

ELECTRIC BOAT News

Merry Christmas
to all our readers



The Journal of the Electric Boat Association

Volume 8 Number 4 Winter 1995

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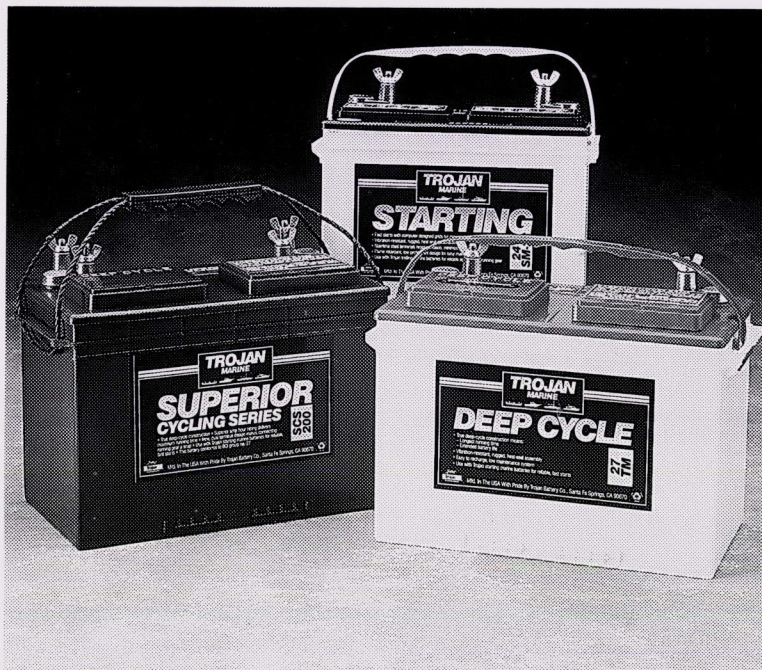


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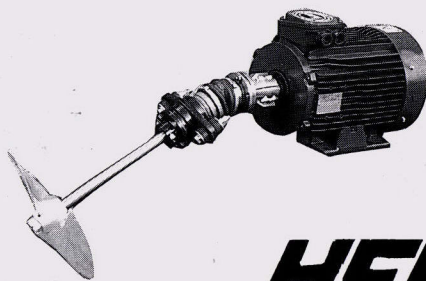
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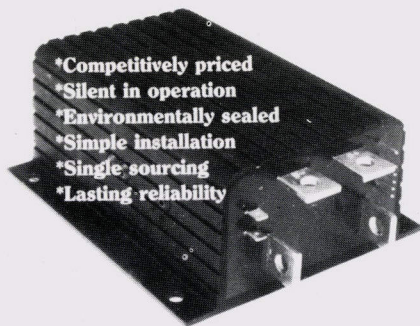


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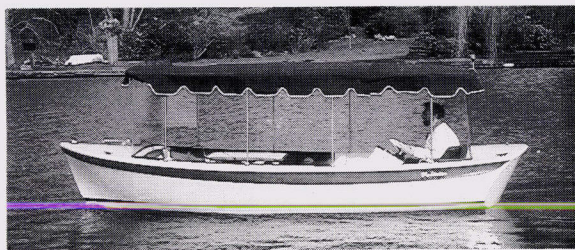
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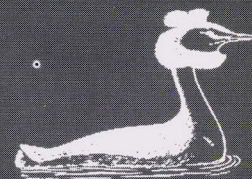
Some of the events which may be of interest to EBA members. The EBA may be present at some of the events, perhaps with its own stand.

- JAN 5-14** London International Boat Show.
- MARCH** EBA Start-of-Season Dinner.
- MAY 11-20** International Rally and Competitions, Bordeaux.
- MAY 16-19** Nottingham Boat Show.
- Spring/
Summer** Proposed Upper Thames Rally (see page 5).
- JUNE** Ninth Wargrave Rally.
- AUG** Traditional Boat Rally, Henley.
- AUG 24-26** IWA National Waterways Festival, Windmill End.
- SEPT 1** Cookham Regatta, Parade of Boats.
- SEPT** Broads Rally.
- SEPT** Southampton Boat Show.

Notice of other events to Edward Hawthorne, please,
on 01628 521606

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If you have anything you think might be of interest, please send it in.
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Items of interest include letters, reports on rallies or events, reports of
particular cruises or trips, articles or advice on building or running
electric boats, and reports on items of equipment. We also welcome
manufacturers' reports on new items of equipment or boats.

