

ELECTRIC BOAT *News*

The Journal of the Electric Boat Association

Volume 11 Number 1 Spring 1998

ISSN 0969-031X



Annual Report 1997

New products and projects

Parliamentary News

**FREE BOOK FOR EBA
MEMBERS:**

**Understanding Motive Power
by Chloride Motive Power**



USE OUR CRAFT TO POWER YOURS

Chloride Motive Power batteries and chargers. The ultimate in clean, quiet power for dependable performance in electric boats. The combination of traditional skills, advanced technology and unrivalled support services that have made Chloride Motive Power No 1 in Europe. The perfect choice for every boat afloat.

**CHLORIDE
MOTIVE POWER**

Batteries · Chargers · Service

CMP Batteries Ltd (Sales Dept), Salford Road, Over Hulton, Bolton BL5 1DD
Telephone: 01204 641111 Fax: 01204 62981

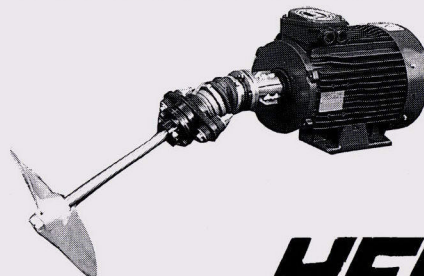
DEPENDABLE POWER FOR A WORLD ON THE MOVE

380 Volt AC Propulsion

'elektra'

**Diesel Electric Drive
and Powergeneration in ONE**

- ★ Almost unlimited power . . .
- ★ Almost unlimited range . . .
- ★ AC comfort on board . . .



HFL

Further details from:

HFL Marine International Ltd

HFL House, Lockfield Avenue

Enfield, Middx, EN3 7PX

Tel: 0181 805 9088 Fax: 0181 805 2440

SILENT RUNNING



Speed Controllers from Curtis

*YOUR CAPTAIN'S CHOICE
FOR ELECTRIC LAUNCHES AND NARROW BOATS*

**From 125 Amps to 600 Amps
From 24V to 120V**

*ON THE GRAND UNION CANAL
OR THE NORFOLK BROADS*



- *Competitively priced
- *Silent in operation
- *Environmentally sealed
- *Simple installation
- *Single sourcing
- *Lasting reliability

CURTIS

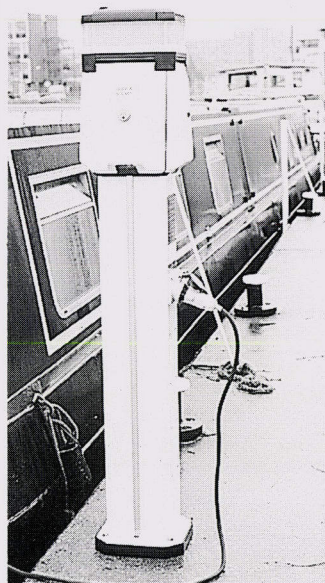
WORLD LEADERS IN DC MOTOR
SPEED CONTROLLERS

Curtis Instruments (UK) Ltd, 51 Grafton Street, Northampton NN1 2NT
Tel: (01604) 629755 Telefax: (01604) 629876
e mail: @curtisinst.co.uk Web page: www.curtisinst.com



ELECTRIC CHARGING PILLARS

SUPPLIERS AND INSTALLERS TO
THE BRITISH WATERWAYS & ENVIRONMENT AGENCY



Hawkins Electrical Ltd has spent considerable time working with the British Waterways Technical Services Department in developing the charging pillar which is being used for the provision of power on inland waterways for the charging of boat batteries and providing power for general use.

The charging pillar is currently available in four designs:

- Type 1: 1 x 16A Socket Outlet
- Type 2: 1 x 63A Socket Outlet
- Type 3: 1x16a and 1 x 63A Socket Outlets
- Type 4 2x16A Socket outlets

For more information about this project and other services we provide, please contact our sales department.



HAWKINS ELECTRICAL LTD.

Complete Electrical Services to the Marina Industry
Heath Road, Skegness, Lincolnshire, PE25 3SU.
Tel :01754 610440 Fax: 01754 764208

ONE-STOP ELECTRIC BOATING

We can supply everything you need

Electric outboards for your dinghy
Saildrives for your yacht or canoe
Inboard motors for launches and cruisers
Selectric Diesel Electric system for cruisers
and narrowboats
Batteries and Chargers, Service and Repairs
Complete Electric Boats

Suppliers to the Broads Authority,
Environment Agency, Canal Societies and
Private Owners

Holders of the 24-Hour Endurance Record
116 Miles on one charge

*-----
Come to the experts
-----*

The Thames Electric Launch Co
PO Box 3, Goring-on-Thames
Berks RG8 0HQ

Tel: 01491 873126 Fax: 01491 872217



E. C. CONNECTORS CO. LTD.
PEGASUS WORKS,
329 FRONT LANE,
UPMINSTER, ESSEX RM14 1LW.
Tel: (01708) 226485.
Fax: (01708) 221191

E. C. CONNECTORS CO. LTD
6 HAINGE ROAD,
TIVIDALE, WARLEY,
WEST MIDLANDS B69 2NB.
Tel: 0121 522 4112.
Fax: 0121 522 4174.

ELECTRONIC CONTROL SYSTEMS

**ELECTRONIC CONTROL EQUIPMENT FOR:
ELECTRIC BOATS, MINING LOCO'S, FORK-
TRUCKS, MILKFLOATS AND ALL D.C. POWERED
ELECTRIC VEHICLES.**

AGENTS FOR:
SEVCON TECH/OPS LTD., ANDERSON POWER PRODUCTS
(Battery Connectors), REMA BATTERY CONNECTORS.

