

Electric Boat News

The Journal of the Electric Boat Association

Volume 6 Number 4 Autumn 1993



NRA's New Electric Launch

Mystere and Dynia – Two Electric Boats

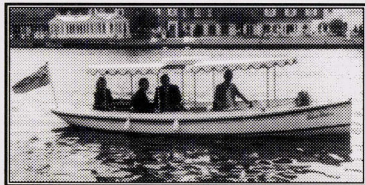
Cookham Regatta Report

Summer Meeting Report



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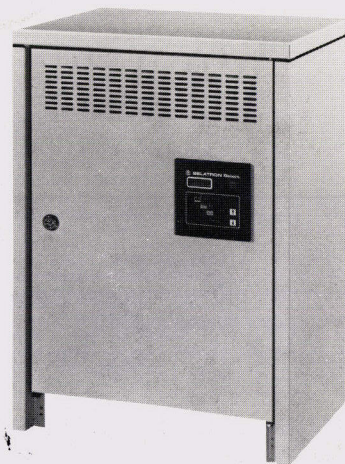
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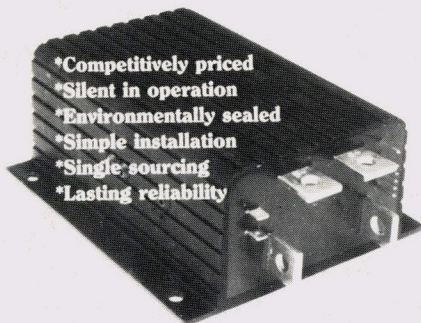


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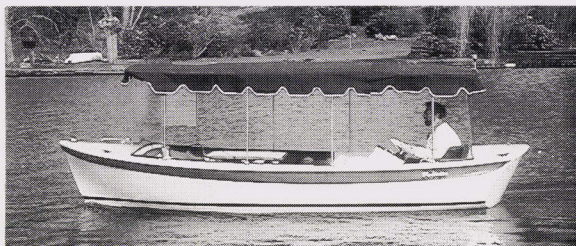


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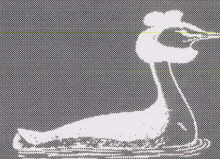
Some of the events during 1994 at which Electric Boats are expected to be present. The EBA expects to have a presence and perhaps its own stand.

| | | |
|-----------|-------|---|
| JAN | 6-16 | London Boat Show |
| FEB | 15 | EBA Winter Meeting 7.30 pm Cookham Parish Centre |
| MAY | 19-22 | Inland Waterways Boat Show |
| MAY | 28-30 | IWA Trailboat Rally |
| JUNE | | Seventh Wargrave Electric Boat Rally |
| AUGUST | | Traditional Boat Rally, Henley |
| AUGUST | 27-29 | IWA National Waterways Festival, Waltham Abbey |
| SEPTEMBER | | Cookham Regatta Parade of Boats |

Notice of other events to Edward Hawthorne 0628 521606

SPONSORS

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Electric Boat News welcomes contributions from readers and members. If you have anything you think might be of interest, please send it in. Bear in mind however that due to circumstances sometimes beyond our control, we cannot be held responsible for any damage or loss which may occur to this material.

Items of interest include letters, reports on rallies or events, reports of particular cruises or trips, articles or advice on building or running electric boats, and reports on items of equipment. We also welcome manufacturers reports on new items of equipment or boats.