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Cover pictures: *Main picture: "Solifleur", the first passenger-carrying solar boat (see page 8). (Photo: Theodor Schmidt).
Smaller picture: The US electric racers are still going strong. This is Fred Saxby. (Photo: John Paramore).*

The Chairman writes ...

Winter is nearly upon us and laying-up is imminent so we electric boaters should be thinking of our batteries which will be in limbo over the period.

It is essential that they are left in a fully charged condition and correctly topped up. Now is a good time to check connections for tightness, remove any corrosion and grease up where necessary. And don't forget the charger: check all connections and repair any damage that may have occurred. Over the period, occasionally check the state of charge of the batteries and recharge if there is a significant drop in condition.

Carrying out these simple checks will ensure that the boat is ready for use in the spring - or, of course, over the winter.

I have some news about charging points on the Broads. These are now under the control of the Broads Authority and they have told me that they intend to place points on the southern Broads and possibly increase the numbers overall over the next few years. This is very good news. Here's hoping the NRA will follow their lead along the Thames.

I would also like to take this opportunity to thank Eastern Group plc (formerly Eastern Electricity) for continuing to sponsor the EBA. This is a very generous gesture and is a great help to us in keeping this 'green' form of transport in the forefront.

Jim Keating, our Technical Affairs Officer, and I recently attended a meeting of the Parliamentary Waterways Group. The Chairman of the Environmental Agency, Lord De Ramsey, gave a reasonably reassuring speech but there are still a lot of navigation issues to clarify. We placed copies of *Electric Boat News* on every seat around the conference table and Jim made sure that Lord De Ramsey was aware of the benefits of electric boating. His Lordship noted what was said and thanked Jim for raising the issue.

So there is lots happening and lots of interest still growing.

May I take the opportunity to wish you and your families a very Merry Christmas and Prosperous New Year.

Phil Horsley.

... and from the editor

At an EBA event recently, a reader of *Electric Boat News* said that he wished that we would publish more technical articles - like 'how to electrify a boat'. This set me thinking about the topics we have covered in my time as editor. This issue completes my second year, so it is not a bad time to take stock.

I counted the column inches in 'my' issues of the magazine and came up with the following figures:

The top five topics have been:

reports on EBA events: from winter and summer meetings to rallies on the Broads and the Thames (18% of column inches)

news from overseas: France, USA, Netherlands, Australia, etc (15%)

technical reports (13%)

articles by or about people in the electric boat business (10%)

interviews with and pictures of EBA personalities (8%)

Taken together, these 'top of the pops' account for about two-thirds of the total space available over the last two years. Other topics, like **electric boat history, record-setting, members' cruises, Boat Show reports**, etc, each hovered about the 6-7% mark.

Do you think this is about right? If you have views about the subjects we cover or the balance of our articles, do write and let me know.

And what about "How to electrify your boat"? This is covered very comprehensively in a 7-page EBA Information Sheet, obtainable from the Secretary, John Gardner. We will tell new readers more about these Information Sheets in our next issue.

At their last meeting, the EBA committee decided that the *E. B. News* should bear a cover price of £1.50. It will, of course, continue to be sent free of charge to members, but a cover price will enable us to charge for promotional copies in appropriate cases.

Roy Devereux



The TELCO team: Emrhys and Linda Barrell, Jake Kavanagh and Barbara Penniall,

Good mooring at Goring

The press turned out in force on a greyish afternoon in mid-October for the Thames Electric Launch Company's Demonstration Day at Goring-on-Thames. EBA member (and former *E B News* editor) Emrhys Barrell and his staff had brought together an impressive and varied collection of craft for the press to 'taste and try', ranging from a Minn Kota-powered inflatable tender to an NRA patrol launch. At one stage in this unique gathering, at various points



'Motorboats Monthly' editor Kim Hollamby (l) and 'Motor Boat & Yachting' deputy editor Tony Jones (r) talk to Phil Horsley.

along the riverbank, a reporter from Radio Berkshire was having the principles of the 'Selectric' drive explained, the Meridian TV camera crew were interviewing Emrhys aboard his *Electron* and the editor of *Motorboats Monthly* and the Deputy Editor of *Motor Boat & Yachting* were methodically stripping down an electric outboard.