**REPAIRS TO CONTROL EQUIPMENT CARRIED OUT IN OUR
OWN FACTORIES INCLUDING:**
SEVCON, CABLEFORM, GENERAL ELECTRIC and
LANSING BAGNALL.



CASTLE NARROW BOATS
USE SEVCON ELECTRONIC
CONTROLLERS—
Supplied by COLTON

EBA CALENDAR 1998

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

1998

JUNE 27 Lake Windermere Electric Boat Event

JULY 11 Annual Electric Boat Rally
Thames & Kennet Marina

JULY 18-19 21st Thames Traditional Boat Rally
Henley on Thames

AUGUST BANK HOLIDAY IWA Inland Waterways Festival & Inland Boat Show
Salford Quays, Manchester

Please let the Editor know of any other events for inclusion in this diary which may be of interest to Members

SPONSORS

Electric Boat News has been
published thanks
to generous
sponsorship
from
Eastern Group.

Supported by



Eastern Group includes Eastern Electricity, Eastern Generation, Eastern Natural Gas, Eastern Energy Management and Eastern Electricity Contracting.

The Electric Boat Association is on the Internet.
The World Wide Web address is:

<http://www.geocities.com/yosemite/6173/>

Electric Boat News is published quarterly by the
Electric Boat Association.

No material from it may be reproduced or reprinted without permission. Whilst we take every care to ensure the accuracy of the contents, the EBA cannot be held responsible for any errors which may occur, or for any actions that might be taken as a result of this material. Also, views expressed in the magazine are not necessarily those of the EBA.

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.

Printed by: Headley Brothers,
The Invicta Press, Queens Road, Ashford, Kent.

The Journal of the Electric Boat Association

Volume 11 No. 1 Spring 1998

On the current

As I approached this, my second production of Electric Boat News I was apprehensive as to the availability of sufficient material but I needn't have worried. The selection of copy from the mass of reports available has been the main difficulty and this time we have an even larger 20-page edition.

Apart from reporting on the general activities of the Association and its members, there are a number of topical issues in the magazine that may have a particular impact on the future position of electric boating. In our Parliamentary Report we mention our aim to educate the Waterways Minister as well as the consultation document on sustainable development. It is important that the EBA prepare a robust and constructive response to this national quest for ideas in support of Agenda 21 issues.

No less important is the Windermere Electric Boat Rally we plan for Saturday 27th June. There is a developed core of electric boat users on the Thames and the Broads. Your Committee have decided that efforts should be made to extend the involvement of the EBA into the Lake District and this is the first step. Geoff Leech of Coniston Water told us that until he met the EBA at Eco Boat '97 he thought he was working on his own in introducing electric boats. How many more boaters feel that they are in the same position? Our aim in the coming year must be to spread the message nationwide.

Tony Ellis

Tony Ellis, Editor

Contents

Page

Annual report for 1997	2
Technical report	4
Technical News	5
Show Reports	6
New Products and Projects	7
Parliamentary News	8
Electric Cruising	9
EBA Management Committee	10
Post Bag / Broads Charging Points	11
Home News / International News	12/13

Editor: Tony Ellis,

157 St Saviours Road,
Reading, Berks RG1 6EY
(Phone/Fax/Answer: 0118 958 9737
Pager: 01426 294720)

Chairman: Phil Horsley,

1 Kipling Close,
Thatcham,
Newbury,
Berks RG18 3AY
(Phone/Fax: 01635 868265)

Secretary &

E B News Advertising Manager:

Mrs Barbara Penniall,
150 Wayside Green,
Woodcote,
Reading,
Berks RG8 0QJ
(Phone: 01491 681449;
Fax: 01491 681945; Email:
bar.penn@dial.pipex.com)

Treasurer: Peter Cook,

'Straw Bonnet',
Spade Oak Reach,
Bourne End,
Bucks SL8 5RQ
(Phone/Fax: 01628 521899)

Membership Secretary:

Position vacant

Users' Group Chairman: Paul Jackson,

4 Temple Mill Island,
Bisham,
Marlow,
Bucks SL7 1SG
(Phone/Fax: 01608 658500)

Founder Editor: Kevin Desmond

Cover pictures:

Main picture *Lady Hamilton*,
one of the two electric launches built by
Creative Marine for use on a private lake
near Oxford

Smaller picture:

Compromise 21, electric launch from
Morton Ray Electric Boats

Annual Report

A summary of the activities of the Electric Boat Association during 1997

1997 London Boat Show

At the 1997 London Boat Show, Val Wyatt Marine Sales announced their intention to become the Thames Electric Boat Centre, representing all the major electric boat manufacturers. Their stand at Earls Court displayed pictures of electric craft from the various manufacturers, and a video showed *Evolution*, the Haines 29 electric motor cruiser powered by Brimbelow's E-drive.

Elsewhere at Earls Court, the Lynch motor was in evidence as an outboard on the Selva stand and as a saildrive with Sillette Sonic. Brimbelow Engineering displayed their E-drive on the Mastervolt stand and various electric outboards were to be found on several locations around the Show.