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The Journal of the Electric Boat Association

Volume 6 No. 4 Autumn 1993

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*Cover pictures: Our main picture shows the National Rivers Authority's new diesel/electric patrol launch, subject of an article in this issue. The small picture shows Edward and Dinnie Hawthorne in *Mystere*, this issue's Boat of Our Own.*

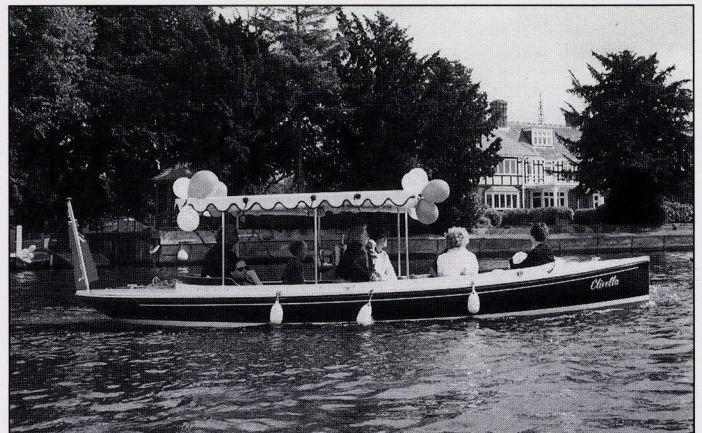
NRA's electric launch marks major step forward

Our cover picture shows Lambourn, the new diesel/electric patrol boat belonging to the Thames region of the NRA. This boat, which is described in more detail later in this issue in fact marks two major steps forward for the electric boating cause. On the one hand it is the first electric boat to be operated by one of our major waterways authorities, and at the same time it is the first application of a revolutionary new diesel/electric propulsion system developed by the Thames Electric Launch Company.

At this point, as editor I have to declare an interest, as TELCO is my company, but I hope you will forgive my enthusiasm for the new boat. Also, to ensure complete impartiality, the report in the issue has been written for us by Edward Hawthorne, who spent a day on board the boat.

It is particularly pleasing to see the NRA setting an example to other river users, and also to other water authorities, and we hope that the fact that they are prepared to endorse electric power will encourage others to follow suit. It may also hopefully break the chicken-and-egg situation, where the lack of charging points puts people off committing themselves to electric power. With

Queuing up for trips at the Summer Meeting.



One of the entries at the Cookham Regatta.

the NRA having their own electric boat, soon to be followed by another, we can hope to see more charging points appearing on the river.

In this context, the combined diesel and electric system will also prove beneficial, since it allows owners of existing diesel-engined craft to add-on silent electric power, without risking being stranded by running out of power. It will also allow the owners of high-powered sea-going craft to give themselves an electric option for travelling on the river.

All-change at the Editor's chair

This issue also marks the last that I will be editing. When Kevin Desmond stepped down last year, to move to France, he asked me if I would take on the magazine, to ensure its continuity. This I agreed to do for a year, but the pressure of other commitments has meant that I am now glad to be able to hand over to Roy Devereux. Roy has considerable experience as a Thames boat-owner, and also in writing for magazines, and I am happy that our main source of communication with our members is in safe hands. I have enjoyed taking the EBA News through a change of layout and style, and on to an excellent printer, and I look forward to contributing to it in the future.

Emrhys Barrell

The NRA Goes Electric

Lambourn, the NRA's new diesel/electric launch, on patrol on the Thames.

Kevin Bond, Operations Director of the National Rivers Authority, has seen his vision come to fruition this year. Lambourn, the well-known Patrol Boat on the Middle Thames has had an environmentally-friendly electric propulsion system added without any loss of existing operational capabilities. In future, it will use its diesel engine only for powering its fire pumps and pumping out, and providing high power for emergency use, fast stream conditions and towing. For its normal eight-hour patrols it will run on a silent, pollution-free electric motor.

Earlier this year, the Thames Electric Launch Co. were commissioned to install an electric drive to run in parallel with the existing Thornycroft 60hp diesel engine. This has been achieved by fitting a 5kW Lynch radial armature motor driving through clutches and a toothed rubber belt onto the existing drive shaft. Thus the propeller is driven either by the diesel or the electric motor. The clutch ensures that when the diesel is working, the electric motor is completely disconnected from the drive shaft.