Tony Jones picks up a few tips from *Electric Boat News*.

Practical Boat Owner, *Canal & Riverboat* and *The Boatman* also came to see the show, as well as reporters from several local papers.

Among the trade stands in the Boat House, EBA Chairman Phil Horsley represented Chloride Motive Power and also brought the EBA display boards. Complimentary copies of *E B News* were on hand as well as a copy of Edward Hawthorne's new book.

When everyone was assembled, all the visitors were taken out on the river to savour the experience of silent electric cruising. All the bigger boats were brought into use and EBA member Paul Wagstaffe

seemed to spend most of the day in *Wagtail V* taking parties down the picturesque reach to Goring Lock. Then, after lunch, having gained a bit of confidence, the press were invited to take the boats out themselves and many bravely took to the river as to the manner born. *Motor Boat*

& *Yachting's* ace photographer Lester McCarthy himself made an impressive picture as he regally piloted one of TELCO's *Voltaire 18s* and it isn't every day that your own *E B News* editor gets to take the wheel of an NRA launch. Shame I wasn't allowed to switch on the blue lamp and challenge a few smoky diesels!

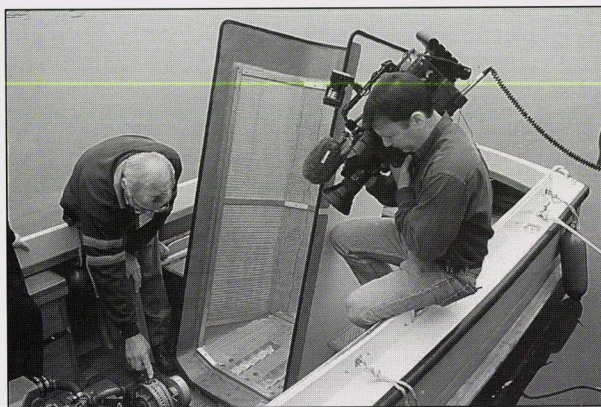
On the following evening, TV reporter Cary Johnston's report was given several minutes on "Meridian Tonight".

As well as being good for business, this TELCO demonstration day will have made many converts - in influential places.

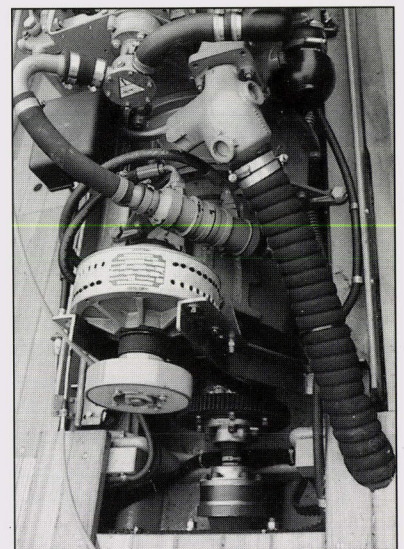
Congratulations, Emrhys - and your team!



Meridian TV reporter Cary Johnston is filmed trying electric boating for himself.



Meridian TV has a close look at the ...



...'Selectric' drive on the NRA launch



The SIKA Challenge

In our last issue we gave details of this year's SIKA Challenge. Competitor Emrhys Barrell now reports:

A new event at this year's Southampton Boat Show proved to be both entertaining for the spectators and at the same time brought electric boats to the attention of the 110,000 visitors. The SIKApower Electric Boat Challenge was a contest between home-built boats, all powered by identical Minn Kota electric outboards. The sponsors of the event were Sikaflex, whose flexible wood adhesive was used in the construction of the vessels, the Thames Electric Launch Company, who supplied the outboards, Delco Remy, the battery suppliers, and the Institute of Electrical Engineers.

The rules of the event were simple. The boats had to be car-toppable, seaworthy and carry two crew. The aim was to encourage new designs that would be easily constructed, easily powered and friendly to the environment. At the same time, the contest had to be entertaining to watch.

The races consisted firstly of a straight line sprint to find the fastest hull, then a course round the buoys which tested the manoeuvrability of the craft.



Six of the SIKA competitors round the buoy

The ten boats that came to the line for this first event were a motley flotilla including some that looked like they had been built the night before, and some that actually were. At the same time, there were sophisticated and well thought out craft that showed promise for the future.