Thames Electric Boat Centre

Val Wyatt's Thames Electric Boat Centre celebrated its official opening over the May Bank Holiday, and the EBA manned a stand throughout the weekend. Creative Marine, STELCO, Thames Electric Launch and John Williams all had boats on the water and Gavin Seward displayed Brimbelow's E-drive on land and as the power source for *Evolution* on the river.

IWA National Festival

The Inland Waterways Association National Festival was held at Henley-on-Thames over the August Bank Holiday and attracted 30-40,000 visitors. The Electric Boat Association manned a stand throughout the four-day Festival, when we sold a quantity of EBA stock, welcomed a new Trade Member, Watershed, and answered many enquiries about electric boating in general. We were able to distribute literature from those Trade Members not on site, and direct members of the public to the Trade Members exhibiting there.

Companies exhibiting at Henley included Val Wyatt, Creative Marine, CMP Batteries Ltd and John Williams. On the water Bossoms had their new Oyster 16, Watershed their electric launch, TELCO's Voltaire 18, the Haines 29 powered by Brimbelow's E-drive and Paul Wagstaffe's *Wagtail V* fresh from her 24 hour endurance test. STELCO's *Sunny* was in the Try-A-Boat section offering rides to the public. One EBA member, Mr Peter Boyce brought his dinghy *Nimble* powered by a Johnson electric outboard.

Eco Boat '97

Henley was an extremely successful Show for us and it seemed appropriate that the Electric Boat Association

should then take part in Eco Boat 97 on Oulton Broad two weeks later. This was a Conference chaired by Paul Wagstaffe and organised by the Broads Authority. Speakers from all over the world presented papers covering all forms of environmentally friendly boating. Jim Keating, our Technical Liaison Officer described a new form of propulsion manufactured by his company, Designeta, Peter Howe from Camelot Craft spoke, and Malcolm Moss described his Cross Channel solar powered crossing.



Tony Ellis

Typical Broads electric day-boat being demonstrated at Eco Boat '97.

Over 8,000 people visited the weekend Exhibition following the Conference, and on the water Malcolm Moss made *Collinda* available to the public to try solar powered boating. The Broads Authority were represented by the *Charles Collier* powered by Selectric, the diesel/electric motor supplied by the Thames Electric Launch Company (who also had a 13ft boat on the water). The Brimbelow powered Haines 29 *Evolution* was also on display and was very kindly lent to the Committee so that they could take a short cruise on the Broads: a very welcome break in an otherwise hectic weekend.

Other members exhibiting were Camelot Craft, CMP Batteries Ltd, Designeta, Hawkins Electrical, Phoenix Fleet, STELCO, and John Williams. The weekend was very busy with a constant stream of enquiries and new members joining. From contacts made, EBA literature is now displayed at various centres in the Lake District, and we have the possibility of a new annual electric boat event on Lake Windermere.

The Henley Festival and Eco Boat Exhibition involved a great deal of extra work from the Committee and my thanks go to all those who gave their time to man the stands.

EBA Biennial Meeting

The Biennial General Meeting of the EBA was held in June at the Upper Thames Sailing Club. This proved to be an excellent venue, and the event was supported by at least



for 1997

60 members. About ten boats were on the water for people to try during the afternoon.

The meeting included an Electric Workshop where Trade Members could display their literature with exhibits from CMP and Designeta. There were boats on the water from STELCO and Bossoms and Thames Electric Launch Company had a display of outboard motors. There was also an exhibition from the River and Rowing Museum at Henley and the EBA presented the Museum with bound copies of all the Electric Boat News since the Association was formed in 1982.

During the meeting Viscountess St Davids presented the St. Davids Trophy to Edward Hawthorne in recognition of his long service to the EBA and especially to mark the publication of his book 'Electric Boats on the Thames 1889-1914. Edward continues to make a valuable contribution to running the EBA in his capacity as Honorary Vice-President.

Committee

The EBA Committee was formally re-elected at the BGM for a further period of two years and Paul Jackson was introduced as the new User Group Chairman, having succeeded Edward Hawthorne at the beginning of the year. Roy Devereux, Editor of the Electric Boat News, resigned at that meeting and was succeeded by Tony Ellis who was formally appointed at the next Management Committee Meeting.

10th Wargrave Rally

The 10th Wargrave Rally was held the following day at the Shiplake home of Gordon and Bunty Claisse, and was well supported by several members. The prize for the best decorated boat went to Mr Richardson's *Margot*, a Voltaire 18.

Solar Channel crossing

The next major achievement of the year was EBA member Malcolm Moss' successful solar powered crossing of the Channel in July setting a new record of 6hrs.15mins in the S.B. *Collinda*. To mark this achievement, the EBA presented him with a Solar Challenge Trophy, appropriately in the form of an Armillary Sphere, which was very kindly donated to us by EBA member Lynn Lewis of Nauticalia.

24 hour Endurance record

It was a summer for setting records, as a month later a new Endurance Record was established by Paul and Pat Wagstaffe in their 29ft electric cruising launch *Wagtail V*. Emrhys and Linda Barrell and the Thames Electric Launch Company team organised the event. *Wagtail V* cruised over a set course for 24 hours non-stop, achieving a record 116 miles on one charge. As this event took place just before the Henley Festival and *Wagtail V* was on show, it provided excellent publicity for electric boating.