The Lynch motor is only 200 mm diameter and 80mm long. It is designed to give a maximum 6kW but in this installation is set to provide 4.5kW at 36 volts and 130 amps. It is mounted just behind the diesel and runs at maximum rpm of 2300. This is reduced to the propeller shaft speed of 1200 rpm through the belt coupling.



The batteries are mounted in their own compartments forward and aft of the diesel. Two banks of six batteries are mounted forward and one bank is fitted aft, alongside the Lynch motor, the three sets being connected in parallel. The batteries are Chloride Trekker 3ET 175 Ah monobloc tubular plate type. A 3" diameter ventilation pipe runs from each battery compartment through the coaming on either side of the launch. A Chloride Aqualert topping-up alarm is fitted to one of the port side batteries. Topping up will be through a Chloride Easifill semi-automatic system. The battery pack has been sized to give six hours continuous running at about 5 mph. Including the time for pas-

sage through locks, when the motor will not be running, the launch can easily complete an eight hour shift on one charge.

A large battery charger, the Chloride 210 36 volt 465 Ahr, is fitted in the driving cabin. The 240 volt mains supply is brought on board to a Marechal 16/32 socket and the land connection will be through the standard Marechal 32/50 four pin socket which is being fitted on all NRA charging points. The launch has been fitted with a corresponding earth monitoring system and in addition, an RCD is fitted on board.

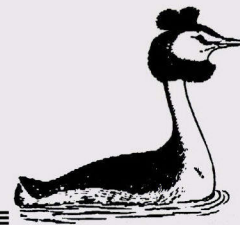
The control system has been designed and fitted by Thames Electric Launch Co. using a Curtis MOSFET controller. This gives completely variable speed control both forward and astern. The system is powered up through a master switch and then an "ignition" switch that engages the main controller relay.

Instrumentation is simple, comprising a Curtis LED battery state meter, a 0-150 Ammeter and an Autohelm log/speedometer. The latter enables the helmsmen to best balance speed against power consumption, to give the maximum possible range.

With NRA Boatman Julian Kennard at the helm we set off on a simulated operational trip. Throw the master switch, turn the "ignition" key, cast off and we glided silently into the river above Caversham Lock. Opening the throttle the launch quickly gathered speed against the modest stream until at half throttle we reached operational cruis-



Boatman Julian Kennard at the helm.



The instruments ahead of the wheel, and motor control to the left are clearly visible.

ing speed of 4.5 mph with the motor taking 60 amps. After a short time at this setting, the throttle was moved to fully open, the speed then reaching 5.8 mph with the motor taking about 130 amps. The motor and drive noise and vibration remained all the time at a low level. Moving the throttle from forward to full astern was made steadily with a slight pause in neutral to allow the electric motor clutch to change direction. The high inertia of the launch means that the change from forward to astern takes marginally longer with the electric motor than the much more powerful diesel but this is not regarded as a problem, and all drivers have so far expressed themselves perfectly happy with the performance.

A demonstration of the changeover from electric to diesel revealed one of the major advantages of this system. Moving forward at cruising speed, the electric throttle was closed and motor switched off. The diesel ignition key was turned to operate the starter. The engine immediately roared into life and being brought up to half throttle, the launch came back to cruising speed with hardly any overall drop in speed. But the noise and vibration of the diesel immediately impressed itself on us. It was a relief to switch back onto the electric motor.