The overall winner after six races was SIKA Surfer, a prototype for a modern camping skiff that could be rowed or powered, and that proved both fast, manoeuvrable and superbly built. Others following closely included a

disc carved from a solid piece of polystyrene foam, various hulls made from curved sheets of plastic or plywood, and an elegant catamaran from TELCO, whose crew drank champagne all the way round - even if they did not win.

The event is to be repeated at various shows up and down the country, open to all would-be designers.

Interested? - for more information ring TELCO on 01491 873126.

BROADS PATROLS GO ELECTRIC

On 19th October the Broads Authority launched their new River Inspector's launch. Like the two NRA Thames launches, *Lambourn* and *Colne*, the new *Charles Collier* is powered by the 'Selectric' diesel-or-electric drive devised and fitted by the Thames Electric Launch Company.

At the launching ceremony, the Chief Executive of the Broads Authority, Aitken Clark, said that their choice of the 'Selectric' drive shows that electric boats are the future for boating on the Broads. "The Broads Authority supports the use of electric boats because they are quiet, pollution free and create less bank-damaging wash. A special incentive gives electric boats a 20-25% discount over normal motorboat tolls."

Based at Irstead, the launch will

patrol the River Ant with River Inspector Jan Loughton at the wheel. The vessel will be charged overnight, which will provide 10 hours of operation at the speed limit of 4 mph. The backup 35hp Nanni diesel will be used to drive the salvage and fire pumps and to tow boats out of difficulty.

The 9.5m loa, 2.0m beam launch is fitted with a 200mm Lynch LM 200 permanent magnet motor rated at 4kW continuous output/5kW intermittent output at 36 volts. The motor is

powered by a bank of 18 x 2v Chloride Motive Power traction cells rated at 510Ah. The 'Selectric' drive system was fully described by Emrhys Barrell in the Autumn 1993 edition of *Electric Boat News* and is pictured opposite.





Peter Freebody ...

Five centuries on the Thames ...



... and son. The line goes on.

Travelling upstream on the Thames, about half-way between Marlow and Henley, you come to Hurley lock. It has a narrow lock cut and a high wooden bridge to negotiate so many people fail to see a boatyard half hidden behind the trees on the left hand side. This is, in fact, one of the oldest boatyards on the river - the premises of Peter Freebody & Co., craftsman boatbuilders known all over the world.

If you saw our picture of the re-enactment of the famous painting at Maidenhead in the last *E B News*, you will have seen the bearded figure poling a punt in the foreground. That was Peter Freebody himself. He comes from a long line of Thames boatbuilders - a very long line indeed, since he can trace the lineage back to the 15th century.

Peter's grandfather bought the riverside site at Hurley many years ago and, by an amazing coincidence, Peter and his wife Elizabeth have since discovered that his ancestors had occupied the same site from 1533 to 1884. The present business really dates from 1962 when Peter took over. He built the slipway and the extensive boatbuilding workshops and has, he says, so far survived nearly 35 years of economic ups and downs.

The yard has become famous for building boats to the highest standards of craftsmanship. Orders come from all over the world. On the day that I visited the yard, they had just had enquiries from Australia and Buenos Aires. A luxury launch from Peter Freebody, built to the customer's specification, can cost well over £100,000.

I went to look at three electric boats. The first was *Caper*, a canoe modelled on *Cymba*, the classic boat which Freebody's restored for Jack Henley and which was featured in the Spring 1995 issue of *E B News*. *Caper* is 28ft long and her beam of 4ft 10in comfortably accommodates two people side by side. She is powered by a 48 volt, 1.4kW motor fed by eight 6-volt, 170 Ah batteries. The battery charger and controller are built in. There are two steering positions, one at the stern and one on the port side amidships, each with impressive mahogany steering wheels. A camping cover and hoops to give complete weather protection pack away behind the skipper's seat.

I was next taken to see *Grace E*. ('E' for Elizabeth - or possibly for 'electric'?). This beautiful 28ft cabin launch is very much a 'one off' - built in the

last few months to the specification of an American customer in Cincinnati (the same customer, it appears, who owns *Caper*). We took *Grace* through Hurley lock for a photocall and enjoyed a short, gentle cruise between the wooded bank on the north and the water meadows to the south. The rear cabin is, of course, a most striking feature and her 6ft 3in beam makes her a very roomy craft. She is powered by two 2kW 48-volt Nexus motors and, again, has dual controls. If Peter Freebody were to build you another *Grace* it would cost in the order of £118,000.