Laying-up supper

The year finished with a Laying-Up Supper held at Spencers in Cookham. It was a very successful evening attended by 28 people and the occasion was marked by the presentation of the Solar Challenge Trophy to Malcolm Moss.



Malcolm Moss and his family receiving the Solar Challenge Trophy from our Chairman, Phil Horsley (right)

Tony Ellis

A year closes - and a new year beckons

During 1997 the Electric Boat Association made tremendous efforts to promote the cause of electric boating and this programme will continue throughout the coming year. We are organising regional co-ordinators to ensure that members can have social meetings and events in their own areas. The EBA is well represented at the Parliamentary Waterways Group meetings and takes the opportunity to improve the awareness of electric boating in Parliament.

In 1997 the EBA produced the first list of charging points on the Thames, River Wey and BW's points in Gloucester, and in 1998 we shall continue to press for charging points to be installed on as many waterways as possible.

The EBA will be organising shows and rallies throughout 1998 and have a stand at appropriate Festivals. We are ensuring that electric boating receives publicity in appropriate magazines and journals and structural changes are taking place within the Association to ensure we move forward with the times.

PHIL HORSLEY, Chairman

Technical Report

The Hybrid Power Unit

Jim Keating gives his views on the advantages of hybrid power

Cruising boats or boats used for hire purposes require a supply of domestic energy (hotel load) often in excess of that required for propulsion. Usually this is provided by a combination of a large diesel engine with L.P.G. bottles and in the case of some narrow boats, solid fuel stoves. From an ecological point of view this is a disaster, with noise, fine particulates, soot and fumes.

An electric boat powered off a D.C. motor and battery pack is fine from an ecological viewpoint but has a very limited capacity for hotel load and a charging point has to be located each evening. The alternative is the hybrid power unit as shown in the diagram. This is a generator powered by a small diesel engine, operating at optimum speed, with reduced noise and pollution. This system can apply to any type of boat but the following system is proposed with a narrow boat in mind.

A 6.5kW (8.7hp) generator set can power a battery pack

which serves an 8kW electric motor with a high torque capability at very low RPM. This combination can be highly efficient and can supply as much torque as a conventional 20-25hp diesel engine. Ample torque is available to start, stop or manoeuvre with confidence. Cruising within the waterway speed limit will probably only require about 3kW (4hp) for the motor, leaving 3kW to re-charge the batteries. As any internal combustion engine is only about 33% efficient, it follows that a 6kW engine will produce 12kW of waste heat. By using an efficient heat exchanger to remove a percentage of this waste heat (energy) from the cooling water and exhaust gas, we can provide hot water/central heating. Or in hot weather this heat can be diverted to a keel or skin cooler.

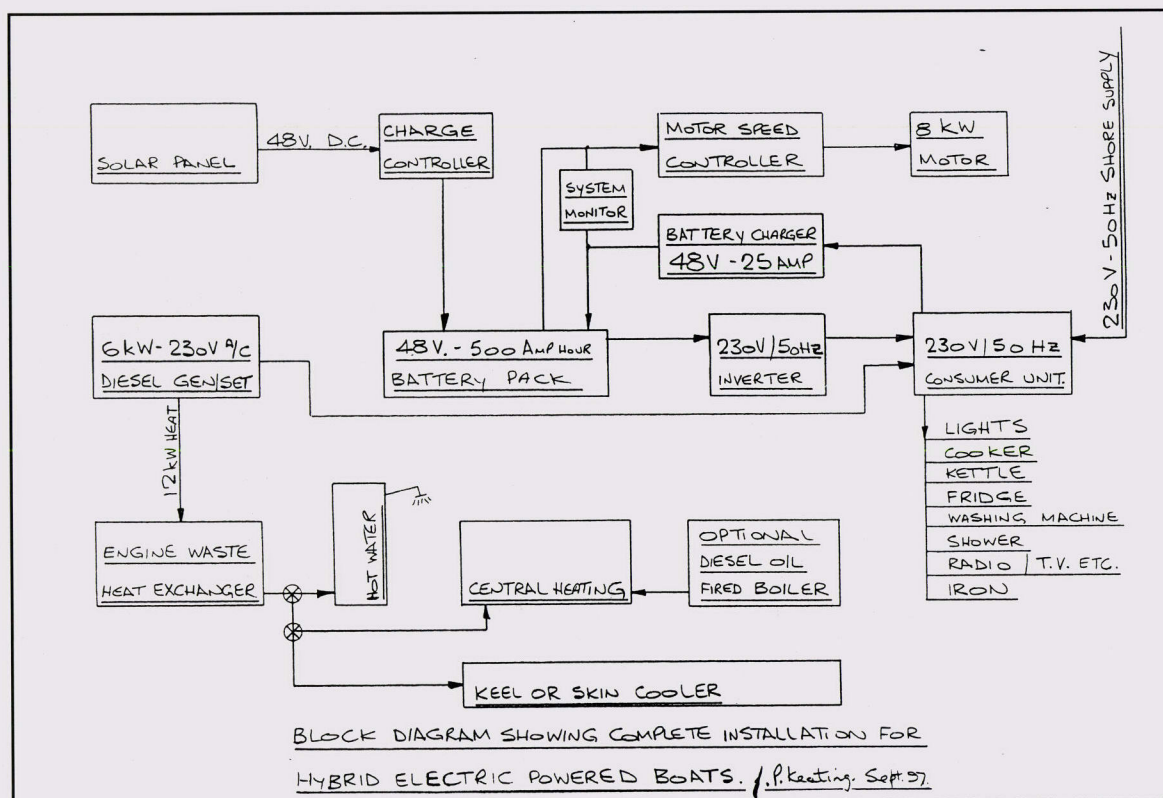
When used to provide the hotel load only (for example, hot water, kettle & cooker), the 6kW generator set is not running lightly loaded (unlike the 20hp propulsion diesel). Any excess power is used for charging the battery pack. Using an electric cooker can eliminate the need for L.P.G. bottles, increasing forward locker space and result in only one fuel being required.

