future' organised by Eastern Electricity and the Broads Authority, was attended by over 100 boatbuilders and in September the



Wagtail V



electric boat rally 'Silent Sensation' was held for the first time on South Walsham Broad, Norfolk. Silent Sensation has now been superseded by the Green Boat Show, an annual event for environmentally friendly boats.

At the 1995 Earls Court Show, the National Rivers Authority and British Waterways displayed a charging pillar complete with credit card reader and Edward Hawthorne published his book 'Electric Boats on the Thames 1889-1914'.

In the Spring of 1996, Barbara Penniall reluctantly took on the role of EBA Secretary, having been promised it only involved a commitment of an average of four letters a month. Barbara is still the EBA Secretary but her role has grown considerably in that time!

1997 was a memorable year for the EBA as for the first time, we took part in a boat show - the Inland Waterways Festival at Henley. In July Malcolm Moss crossed the English Channel in his solar boat *Collinda* in a remarkable 6 hours 15 minutes and in August, 29 ft launch *Wagtail V*



1998 Windermere electric boat event

travelled 116 miles in 24 hours without re-charging its batteries, completing 12 laps of a measured course on the Upper Thames. An 8-strong relay team organised by TELCO took turns at the helm. One of them, Tony Ellis, then became editor of EB News.

Also that summer, electric boating moved into cyberspace with its first website, a simple page announcing to the world the existence of the EBA. Barbara kept the site running until 2006 when Nick Goldring stepped in and the site is now a very professional showcase for electric boating.

Eco-Boat 97 was a conference and demonstration held in September on Oulton Broad, Norfolk, attended by 86 environmentalists from all over the world and 9 out of the 16 sessions concerned electric boating.

The EBA organised its first all electric boat event in June 1998 on Lake Windermere, with seven boats at the Steamboat Museum Dock. That September, Waterways Minister Alan Meale MP was introduced to electric boats on the Thames at Maidenhead and given a ride in *Wagtail V*.

In 1999 Jim Keating became the new EBA Chairman while Bruce James took over for a short time from Tony Ellis as EB News Editor and a second Windermere event was organised. In 2000, the EBA also organised and/or attended electric boat rallies at Caversham, Huntingdon, Shrewsbury, Cookham and Norfolk, with shows at Pangbourne and Waltham Abbey. Eco-Boat 2000 was held in Norwich.

Navigators & General offered an insurance policy for electric boat owners at a reduced premium, giving a commission to the EBA for each policy taken out by an EBA member.

In 2001 John Hustwick became



Pike

EBA Chairman (as he has remained for the past 11 years). The fully-restored Edwardian day launch *Pike*, equipped with a modern Lynch propulsion unit by TELCO, created a new cruising record of 137 miles in 30 hours without re-charging its batteries. An 8-strong relay team led by Emrhys Barrell took turns at the helm.

That November, Lord Whitty, Minister for Food, Farming and the Waterways, attended a presentation of electric boats, along with representatives from the Environment Agency, British Waterways, the Broads Authority and the British Marine Federation. Professor Aitken Clark became the new EBA President.

In 2002 a cruise was organised on the River Great Ouse and the EBA held an electric boat show at Hartford Marina, Huntingdon.

We marked our 21st Anniversary in July 2003 with festivities at Bisham Abbey and a cruise on the Thames. Earlier that year, Chairman John Hustwick gave a presentation for the EBA at AES 2003. This was a conference in Edinburgh for new ideas and applications for the marine industry and for the first time it included inland waterways, with John representing the case for electric boats.

In 2003 Sylvia Rutter became the new Editor of Electric Boat News in time for the 21st anniversary celebrations. Since then the News has gone from strength to strength, increasing in size, quality and now in full colour.

We welcomed

Malcolm Moss as EBA President in 2005, a position he still holds. In 2004 Malcolm established the Julia Moss Solar Trophy which is awarded for a significant contribution to solar boating. This award was created in memory of Malcolm's late wife and attracts a bursary in addition to the trophy.

Following developments with hydrogen fuel cells, in 2005 the EBA took possession of a skiff which had been used as a test bed for a potential future propulsion system. The craft became a regular attraction alongside the EBA stand at boat shows over the next few years.

In 2009 the Association was awarded the prestigious Mansura Medal for its work in promoting hybrid electric power.