Finally - I hesitate to say we saved the best till last, since they were all so beautiful - we took a run in *Tadpole*. This 28ft electric launch, built by Freebody's last year, is a replica of a 19th century launch which was too far gone to restore. (The shell of the original boat can still be seen in the yard and historians think that it may well be the *Tadpole* built in 1893 and looked after at the Ray Motor Co in Maidenhead between 1904 and 1912). The 1994 *Tadpole* is powered by her original 1882 48-volt electric motor, drawing on eight 6-volt 160 Ah batteries. The motor is housed in a glass-covered well amidships and can be seen in motion while the boat is under way.



Peter Freebody's picturesque boatyard at Hurley

Peter Freebody says visitors are welcome to visit the workshops at Hurley to see the boats. He can be contacted on 01628 824382.



... and still going strong



Above: *Grace E*

Left: *Caper*

Below: *Tadpole*

CAN YOU REACH THE UPPER REACHES?

EBA member Paul Wagstaffe has just taken *Wagtail V* up the Thames to Oxford to lay her up for the winter and on his way he talked to one or two people about the possibility of organising a gathering of electric boats on the Upper Thames next year.

All e-boaters within reach of the Oxford area (by water or by road-trailer) would be welcome. The more the merrier - in fact, the more boats that came, the stronger would be the pressure on the NRA to hasten their programme of installing recharging points on the upper river.

Paul says he would be happy to make all the arrangements, including organising recharging facilities along the route and at the final venue. If boaters needed overnight accommodation, he would arrange that and it might also be possible to lay on economical boat transport by trailer.

At this stage nothing is fixed. The venue could be in the Oxford/Abingdon area and the time could be Spring or Summer next year.

This could be good fun *and* could strike a blow for e-boating on the Thames. Anyone who is interested in principle is invited to ring Pat Wagstaffe at home on 01628 524376 or write to 51, New Road, Bourne End, Bucks SL8 5BT.

ARE YOU THE PERSON WE NEED?

The committee of the EBA is looking for an

EVENTS ORGANISER

- someone to draw together and co-ordinate small teams to run social events, rallies, etc. We are not looking for a volunteer who will do all the work themselves, but rather someone who will be a 'progress chaser', someone who will see that whatever has to be done actually *is* done.

Could this be you?

Please speak to Phil Horsley.

DEVELOPMENT OF HULL FORM SUITABLE FOR AN ELECTRICALLY PROPELLED CABIN CRUISER

by EBA member Dr George Gadd of BMT SeaTech Ltd.

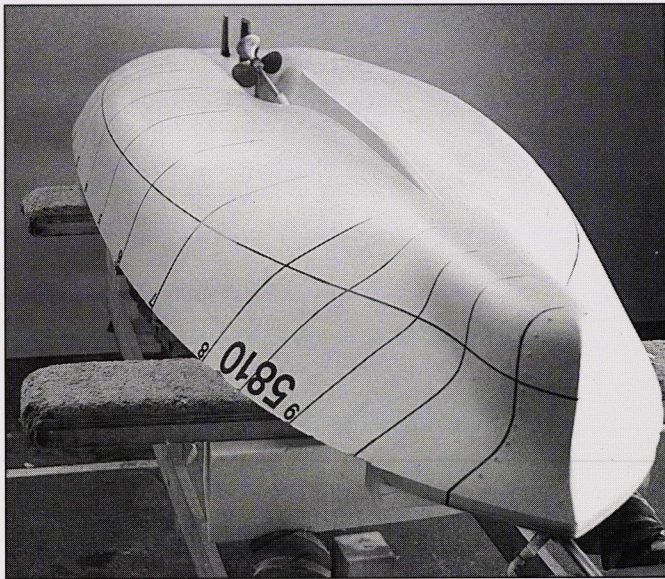
An unusual project recently carried out by a specialist vessel hydrodynamics group of British Maritime Technology (BMT) was to develop by means of tank tests a hull form suitable for an electrically propelled cabin cruiser. Unusual because BMT, as the heir to 80 years of ship model testing on the former Ship Division site of the National Physical Laboratory, is normally concerned with much larger vessels. However, recent involvement with the environmentally important problem of boat wash^{1, 2} both for fast ferries in harbours and for boats on recreational waterways, made it natural to combine these interests with the ecologically attractive concept of electric propulsion.