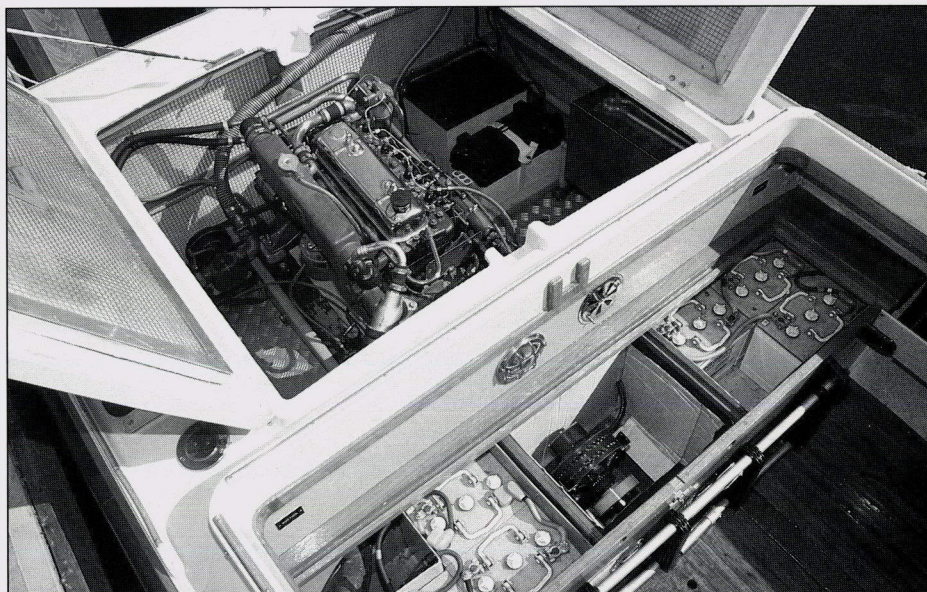
The extra weight of the batteries adds about 1100 lbs. and causes the launch to sink about 1.25 inches into the water. This has an imperceptible effect on the wash but gives a slightly lower response time to the acceleration under electric power. Manoeuvrability is not affected, and the launch will still turn in virtually its own length, a necessity on the busy Thames.

There is no doubt that the use of electric power for normal patrol operation will greatly reduce the noise heard by the general

public and will have a marked effect on the improved comfort level for the crew in the driving cabin, especially over a full working day. Other advantages, such as ease of operation, reduced maintenance and possibly lower operating cost have yet to be proved. One operational requirement on Lambourn is that the diesel has to be warmed at the beginning of every patrol in order to ensure that its full performance is immediately available at any time during the patrol.

However, this is a simple requirement, and overall the NRA are sufficiently impressed with this first installation on the Lambourn that they have commissioned the first of their new 31ft launches to be fitted from new with a diesel-electric installation.

The diminutive Lynch motor, and six of its batteries, mounted aft of the 60hp diesel it replaces for normal patrolling.



This boat is being built during the winter, and will appear alongside Lambourn next season.

If the experience of the growing number of electric boat users is anything to go by, we can expect to see patrol boats on many waterways being converted to diesel-cum-electric. The system appears to give the best of both worlds for these multi-purpose vessels, but at the same time it would appear to have advantages for other private craft, particularly those with large diesel engines, who wish to travel silently on the rivers or canals. TELCO are presently completing two more installations, one on a sea-going river launch, and the other on a canal boat.

For further information contact:

Emrhys Barrell, The Thames Electric Launch Co, PO Box 3, Goring-on-Thames, Berks. RG8 0HQ. Tel: 0491 873126. Fax: 0491 872217

John Redmond, National Rivers Authority, Kings Meadow House, Reading, Berks. RG1 8DQ. Tel: 0734 535000. Fax: 0734 50038



Dinnie at the helm of Dynia, her 15-year old shopping boat.

Two boats of our own

Not one but two boats this issue. Edward and Dinnie Hawthorne, stalwarts of the EBA, have had a succession of boats to go with their several houses alongside the Thames, and the last two have both been electric, one for each of them.

The older of the two craft is Dynia, and she belongs to Dinnie. 15 years ago when the Hawthornes moved to a house at Bourne End, the problem Dinnie had was getting to the shops on the other side of the river at Cookham. The walk across the bridge was often perilous, and so going by boat was the obvious way. The first choice was a conventional outboard-powered dinghy, but the family's new Labrador puppy found the noise of the engine not to his liking. In fact so much so, this sensible dog would not even travel in such a noisy craft. So the search was on for a silent boat.