The EBA is recognised as a leading authority on all aspects of electric boating and, as the most active English speaking association, deals with enquiries daily from all over the globe. The website is a marvellous promotional tool, as is the magazine, and our attendance at all the major inland shows, together with exposure through rallies and events around the country, ensures we are confirming our remit to promote electric boating.

From small beginnings some thirty years ago, we feel that the founders of our Association would be proud to see where we are in 2012 and we are confident that in the future we will continue to grow both in membership and reputation.



21st Anniversary cruise June 2003

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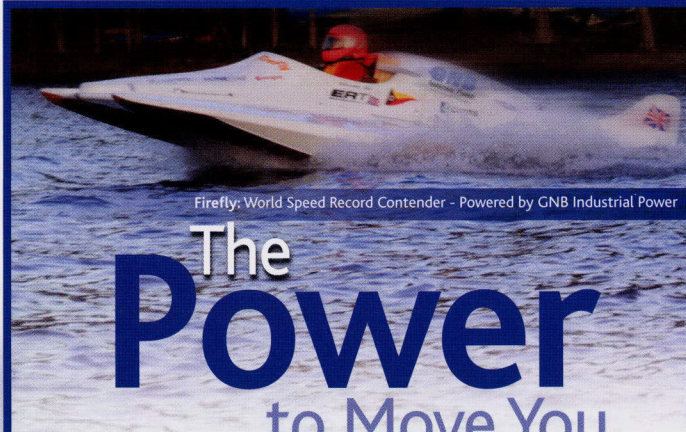
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Alan Craig with John Hustwick in the dinghy at the EBA cruise on the Wey & Arun Canal

Building a Brushless Outboard Motor

EBA member Alan Craig describes his recent experiences with electric outboards.

I didn't know that I needed an electric outboard motor until I bought a boat which came with one! Having moved on from sailing dinghies via various small boats to an inflatable, I decided that what I needed at this stage was a small boat which rowed well, used the outboard from the inflatable and which my wife would feel was suitably stable. Just before a summer holiday I was idly browsing eBay and found myself buying a small heavily built grp dinghy which we towed down to the River Fowey in Cornwall.

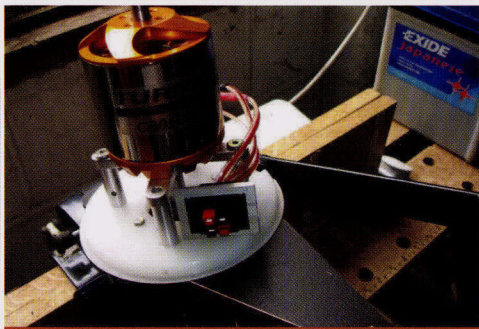
The boat came with a Minn Kota trolling motor which revealed to me the delights of silent cruising: kingfishers swooped with a flash of colour, egrets carried on fishing nearby and a red deer peered from

the trees to watch us pass. We heard the wind in the trees, fish gulping at the surface and could smell the smells of the incoming tide and of the surrounding woods on our little patch of the river. So electric power was quiet, even quieter than rowing, smoother than a petrol outboard and with no smell. But the little Minn Kota just did not have enough power to move the boat against wind or tide, or to reach far enough to explore the estuary in the week available, so I started thinking about building a more powerful electric outboard.

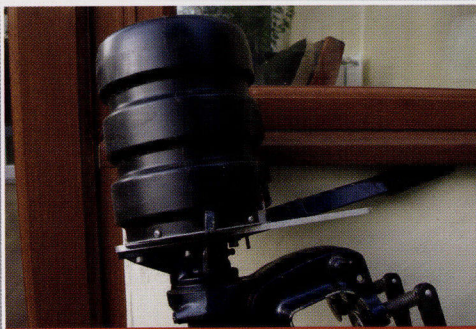
My other hobby is flying electric radio control models and I had taken with me on this trip a meter designed especially for that hobby which measures electrical energy parameters. I used this to discover that the Minn Kota, a 30lb thrust model, consumed about 190W from a cheap and not very cheerful leisure battery and this figure was the starting point for some guesswork which determined that I would need about 600W to

push my little boat at a respectable and useful speed. More guesswork, and another browse of eBay netted me an Evinrude 3hp outboard as a donor for the project, and a motor and controller were sourced from Hobbyking, a far Eastern online retailer to the model hobby industry. I also bought a couple of (much more cheerful) leisure batteries of a low profile shape which would fit under the thwarts of my boat.