Cabin cruisers designed for operation in shallow waterways, such as the Norfolk Broads, present a challenging problem for the achievement both of low wash and efficient propulsion. The latter requirement is essential for electric boats, to minimize battery weight. The easiest way of obtaining low wash is to use a long, slender and relatively deep hull form, but practical problems of stability and shallow water operation point to a short, fat, shallow boat. Moreover shallow draft usually means a small propeller, which is inherently inefficient as it leads to higher than desirable speeds in the propeller race, with consequent energy wastage.

BMT met these challenges by designing a hull form with a semi-bulbous bow, with the propeller partly recessed into a tunnel. The photograph of the model out of water gives an idea of the underwater shape. The tunnel would enable a propeller of 0.54m diameter to be used in a boat with full

scale dimensions of 9m length, 3.3m beam, and 0.52m draft, at a displacement of 5 tonnes. The top of the tunnel at the propeller position is actually above the static water level, but with the propeller operating the tunnel runs full.

Tests showed that to achieve speeds



two boats in water 1.7m depth. The speed of both boats is 5 mph, and their straight tracks pass the measurement position at a distance of 5m. The lower trace is for the BMT design and the upper one is for a conventional cruiser form of similar dimensions. Though the latter boat is considered to be a low wash form, it is clear that the BMT design is even better.

Our design study was undertaken to apply BMT's expertise in hull form design to small pleasure craft to provide low wash hulls and energy efficient propulsion. BMT would like to offer its technology to a fleet of pleasure craft and would be pleased to enter into discussions to this end with any interested boat builder. First contact should be made with Dr. Ian Dand, BMT SeaTech Limited, at Orlando House, 1 Waldegrave Road, Teddington, Middlesex, TW11 8LZ.

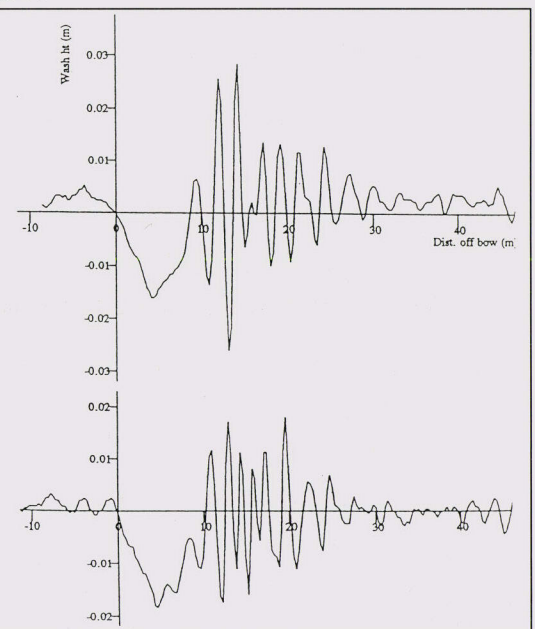
¹ Gadd, G.E.: The Windermere Boat Wash Trials. Report for the Lake District National Park Authority, 1992.

² Gadd, G.E.: The Wash of Boats on Recreational Waterways Paper W2(1944), The Royal Institution of Naval Architects

of 5 and 6 mph in deep water, the delivered powers required would be only 1.9 and 3.0 kW. For water of depth 1.7m, the corresponding power would be 2.1 and 3.3 kW. These figures are believed to compare favourably with other electric boats of similar size.

Andrew Wolstenholme, the well known boat designer, who had observed some of our tests, told us that the tunnel stern which made these good figures possible was not such a novel concept for cabin cruisers as we had fondly imagined. He pointed out that in the 1949 edition of "The Motor Boat and Yachting Manual" there are drawings of an electric boat incorporating this very feature!

The good wash characteristics of our boat are evident from the graphs. These show time histories of full scale wave height for





“SILENT SENSATIONS” 1995

Fraser Brown reports:

Norfolk's annual “Silent Sensations” electric boating event was held on a sunny Sunday early in September. South Walsham Broad was the scene for a gathering of a wide cross-section of electric craft, including Eastern Group plc's 31ft STELCO launch *Liana* (being used by the Broads Authority), the 1909 Norfolk Wherry, *Olive*, the new Broads Authority inspector's launch, shortly to be named *Charles Collier*, and a variety of day boats.