On a new boat the forward locker space could be designed to house the generator set. This has several advantages: the exhaust gas is as far away as possible from the helm and all mechanical contact between the hull and engine can be eliminated, thus reducing noise and vibration.

Although the direct cost of the hybrid power unit and control system is more expensive than a conventional diesel drive, all is not on the debit side. Elimination of the typical engine room can mean the same accommodation in a shorter hull and the battery weight can be also be used to

reduce ballast costs. As shown in the diagram, solar power or shore supply can also be incorporated into the system.

The hybrid system has a lot to recommend it. It is ecologically sound and performance can be extremely efficient. Imagine quietly cruising into the sunset with propulsion and hotel power provided from the battery pack alone, with the added freedom of not having to moor at a recharging point.



Block diagram showing complete installation for hybrid electric powered boats. J.P. Keating September 1997



Technical News

The Electric Wheel™

News of a new electric drive system, based on that used on NASA's Mars Land Rover has begun to appear in the Yachting Press. The drive system is reported to involve a set of planetary gears and is the only electric motor known to independently power both sun and ring gears. All of the gears are kept within the outer rim of the wheel which forms the essence of the motor.

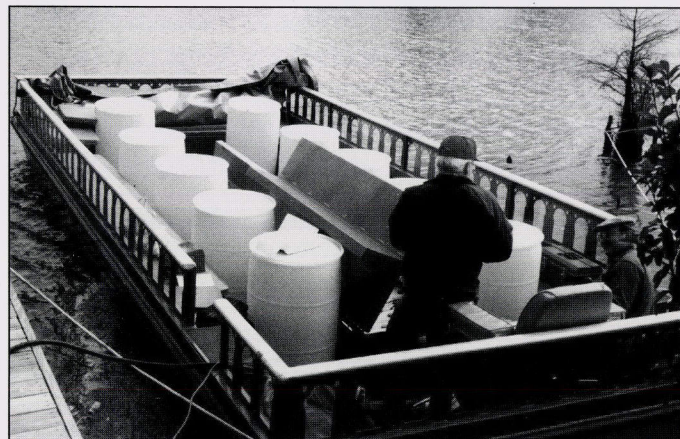
Examples of the new motor have been installed aboard sailing craft in the United States where it is produced by Solomon Technologies of Maryland. A 23kg motor measuring 330mm by 150mm is capable of offering the same power output as a conventional 10hp engine. The motor can be powered from a variety of sources, including a diesel or petrol generator, batteries powered by solar panels or conventional shore link up. Also, it is understood that batteries can also be charged by leaving the propellor shaft spinning while the craft is under sail. Further information will follow.

Technical feasibility study for an electric river taxi in Texas

The San Antonio office of the US Southwest Research Institute (SwRI) has produced a technical feasibility study for an electrically powered river taxi.

SwRI was contracted to serve as a consultant to Electric Boat Company Inc. of San Antonio who were considering the introduction of an electric River Barge tour on the San Antonio River Walk.

The tests showed that the boat proposed exceeded the daily range requirements of the San Antonio River Walk tour. As we would expect, there were no carbon or nitrogen emissions and noise levels generated were well below that from existing conventionally powered barges.



The prototype barge used in the San Antonio study

A full copy of the study has been sent to us at the Association and anyone wanting the complete report should contact the Editor.

Ampair Solar Panels: 45% efficiency increase

At the London Boat Show, renewable-energy specialists Ampair exhibited their latest version of the Uni-Solar thin film solar panel.

Ampair have added a third layer to the panel which enables light from all three parts of the spectrum to be captured and turned into 12v battery charging power. The efficiency improvement is reported to be 45%

Solar canopies for electric outboards

Details have been received from Florida-based member, Morton Ray of the solar canopies which he is installing aboard a number of craft to provide the power to his Ray Electric outboards. Morton believes that solar power can enhance the performance of electric boats and his company provides lightweight integral solar canopies as an option. The canopies are currently being fitted to his boats, the Explorer and the Electrocat and provide back-up propulsion and increased range, propelling the boats at speeds of between 3 and 4 knots without drawing from the batteries.



The Ray Explorer with four 90 watt solar panels and a smaller auxiliary battery panel

The solar panel actually forms the roof of the canopy and generally requires a semi-flexible panel. It is up to the boat owner how to handle the solar amps produced. An ammeter measures motor current and another measures the solar charge. If the motor is stopped, solar current begins to charge the batteries. If the motor current demanded exceeds the available solar current, the difference comes from the batteries. It is possible to set the motor to run on solar power alone with no drain on the batteries.