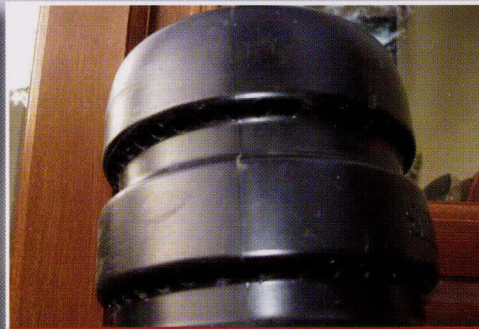
The thing a tinkerer really needs with a project like this is a well equipped workshop and the one I worked in at the time of this project was very handy indeed, and I'd like to thank University College London for their unofficial help in this matter. If only they had known! Having worked out a plan I had to make an adaptor plate, a shaft connector and four pillars on which to mount the motor, plus minor items. The next holiday, in the same location, was to have been the proving cruise but I left the controller out in some of the worst rain I have



Brushless motor



Motor cover



Vent holes in cover

ever experienced, and damaged the electronic speed controller. I got it working again by drying it but it was now in a permanent low power mode, ironically using about 190W, exactly the same as the Minn Kota that it was supposed to replace!

When the controller was repaired and the outboard finally used at full power it proved to be a complete success, consuming about 800W at full power on freshly charged batteries, with an audible ripple of bow wave, and 600W was very little slower, being a very good match to the hull. The brushless motor starts smoothly every time (sensorless motors and their controllers can sometimes be troublesome in this respect) and will still run smoothly at much less than 100W of input power, while being considerably lighter and more efficient than most brushed motors. The 105Ah batteries used would give about three hours running at 600W which is longer than I would care to sit on a wooden thwart.

There were some minor disappointments, the worst being that the brushless motor I used 'squeaks' so it is not silent which is the ultimate goal, although quiet enough for conversation and much quieter than an I.C. outboard. The outboard I chose as a donor has a wrap spring clutch in its gearbox to give the neutral function and I found that I could not transmit power through this in reverse. I have also had further problems with water ingress to the electronics and this will have to be addressed in the future as the display of watts and ampere hours used can no longer be read.

Recently, just before our holiday, I was idly browsing eBay and found myself buying a lovely amateur built

rowing skiff in marine plywood which we towed down to the River Yealm in Devon. This light and skinny boat (a John Welsford 'Joansa') does not meet my wife's specification for stability but it was noticeably faster at full power than the shorter grp dinghy previously used. We pottered around for about four days without having to recharge the batteries although, as the power display was not working due to aforementioned water ingress, I could not keep a record of power or energy consumed. Overall, I would consider this project successful although further development will take place when I again have access to a machine shop.

Notes for tinkers

Model aeroplane shops might not be the first place you think of when attempting to build your own electric propulsion system for a small boat but the motors and controllers used in the hobby are surprisingly cheap and efficient. Bear in mind that they are designed to be used with copious air cooling for short periods of time, so choose components which are rated at several times the continuous current ratings that you might use.

The controller receives its signal from a servo tester, a low cost device which emulates the signal from a radio control set. Electric bicycle controllers are also a good choice; they can receive their throttle signal from a potentiometer such as a twistgrip throttle, great

for an outboard motor installation.

Just like wings, long thin propeller blades are more efficient than short wide ones and many people, including me, experiment with model aeroplane propellers on electric boats. The downside is that they collect weed more efficiently than a great big weed collecting net and, although they make your electricity go much further, I have found that weed is too much of a problem to continue down this avenue. Some people are experimenting with folding propellers which dislodge weed after momentarily closing the throttle.

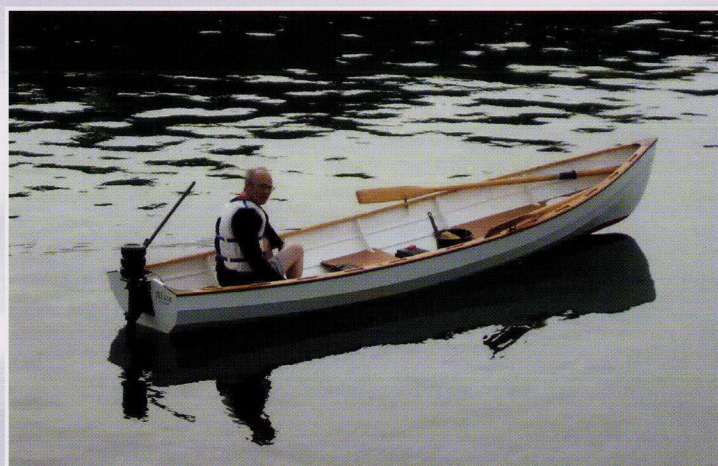
Batteries which weigh 27kg each and need to be removed from the boat for charging are a serious problem. Consider all of the alternatives for the health of your back (and toes!) including:

- Charge in situ from a dock or from solar power on board.