Visitors were offered free trips around the beautiful waters and a chance to experience the joys of electric boating. Seasoned campaigners exchanged tips and experiences and one newcomer was overheard saying that South Walsham Broad had “taken on a new life” for her.

The event was well attended - much interest being shown in the marquee (not only because of the very welcome refreshments). Exhibitors included the Broads Authority, the Broads Society, Chloride Motive Power, Eastern Group plc (Eastern Electricity as was), John Williams Boats, the Museum of the

Broads and Mitchell, the main distributor of Minn Kota outboard motors.

Centre piece of the day was the “All Comers Electric Boat Competition”, which included time trials, manoeuvrability tests, a concours d'elegance and a silence trial. The organisers were using a decibel tester to assess the sound disturbance caused by electric boats at a distance of 3 metres. Unfortunately this proved to be a futile test since none of the boats made enough noise to register on the scale!

The competition was won by Malcolm Moss with his solar-powered Chameleon dinghy *Solar Pichola*. This boat was built as a gift for HRH the Maharana of Udaipur, India, and will be used as a water taxi carrying guests at the Shivniwas Hotel around Lake Pichola.

The only other competitor, Paul Wagstaffe, in his Minn Kota-powered John Williams dinghy, described himself as “a happy runner up”. He suggested that the competition is “an idea to build on for the future”.

Thanks were given to the organisers: EBA member Peter Howe of Camelot Craft, the Broads Society, Eastern Group plc, the Broads Authority - and whoever it was who made the sun shine.



It was hoped that the “Silent Sensations” All Comers Competition would serve as the British eliminator for the international competition to be held in Bordeaux next year, but solar powered boats will not be eligible for that event so we have to start from scratch. Here is the official EBA announcement:

The French Electric Boat Association, AFBE, will be holding the “Electric Boat World Championship” in May 1996 during the Bordeaux International Fair. Eleven countries have so far been invited to compete.

The championship will be open to two battery-electric boats from each country. The competition will comprise a race around a 1.5 km circuit for a fixed time (perhaps 6 hours), a manoeuvrability and silence trial and a concours d'elegance. (Details are still to be agreed).

There will also be a parade of electric boats and a symposium on electric boating and related issues.

This is an exciting opportunity to participate in the first ever international battery electric boat event and we hope that the UK will have a strong presence.

Any EBA members who are interested should contact Kevin Desmond for further details:

M. Kevin Desmond,
Association Français pour la Bateaux Electrique,
54, route de Latresne,
33 360 Carignan de Bordeaux, France

The French eliminator competition was held at Nantes on the weekend of 1-3 September. The five-hour endurance race was won by Jerome Croyere in *Zelec*, who had completed 25 laps of the circuit (37.5 km) at a steady average of 7.5 km/hr. The highest overall points score for all the four disciplines was achieved by M. Bernard in *Luciole* but his boat was American, so the boat to represent France at Bordeaux will be M. Gorius' *Alize*.

The First Passenger-Carrying Solar Boat: *SOLIFLEUR*

reported by Theodor Schmidt of Steffisburg, Switzerland.

Since June 1995 a new solar boat for 12 passengers and crew has taken up service for the Swiss League for Nature Protection. It is used several times per week for transporting groups on a nature excursion of 15 km length on the Lake of Neuchâtel. Already a second identical boat is commissioned in order to be able to carry whole school classes at the same time.

This is probably the first time that a passenger-carrying boat in regular service is powered exclusively by more or less direct solar energy. The Swiss League for Nature Protection at Champ Pittet has thus initiated an occurrence of historical significance, thanks to funding by Yves Rocher, the Canton of Vaud and the Swiss Department of Energy. The boat was built specifically for the job by MW-Line of Yverdon. The hull is of a relatively conventional shape and combines large stability with low drag. It is made of polyester/glass with deck, coamings and benches of

birch plywood, tropical hardwood being out of question for environmental and political reasons. A glass bottom allows observing the bottom of the lake in places. The 500 Watt solar panel consists of 8 flexible modules of monocrystalline cells mounted on canvas on a frame of aluminium alloy tubes. This resulted in a light but sturdy structure which also protects the passengers from sun and rain.