The hull was found in a neighbour's garden. 15ft long, it had a sturdy clinker-built form in GRP, and was ideal for the purpose, being deep enough to keep the children on board, and beamy enough to carry all the passengers and goods. The first engines tried were various electric trolling motors, however these were not really man enough

for daily use, and something more substantial had to be found.

The solution was a 600W Accumot pod-mounted motor. This was bolted under the hull, with steering achieved by a separate transom-mounted rudder and tiller. The 24V motor was driven by four 6V batteries,

located port and starboard amidships under two wooden boxes. Motor control consisted of a four-position switch, giving two forward speeds and two reverse, mounted in the face of the stern seat.

The Accumot was installed some ten years ago, and has run faultlessly ever since. Three years ago it was stripped down for inspection, and declared as good as new.

Dynia was described as Dinnie's shopping boat, and was designed to be used every day. It was also intended to be left out in the open unprotected all its life, so the floorboards and seats were made in untreated iroko, and these have lasted admirably until this day. This is not to say the boat does not get looked after, and every year it is spruced up for the Cookham Regatta, where it regularly features in the parade. It has also made the local papers, with Dinnie at the helm showing just how electric boats should be used.

Not to be outdone in the electric stakes, three years ago Edward commissioned his own silent boat. This was based on a 21ft STELCO Frolic hull, but built to his own design, and fitted out by Dave Smith, a local retired boatbuilder. The requirement was for an elegant day-boat, with comfortable seating for up to six people, and a clear open floor space, for entertaining, picnicking or just relaxing.

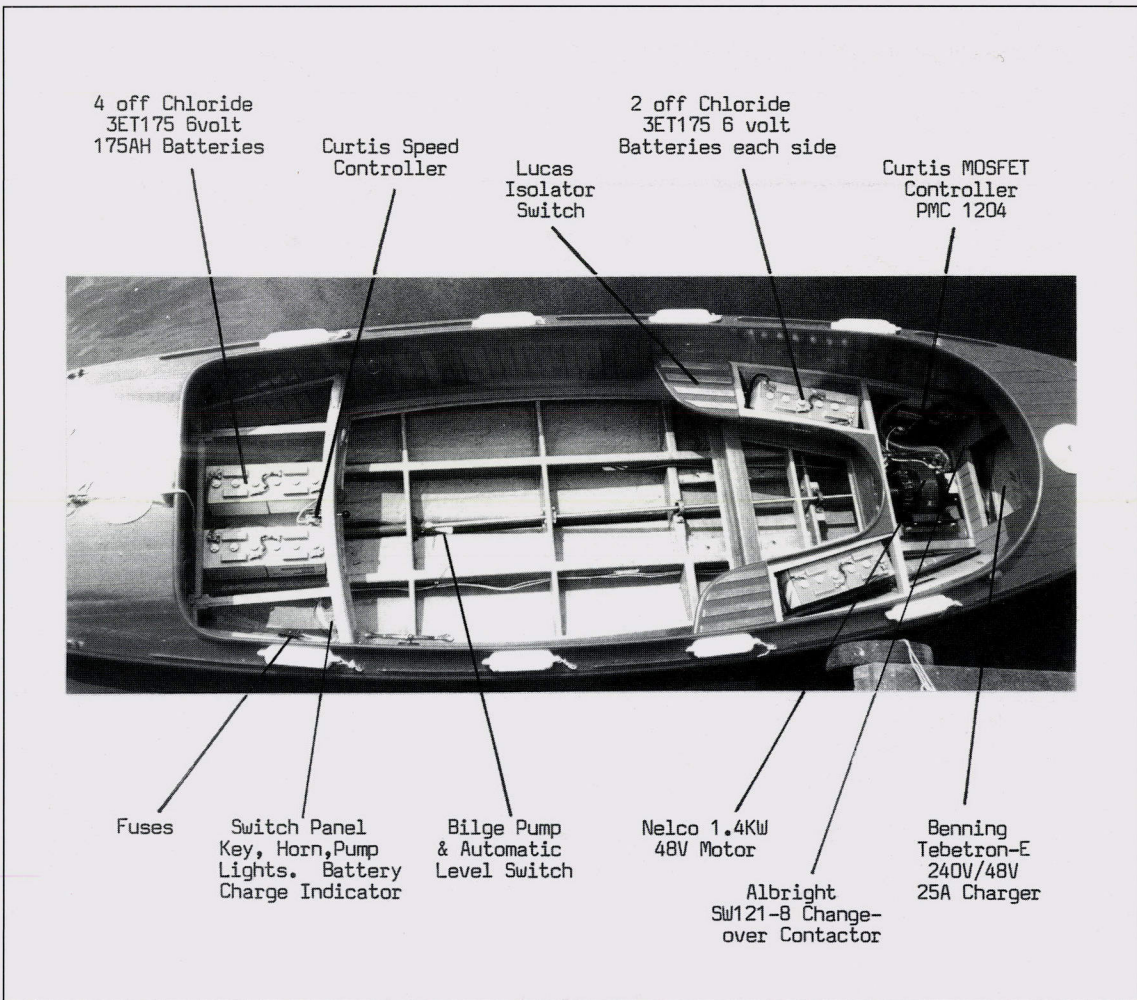
The basic Frolic mechanics were utilised, with a 1.4kW NELCO motor, direct driving the propeller. However, to keep the floor space clear, the motor was mounted in the