- Use an array of smaller batteries.

- If you are weighed down by spare cash, consider lithium batteries.

Go ahead, even if you don't know all the answers in advance; you can never have a disaster from which you learn nothing!



Skiff on the River Yealm

Promoting Electric Boating

EBA private and business members have been involved in a number of events in various parts of the country over the summer, which have attracted a lot of interest and helped to raise the profile of electric boating. Here are just four of them.

On Saturday 25th August, electric launch *Mr.E*, owned by Jeff and Jac Hide, flew the EBA flag while escorting the Paralympic Flame on the River Great Ouse at Ely. Jeff reports that the river was lined with thousands of cheering well wishers as the Flame was carried in a coxed quadruple scull among a flotilla of boats, dressed overall and representative of those on the Great Ouse over the past hundred years. To everyone's relief there was no rain during the water based part of the event, although thunder and lightning brought on a storm – fortunately not putting out the Flame – after the boats had battened down.

Jeff had accepted the challenge of co-ordinating the whole water based event and says that on the day he was rushing about 'like a sheepdog on

water', organising the flotilla of over 20 boats. At the head of the parade was passenger launch *Liberty Bell* with the Mayor of Ely and local dignitaries on board and the fleet also included the steamboat *Ursula* which had taken part in the Thames Diamond Jubilee Pageant. Among the rowers were Steve Trapmore MBE, one of the oarsmen from *Gloriana*, the replica Royal Barge which led the Jubilee Pageant, and Dan Clift, the current British Open Single Sculls National Champion.

Among the classic cars, historic planes and vintage clothes at the Goodwood Revival Festival in September was 34 ft electric launch *Hero*. Gillian Nahum, who was showing the boat on the Henley Sales & Charter stand, said that *Hero* was 'a real head-turner' and so many elegantly dressed couples had their photographs taken standing by the bow that she would have done well if she'd charged a fee for each picture taken. Introducing a new public to electric boats at Goodwood reminded her of her early days with the Steam and Electric Launch Company, answering a variety of questions from incredulous show visitors who knew nothing about the advantages of electric boating.

Hero was one of the earliest electric launches, built of teak on oak frames with mahogany decks by Andrews of Maidenhead between 1899 and 1901. She was later fitted with a Stuart Turner petrol engine, which was then replaced by a steam engine in 1969. Gillian was lucky to meet a previous owner who had the boat when she was called *Avondale* and kept as a steam launch at Cliveden when the Astors lived there. *Hero* has now been restored to electric power by Rupert Latham with a 4kW direct drive motor and deep cycle gel batteries and is awaiting a new owner. On Sunday 24th June, over 300



Hero at Goodwood



Mr E dressed overall for the parade

customers, friends and family of Colin and Lucie Henwood and the Henwood & Dean boatbuilding team enjoyed an afternoon tea party at their workshops in Hambleden. The party was held to celebrate their 30 years in business and to launch their beautiful book about craftsmanship and boatbuilding.

The book, 'Head, Heart, Hand – a boatbuilder's story', was written by Colin Henwood and is illustrated with superb photographs by award-winning photographer Michael English. Colin gave a heartfelt speech about his 30 years at the helm of Henwood & Dean.

Boats on display at the party included the Thames double skiff *Gillian*, in which Colin and Lucie took part in the Thames Diamond Jubilee Pageant, and *Lady Helen*, the 25 ft electric launch designed by Andrew Wolstenholme and built by Henwood & Dean in 2001.

Guests mingled and chatted while enjoying an assortment of sandwiches and cakes accompanied by tea, coffee, wines and local beer served by enthusiastic young waitresses. Outside in the yard, Colin and Lucie's daughter Megan cooked sausages in her 1971 aluminium Airstream caravan for those who were still hungry! Entertainment was provided throughout the afternoon by foot-tapping jazz from The Dixie Ticklers (see picture on inside front cover) and guests lingered until well into the evening.