Propulsion is by saildrive using a Lynch motor at 24V. Top speed at this voltage is about 5.4 kts and 2.7 kts are possible in direct solar mode, i.e. without using the 460 Ah, 24V battery. In good weather the battery is thus only lightly discharged and quickly recharged after a trip. In order not to waste the extra energy, the craft is stored on a rail slip each day and connected to the mains. An electronic controller automatically feeds the solar power into the mains at 230V AC when the battery is full, the meter then

running backwards. In the case of prolonged bad weather, the battery can be charged from the mains. Over the year, a large surplus is expected, as the boat is not used in winter. In addition, there is a stationary 500 Watt solar panel always feeding the mains. Therefore the boat is effectively using solar energy even in poor weather and is a small power station in good weather. An on-board data logger installed by the Technical College of Yverdon measures the consumed and produced energy all the time. The boat was planned and built by Mark Wüst of MW-Line, the electrical system conceived by the author. The second boat will use the same inboard drive system allowing both steering and retraction but will include extra step-down gearing, allowing the use of a more efficient propeller than the 12in x 8in fitted as standard to the ASMO/Bender/Lynch drive.

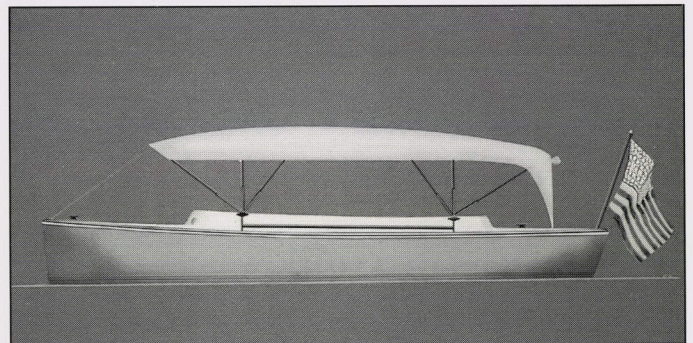
Solifleur is featured on our front cover. In our next issue we hope to report a fascinating cruise taken by Theodor Schmidt down the river Saône in a solar boat.

Elco, the Electric Launch Company Inc, of Highland, New York, has announced two new models, the Elco Serenity 14 and the Elco Classic 18.

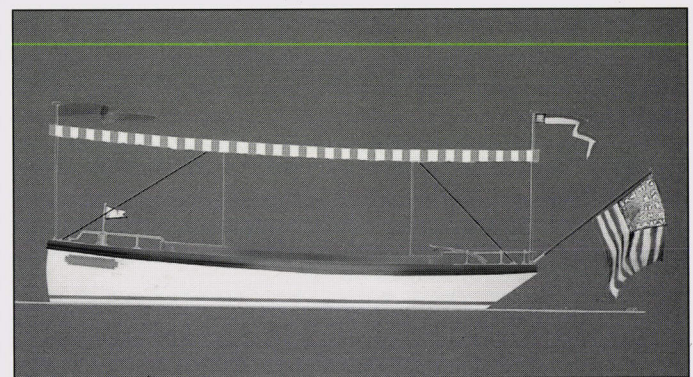
The Serenity is 14ft loa, 4ft beam, 10in draught. The 24v DC 0.373kw permanent magnet motor, powered by two Group 27 sealed lead acid modules 105Ah capacity, drives a three-bladed brass propeller. A 24v DC 30A electronic controller gives infinitely variable speed control and a 110v AC 15A service/24v DC 30A output charger is built in but is designed for 120v 60Hz shore power outlet. The boat has tiller steering and an optional canopy for shade or rain protection. The boat seats four and a cruising range of 50 miles at 4 knots is claimed. (Technical details of the 18 were not to hand when we went to print).

Elco launched its first electric boats over a hundred years ago and electric-powered Elcos from that era still operate on lakes and waterways across the USA. Over that 100 years the company has built over 6.000 pleasure boats as well as 500 anti-submarine motor launches for the Royal Navy in World War 1 and 400 PT boats for the US navy in World War 2, including John F Kennedy's famous PT-109.

Elco do not have an agent in the UK and they would be most interested to hear any proposal for distributing their products, especially the Serenity 14, in this country. They are offering the Serenity 14 at a suggested retail price of \$7,775 (appr. £5,000) and to select dealers at \$6065 (approx. £3,900). The suggested retail price of the Classic 18 is \$48,000 (appr £31,000). Profit margins can be increased with the major options, including canopy and custom trailer. For more details call Joe Fleming on 914/691-3777 or fax to 914/691-3799.



Elco Serenity 14 Touring Boat



Elco Classic 18 Fantail launch