Dynia's Accumot pod-motor mounted underwater.



Schematic photograph of the electric propulsion system on *Mystere*.



Below: Edward and Dinnie take the treasurer and his lady for a cruise at the Cookham Regatta.

bow, under the forward seat. Similarly, the steering position was kept aft, with a side-mounted wheel, and the speed control set in the face of the aft seat. This arrangement

takes a little getting used to, but is soon mastered, quickly repaying the benefits of not having a central wheel or console. Battery power comes from eight Chloride

3ET175 6V cells, giving 175Ah at 48V. Normal cruising speed is at 30-40 amps, giving a brisk 4-5mph, with maximum power consumption being 48 amps, at which the motor is in fact producing close to 2.4kW, considerably more than it rated power, caused by the direct drive pulling down the rpm.

Charging is by a Tebetron 25A charger mounted under the foredeck.

Mystere as she is called has featured in the Wargrave and Cookham regattas, winning prizes in each, and is a superb looking boat. The varnished timber trim is matched by polished brass fittings, including elegant glassholders, that are in fact converted tooth-mug holders! Meticulous in all his affairs, Edward has produced a schematic drawing showing the layout of all the major components, which we are reproducing here, as it gives a clear idea of how to put an electric boat together, and will prove useful to anyone wanting to follow in his footsteps.

And the Hawthorne's next project? Well, at present a boat each is quite sufficient, and neither of these look like needing replacing for some time.



Successful Summer Meeting

The Users Group of the EBA organised a highly successful Summer Meeting in July. Held in the grounds of Hambleden Mill Marina, by kind permission of Peter Jones, it attracted a good turnout of nearly 50 members and guests. The proceedings successfully combined business and less formal events, helped by one of this summer's few sunny Saturdays.

The formal part of the proceedings included talks by Martin Joslin of the Broads Authority, on the progress with their charging point scheme, followed by Paul Wagstaffe on his experience of a holiday on board Silent Poppy, the Blakes electric hire cruiser.

The meeting also coincided with a constitutional requirement for the EBA to hold an AGM. However, to avoid the meeting getting overwhelmed by formalities, the Chairman encompassed all these aspects by giving a short address that covered the aims and achievements of the EBA in its first 10 years. She then introduced the members of the Committee, and asked the meeting to

endorse their positions, which was duly done by a show of hands.