A few days later, on 27th June, a one-day workshop 'Greening the Waterways', was held at Birmingham University, organised by Rex Harris, Professor of Materials Science. Participants, who came to Birmingham from around the world, gave a series of half hour talks followed by questions, exploring ways in which water transport could adopt a clean energy strategy to eliminate air, water and noise pollution. The University's hydrogen hybrid canal boat the *Ross Barlow* was the subject of one of the talks and delegates had the chance to visit the boat at the end of the meeting.

Ian and Sylvia Rutter gave a presentation on 'Electric Boats, Past, Present and Future' relating the history of electric boating from Victorian

times to the present day – a surprise to some of the delegates, who had thought of electric boats as a very recent development at the cutting edge of new technology. Other presentations described the first hydrogen fuel cell boat in Turkey, built by a team from Istanbul Technical University, plans for a zero emission container vessel, the hydrogen powered 12 seater ferry about to start trials in Bristol harbour and the first battery-powered sea-going Roll-On Roll-Off ferry which is due to operate the Skye to Raasay service for Caledonian Macbrayne from May next year.

All the presentations can be seen on the website

www.greeningthewaterways.com



Party at Henwood & Dean

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Lady Hamilton is a charming Gibbs launch from the early 1920's which was extensively rebuilt and electrified 3 years ago. She is now for sale and available for viewing ashore at the HSC boat store near Pangbourne by appointment.



Viola is a slender lady of 29ft with plenty of seating and an excellent pedigree having been built in 1904 by Taylor and Bates of Bridge Wharf Chertsey of mahogany on oak frames to a unique Taylor's patent design No.11863.

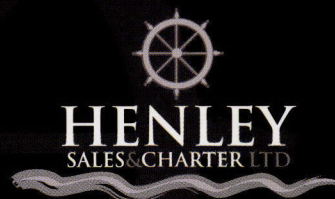


Hero is an original and early Andrews of Maidenhead electric launch of some 34ft, immaculately presented and with her own trailer. Restored and returned to electric power in 2012 by Classic Boatworks.



Lillie Langtry was a bespoke build on a Frolic 31 hull and features a spacious cabin and clerestory, loo and galley. She has belonged to two careful owners and is now seeking a third.

For more information about any of these boats call 01491 578870 mobile 07813 917730 email sales@hscboats.co.uk www.hscboats.co.uk



Joe Whitby

Examiner – Boat Safety Scheme



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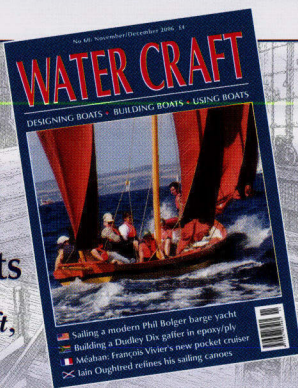
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Noticeboard

Welcome to New Members

Private Members	Location	Boat where notified
Laurence Attewill	Oxford	Meadowsweet, under construction
Amanda Bedborough	Bray, Berks.	Piano, Frolic 18
Vernon Cassin	Wallingford, Oxon.	Swallow, slipper launch
AW Goodyer	Whitchurch, Hants.	
Robert Greateorex	Fakenham, Norfolk	My Salad Days, cabin launch
Richard Hicks	Wargrave, Berks.	Beazie, canoe
Denise Hopkins	Marlow, Bucks.	Cows Ears, launch
Howard Leigh	Hurley, Berks.	Harvest Moon, slipper launch
Malcolm MacKendrick	Poole, Dorset	Irene, steam and electric launch
Chris Masters	Windsor, Berks.	
Nick Mills	Sulhamstead, Berks.	Sapphire Rose, beaver stern launch
Anthony Monk	Windsor, Berks.	Lady Betty, 21ft Frolic
John & Heather Peperell	Twickenham, Middx.	Our Trio, Nestaway Trio 14 with electric outboard
Michael Pepper	Newmarket, Suffolk	Impulse, 32ft solar narrowboat
D Watson	Peterborough, Cambs.	

Business Members

Ingles Boat Services	Maidenhead, Berks.	Electric boat specialists
Lees Motor Company	Honiton, Devon	DC motor manufacturers
Waterside Marine Sales	Potter Heigham, Norfolk	Sales and hire of boats



Technical Information for Members

Charles Mathys, American author of 'Electric Propulsion for Boats' and 'My Electric Boats', has produced a paper on how to use a Honda Hybrid Inverter to control electric motors in larger boats. The article is on his website and can be downloaded free of charge from www.myelectricboats.com



EBA Membership Offer

Anyone buying an electric boat from an EBA business member is entitled to a year's free membership of the Association. The EBA is now extending this scheme to cover boats purchased from private members. If you sell an electric boat, please pass on the name and address of the buyer to EBA Secretary Barbara Penniall who will then write with the offer of membership.