A full technical report by Morton Ray: *Electric Boats for General Waters* will appear in a later edition of Electric Boat News.

BOAT SHOW REPORTS

London International Boat Show (Earls Court) and the Birmingham Boat Show (NEC)

Electric boating had a small but distinct niche at both the Earls Court Boat Show in January and the Birmingham Boat Show in February this year. The following is a selection of exhibitors that should be of interest to EBA members:

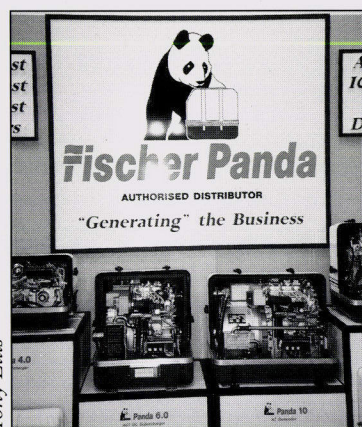
LONDON

Creative Marine (Tel: 01692 407843) had on show an exquisite example of their craftsmanship, the latest **Mayfly 16** river launch, *Mascot*. Roy Lawson and Simon Read of Creative are now developing a purpose built GRP deck and interior plug for this craft which will offer a more economical option to the current hardwood fit-out. The centrally placed engine compartment can take a choice of 1.3kW or 1.6kW electric motor and has an automatic cooling fan.



The mahogany faced transom of Creative Marine's Mayfly 16 Mascot at the London Show.

Fischer Panda (Tel: 01202 820840) specialise in generators. They are one of our most recent new trade member recruits and their products have been used to provide hybrid power systems. A recent product from Creative marine incorporates a Fischer Panda diesel generator linked to a 4kW electric motor. The generator in this instance supplies 4.5kW at 72 volts and can either drive the electric motor directly, or cut in automatically to recharge the batteries when the power available drops below a sustainable level.



The Fischer Panda stand at Earls Court, showing some of their range of generators.

New trade members, **Watershed** (Tel: 01621 858407) were showing a selection of their launches while **Val Wyatt Marine** (Tel: 0118 940 3211) were displaying the Haines 365, the larger sister to the **Haines 29 Evolution** electric cruiser. Their stand material made reference to the availability of the electric product, powered by twin Brimbelow E drives.



Val Wyatt Marine were displaying the Haines 365, the big sister to the electric Haines 29 Evolution at London.

BIRMINGHAM

The new French import from Saviboat, the 14ft **Derby Boat** made its first public appearance at the Birmingham Show. The small 4-seat runabout is being marketed in the UK by **Bright Ideas International** (Tel: 01722 330336). It is powered by an inboard Whisper drive unit with thrust transmitted via a two blade propeller. Priced at £5750 (inc. VAT) the boat includes batteries, charger unit, automatic bilge pump and the cost of delivery.

Among the many products on the **Millar Marine** (Tel: 01327 349188) chandlery stand was the **Motor Guide T30**, a small battery driven electric outboard. The motor is capable of 30lbs of thrust and could be very useful for powering a small dinghy or inflatable at the economical price of £195 (inc. VAT)

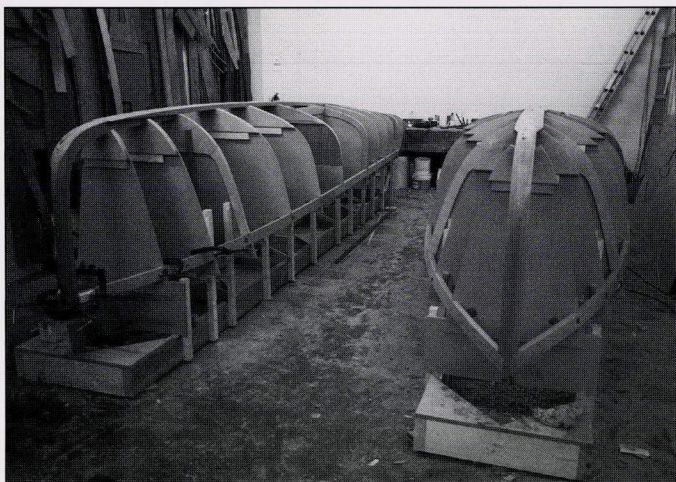


The new Derby Boat was displayed to the public for the first time at the Birmingham Show.



NEW PRODUCTS AND PROJECTS

Lord Nelson and Lady Hamilton together again



Creative Marine have recently completed a pair of electric launches for a private client. The 18ft. launches, *Lord Nelson* and *Lady Hamilton* (see front cover) are built of strip planking and are now in use on a private lake near Oxford.

Further details: telephone 01692 407 843 (workshop)

The Lynch Electric Motor Company Ltd.

The Lynch Electric Motor Company Ltd. have now become a subsidiary of the ASMO A.G. Group of Switzerland. The Asmo Group is already a major user of the Lynch motor through its karting activities and intends making considerable investment in the development of the motor.

Manufacturing and development will be carried out by LEMCO Ltd in their base in Honiton, Devon under the control of Cedric Lynch.

Further details: telephone 01404 44132 Fax: 01404 47060

Alustar ferry from Thanetcraft



Thanetcraft have constructed a new passenger ferry for operation on the Thames. The ferry, built of aluminium is 21ft 6ins and has a beam of 9ft 6ins. The ferry has a 2kW

Brimbelow electric drive motor powered by a bank of batteries sited under the side seats, giving a speed of around 4 knots.