The meeting then moved on to a question-and-answer session, with representatives of companies supplying batteries, chargers, and electric boats answering questions from the audience.

Lunch consisted of an excellent barbecue, served on the marina lawns alongside the mill stream. This was then followed by the opportunity for members to go for trips in a variety of electric craft present.

Guest at the meeting included several representatives of the Press, which ensure we got good coverage of the event in both local and national newspapers and magazines.

Regrettably Edward Hawthorne, the Users Group Chairman, having put in much of the effort to ensure the event's success, fell ill the day before it took place. Happily he is now fully recovered, and well into organising the Winter Meeting this February.



Top: A brace of Deltics and their owners compare notes. **Right:** Members listen intently during the business session. **Below:** Cedric Lynch examines the mechanics in Peter Freebody's restored canoe.



EBA at the London Boat Show

The EBA has managed to secure a presence at the Earls Court Boat Show in January, thanks to the offer by the Steam & Electric Launch Co to allow us to use a corner of their stand. On display will be a range of posters and leaflets, plus membership forms. The stand is on the Ground Floor, and we look forward to meeting you there.



Electric parade leads Cookham Regatta

Electric boats were given pride of place by leading the Parade of Boats at the Cookham Regatta in September. The sixteen electric's which took part were led by the National River Authority's Lambourn, the latest and most prestigious addition to the country's electric boat fleet.

One of the revolutionary Lynch electric motors has been fitted in Lambourn and provides all the power necessary for a full day's operational cruising. The original diesel engine is retained to provide additional power for emergency uses, such as high speed oper-

Top: Ian and Sylvia Rutter's *Voltaire Irene*.

Centre: *The Frolic Legato*. **Bottom:** *The Sharpe family's electric dinghy*.



Trophy", awarded for the best decorated electrically powered boat was won by John Church with his new canoe Libelula, which just scraped in ahead of Paul Wagstaffe's Wagtail and Mrs. de Leon's Margot. Two other canoes were in the parade, Andrew Ball's Canadian canoe Tenderfoot and Richard Mash's Silver Dart who with his brother have demonstrated their considerable woodworking skills in its beautiful mahogany finish.

On land, the EBA marquee was fitted out and manned by Emrhys and Linda Barrell of Thames Electric Launch Co. who showed their own designed boat Sparkle, a 13ft

ation, towing, running the fire pumps, etc. The absence of noise and vibration under electric power is quite remarkable. A full report appears elsewhere in this issue.

Frolic 21's were well represented by Marjorie Turk's Aronda, Pat Davis' Celandine, Celia Legg, a new member with her open launch Streamer, Derek Chamberlain's aptly named Legato and Ron Callard's Clivella. Two



WINTER MEETING

Following the success of the EBA Summer Meeting, there will be a meeting of Electric Boat Association members on Tuesday, 15th February 1994 at 7.30pm. The venue will be Cookham Parish Centre, situated by Cookham Church on the A4094 between Maidenhead and Bourne End and there is a car park in the Centre grounds.

During the course of the evening Derek Chamberlain will bring members up to date regarding electric boats in America, present a slide show that includes news of the Dutch and Swiss scenes and advise us of the latest developments concerning electric boats in the UK.

This will be an opportunity to meet other members and exchange questions, ideas and experiences.

Trade members, including Phil Horsley from CPM batteries, will be available to give advice.

As there will be a hot buffet provided, entry will only be by prior booking, so please advise Mrs Pat Davis, Whytegates, Berries Road, Cookham, Berks SL6 9SD. Tel: 0628 521189 Fax: 0628 810550 of your intention to attend. The cost is £9.50 per head and cheques should be made payable to the EBA.

of Duffield's *Voltaire 18's* were present; Ian and Sylvia Rutter's new *Irene*, and Mrs de Leon's *Margot*, beautifully decorated in Panamanian style to commemorate their friend, the great dancer Margot Fonteyn. Denis Tye's new 21ft Deltic week-end cruiser *Electra* and Paul Wagstaffe's 30ft saloon launch *Wagtail* represented the cruising electrics, and Edward Hawthorne's open day launch *Mystere* and Simon Sharpe's 12ft dinghy provided the touch of traditional mahogany finish.