New Appointment at EBA Business Member

EBA business member LiFeBATT/ Goodwolfe Energy have appointed St. John Bickley to manage the marine sector of their business development team. As Chairman of the British Marine Electronics Association for eight years, St. John was involved in developing the UK Code of Practice for electrical systems on boats. His first project with Goodwolfe Energy was the installation of a pure EV lithium drive system on the Royal Rowbarge *Gloriana* which led the Queen's Diamond Jubilee pageant in June.

Dear Sylvia,

The weekend cruising in company on the River Nene at Stibbington was great. But it taught Jac and me a lesson which we can add to our many lessons since our serious boating began.

Boating magazines and articles elsewhere often cover the care and maintenance schedules needed to keep your boat in trim especially over the winter laying up. But how often do you see advice about trailers? Well, on our way back from that weekend we found out the hard way. We had travelled down the A1M at about 50mph without a problem and then, having passed St. Ives and Jones' boatyard we circumvented the last roundabout and at the same time as I felt that something was adrift, Jac said she could see in her mirror that our nearside trailer wheel was wobbling. I slowed and stopped on a long straight – just in time! The wheel bearings had gone and the wheel was about to come off, as would have our boat *Mr.E* but we caught it – just in time.

The emergency breakdown organisation did its stuff but there was no way that the young Polish recovery man in his drop bed lorry could load *Mr.E*. It was not the usual job by any means. The wheel fell off the trailer as he jacked up the chassis and that was that. Well, we eventually resolved the problem after five and a half hours. The boss, a good mechanic, arrived at about 10 pm and used a 'skate' to replace the wheel. Now, this chap had worked in Torquay for a time and appreciated the boat but also pointed out (*and here is the essential tip*) that the wheels of all boat trailers that enter the water, salt water or not, must have the wheels removed *every year* for inspection of the wheel bearing ball races which will, without exception, deteriorate no matter how well greased the bearings are. He showed me the effect of not having done so last winter. Now, like *Mr.E* the excellent Indespension Hallmark trailer is only two years old yet the bearing case had rusted through.

I replaced both hubs and bearings on the Monday after the cruise. It is easier to replace old hubs and broken bearings with complete new hubs and new wheel bearings (they come together) than to try to knock out the race jackets on old hubs! It is a DIY job then and only cost £48 for the parts. Better than the cost of a broken *Mr.E* and trailer or serious accident on a motorway.

Jeff Hide
Mr. E

Editor's note: Many trailer manufacturers have maintenance advice on their websites – well worth a look. The EBA has an information sheet on Trailers and Trailing (free of charge to members) which is available from EBA Secretary Barbara Penniall.

Electric Boat Association



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Minn Kota 3HP 12 volt Electric Outboard. Large silent underwater motor for freshwater use. Will run off a single 12 volt battery. £125 + delivery. Contact Paul Wagstaffe 01628 524376 / 07710 175407.

Taurus Sturdy curvaceous miniature tugboat 15' x 8' x 2' (and 6' airdraft). Full headroom wheelhouse seats 3, cockpit 4. 2001 build, marine ply/epoxy/glass, splendid condition. Torqeedo/Li-ion (recent). Self-draining. No bilge water, ever. Facilities: gas hob, chemical toilet, 2 berth spaces. Dedicated (Alko components) trailer, launching bridle. Ready now. £6350. Duncan Needham, 01394 380566 (Woodbridge)

48v Charger Curtis Power Point 48/40E used to charge Frolic electric launch. Good working order and condition. Available to collect Cookham. Best offer over £75. Contact Chris Brown on 07876 233405 or chris.brown@turpinsmale.co.uk

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Wanted

Frolic 21 or similar. Must have GRP hull in good condition with just enough timber trim to look the part. Electric drive, of course, with decent batteries and charger. Road trailer would help but not essential. Sensible price would ensure a quick sale. Contact Tim Barrett 07860 821023 or email tim-barrett@half-acre.co.uk

Pictures and details of all the boats for sale 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 (no agents or brokers). The information contained in members' private advertisements is provided by the advertiser and the Editor is unable to vouch for its 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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