The ferry is called *Peace of Mind* and can carry up to 12 passengers together with their bicycles, prams and other goods. This model has an unusual pram bow but John Armstrong of Thanetcraft (who designed the craft) says that this could be adapted to include a bow loading ramp for wheel chair access.

Further details: telephone/fax 0181 894 5218

Pike to be restored to electric power

The well known 30ft Andrews launch *Pike*, built in 1908 is being restored at Mike Dennets yard in Chertsey and is to be restored to electric power - her original form of propulsion.

Pike was bought by her present owner at the 1997 Henley Boat Auction and all the work associated with the installation of the electric motor is being carried out by the Thames Electric Launch Company.

Further details: telephone 01491 873126 Fax: 01491 872217

December launch for the Duffy Voyager



In December the latest in a long line of designs from the Duffy Electric Boat Company, the *Duffy Voyager* was launched into Newport Harbor, California. The vessel is unconventional in design and can be likened more to a light aircraft or glider than a boat. The main hull is 62ft long by 3ft beam and features two outriggers which together have a span of 19ft. The crew of two sit in a sheltered cockpit towards the stern.

Powered by 48 lead acid batteries, the boat is capable of a maximum speed of 25 knots and has a range of 100 miles on one charge if run at cruising speed of 13 knots. Alex Kozloff, structural engineer says that unlike traditional electric boats, the *Duffy Voyager* is designed to cope with rough seas.

Details: Telephone (USA) 714 645 6812 Fax: 714 645 9206

NOTE: News of special one-off projects and interesting developments are always welcome in the Editorial office.



PARLIAMENTARY NEWS

Waterways Minister hears of electric boats

During her first visit to the Parliamentary Waterways Group (PWG), the Waterways Minister, Angela Eagle MP admitted that she had not previously been aware of the existence of electric boats. The meeting, which took place in the House of Commons on the 3rd February involved the Minister in answering a range of questions from the waterways lobby, including the following submission by our Technical Officer, Jim Keating:

What is the Minister's policy on promoting the use of energy efficient low powered electric or hybrid craft on inland waterways?

In her reply, the Minister said that she would welcome anything that reduces the impact of recreational activity on the waterways and she would be pleased to hear from the EBA about ways of encouraging this environmentally friendly system. However, she did express her initial concern that powering boats by electricity was just shifting the pollution load from the individual craft to the power station.

In consultation with the Chairman, Jim Keating wrote to the Minister on the 5th February:-

Dear Minister

To follow up on your reply to my question at the last Parliamentary Waterways group meeting, the Electric Boat Association would welcome the opportunity to introduce you to electric boats.

I understand you have a busy schedule, but if you would arrange for your diary secretary to contact me, we can arrange a mutually convenient time and place to meet on the River Thames, which I am sure you will find enlightening and enjoyable.

Regarding your concerns as to the effect of electric boats on the Global pollution problem. I can assure you that there is still a great saving as power stations are about 10% more efficient than diesel or petrol engines. I will briefly list some areas of saving if you require clarification I would be pleased to expand on any point you raise:

1. Power station emissions are stringently controlled, burn less fuel/kW than internal combustion engines.
2. It is easier to monitor a small number of power stations than a large number of moving exhaust pipes.
3. Global pollution is a function of power used. Electric boats are battery powered and as 1 kg of battery will store about 1% of the power contained in 1 kg of diesel / petrol, the power available must be conserved, not squandered. 97% of battery materials can be re-cycled.
4. Electric motors are up to 90% efficient.
5. Solar panels produce sufficient power to make boats totally emission free.

Thank you for the interest you have shown in electric boats and the EBA. I look forward to meeting you in the near future.

Jim Keating
Technical Officer, EBA

NOTE: Copies of the Winter edition of the EBA News were distributed by Jim Keating and Tony Ellis to the sixty people attending the PWG Meeting.

Opportunities for Change: Sustainable Development

The Deputy Prime Minister, John Prescott has issued a 25-page consultation document, asking for views on a revised UK strategy for sustainable development. Electric boating is central to the efficient use energy and your Committee will be preparing a response.

Selected extracts :

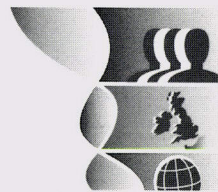
The paper asks 'What is sustainable development?' and decides that it is about ensuring a better quality of life for everyone, now and for generations to come. More important than formal definitions, the paper sets out a number of key objectives that underlie sustainable development, including:

'Prudent use of natural resources: This does not mean denying ourselves the use of non-renewable resources like oil and gas, but we do need to make sure that we use them efficiently and that alternatives are developed to replace them in due course. Renewable resources, such as water, should be used in ways that do not endanger the resource or cause serious damage or pollution.'

'Setting a framework: Major themes of sustainable development including ways of encouraging the development of goods and services which meet people's needs but involve the use of fewer natural resources.'

'Sometimes it is relatively easy to see how to bring about sustainable development, including cutting the amount of pollution and resource use, because we need to generate less electricity and burn less gas.'

'Greater eco-efficiency may be more important in some areas than others. On present indications the most pressing of these are likely to include energy use by households, transport and businesses, water use, and waste production'.