The Regatta's "Hawthorne Electric Boat

Electric Ranger day-boat fitted with a sturdy Combi electric outboard, plus a *Voltaire 18*. The display of electric boat pictures and equipment and the boats were the centre of considerable interest from the passing visitors to the Regatta and who although not so many as last year, were again numbered in their thousands.

Once again, the impressive fleet of electric boats made its own statement to the watching crowds, who cannot have failed to appreciate the silence and lack of smoke of these environmentally-friendly craft.



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INFORMATION SHEETS

In response to repeated requests from members and other organisations for technical information on all aspects of building and operating electric boats, the EBA has started to produce a series of Information Sheets. Written by experts in each field, these are between 1 and 5 pages long, and contain much valuable technical information and advice. Seven titles have already been produced, with more on the way, but we are always looking for any other contributions from anyone with experience of the many aspects of electric boats. The Sheets are available for members and non-members, with a price differential to encourage you to join.

The task of collating and dispatching the Sheets has generously been undertaken by committee-member Stephen Thackray of Marechal Plugs and Sockets, and to obtain your copies, send an A4 SAE, plus cheque made out to the EBA, to: Stephen Thackray, Marechal UK, Archway House, Station Road, Chester, CH1 3DW

Existing titles:

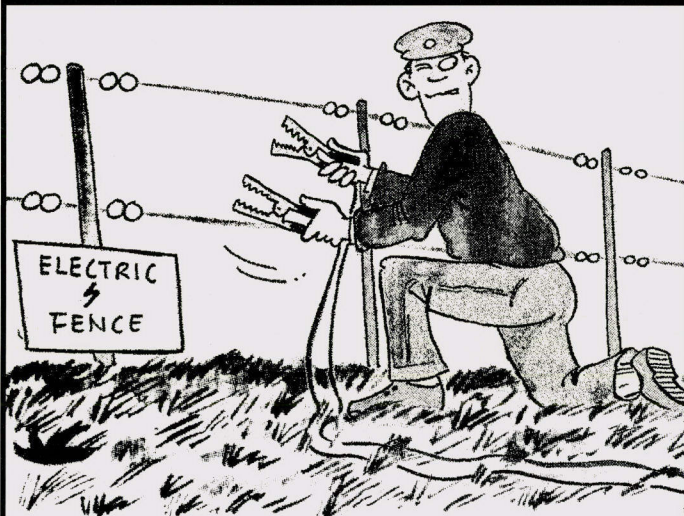
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JOIN THE ELECTRIC BOAT ASSOCIATION

The Electric Boat Association is an organisation dedicated to the advancement of electric boating. Its members include owners of electric boats, enthusiasts of the sport, companies involved in building and selling electric boats and associated products, and other organisations with an interest in electric boating. It organises rallies, meetings and boat show stands. It also acts as the coordinating body for a wide range of individuals and organisations involved in electric boating.

The EBA publishes the quarterly Electric Boat News, sent free to all members, and an extensive list of Technical Information Sheets on the various aspects of building and operating electric boats.

Please enter my subscription to the Electric Boat Association for one year as:

Private Member (£20.00 per annum)

Industry Member (£200.00 per annum)

Cheques made payable to: The Electric Boat Association

Name.....

Address.....

.....

.....

.....Postcode.....

Telephone.....Fax.....

Boat.....

Name.....

Type.....

Length.....

Please send this form, or photocopy, to:
Fraser Brown, Membership Secretary
The Mouse Hole, Abbey Road,
Knaresborough HG5 8HX