SUSTAINABLE
DEVELOPMENT

Copies of the Consultation leaflet and/or the full document can be obtained by writing to Sustainable Development Consultation, PO Box 17915 London SW1P 3ZN.

Copies are also available on the Department of the Environment, Transport & the Regions (DETR) web site at:
<http://www.environment.detr.gov.uk/sustainable/consult1/index.htm>

Responses should be returned by the 29th May.



ELECTRIC CRUISING

With *Stima* to Lechlade

by *Brian Pickess*



Stima moored at the Beetle & Wedge.

In August 1997 we set off from Temple Mill Island for our first major cruise aboard our new Deltic 700 *Stima*. We were warned that the Environment Agency had made little progress in the installation of charging points. However, we made sure that we had with us the comprehensive list compiled by Paul and Pauline Jackson and a diesel generator as emergency back up.

We decided to overnight at Goring as the list offered a number of charging points. Unfortunately, the Beetle & Wedge was fully booked, the Thames Electric Launch Co. had the answerphone on, Goring Lock had no charge point and the Swan at Streatley had an unintelligible gentleman answering the phone.

Deciding to moor below Goring Bridge we then started the generator. The next morning the battery indicator was still falling. We kept the generator running but noticing a change in the sound of the exhaust, discovered that cooling water was no longer being discharged. We had difficulty in shutting off the generator but achieved it by closing the fuel cock.

With only a half set of batteries and a generator that wasn't charging, would we make the four miles to Abingdon with so little power left? As we approached Abingdon Bridge the battery indicator was flashing.

Fortunately for us, Kingcraft of Abingdon agreed to let us moor at their base and recharge overnight from one of the points on their jetty (none of their hirecraft were due back). Their staff were friendly and helpful, moving several boats so that we could moor stern on.

The next day, with fully charged batteries we set off towards Oxford which was passed by late morning. The river above Oxford is much more rural in character than the

Marlow area and there are fewer boats, particularly electrically powered. We were asked lots of questions, the prime interest being in running distance between charges.

The lock-keeper at Kings Lock offered to run a cable to the camp site next to the lock. However, we continued to Bablockhythe where dinner and a charging point were provided by The Ferryman Inn. The following day we cruised the last 20 miles to St Johns Lock, Lechlade where dinner and a convenient charging point were available at the Trout Inn.

The next day we took a short trip up to the Round House and back downstream to Tadpole Bridge to another Trout Inn. There was no charging point and the inn is more than 100 yards from the moorings. However, there is an outside socket at the rear of the pub that could serve with permission and a very long cable.

After a short run to Newbridge we moored at the Rose Revived. We needed the long cable to reach the charging point which was being used to power the bouncy castle so we waited until the evening to plug in.

The next day we cruised through Oxford. The Four Pillars Hotel had a new 16amp charging point that could be reached from several of their moorings. Continuing downstream the following day, we reached the Beetle & Wedge and moored overnight. After an excellent meal, we recharged *Stima* using their waterside 13amp charging socket.

The next day we passed Caversham Lock in the rain and moored and re-charged at Swancraft in Wargrave. The following day was an easy journey to our home mooring at Temple Mill Island.

To sum up, we almost reached the limit of navigation in four days from Temple Lock. Our total cruise involved 44 running hours, covering 168 miles at an average speed of 3.83 mph, all on battery power. The generator was found to have a winding fault.

NOTE: At each of the locks scheduled to have charging points we enquired as to progress but the answer was in the negative. Surveys had been carried out and it was believed that work would start in the Autumn.

MEMBERSHIP SECRETARY

It is essential that we fill this key Committee vacancy as soon as possible.

Anyone with sound administrative skills and the ability to handle a computer* data-base will find this a satisfying and practical contribution to the work of the Association.

Anyone interested in the post should contact the Chairman

** a computer can be supplied if necessary*

Electric Boat Association Management Committee

Meeting: 28th January 1998

.....EXTRACTS.....

The Management Committee met on the 28th January 1998 at Triangle Management Services in Beaconsfield, courtesy of User's Group Chairman, Paul Jackson. Below is a selection of extracts from the many matters discussed:

Membership Secretary

With regret, the Committee received the resignation of Pat Davis as Membership Secretary (see advertisement on page 9).

Understanding Motive Power: Batteries and Chargers

The Chairman reported that a free copy of the book *Understanding Motive Power: Batteries and Chargers* would be made available by Chloride Motive Power for every member of the Association and distributed free of charge with the next edition of the magazine. CMP would pay for the additional postage.

Information Sheet: Electric power for narrow boats

There was demand for a new Information Sheet on electric power for narrow boats. It was agreed that information on this subject would be collated by Tony Ellis and Jim Keating.

Existing Information Sheets were being revised and re-designed. In particular, the list of trade members had now been totally revamped and would soon include reference to those Member companies offering discounts to bona fide EBA Members.

The Way Forward

A report of the special Way Forward Meeting held on the 11th December was considered. The thoughts for the future are being refined and developed together with suggested amendments to the Articles of Association.

Full details of the Committee's proposals should be reported in the Summer Edition of *Electric Boat News*.

Bisham Abbey Boat Safety Seminar

The Boat Safety Seminar due to be held at Bisham Abbey (details circulated by a flier included in the Winter edition of *EB News*) was cancelled due to lack of support.

It is hoped that Roy May of Bisham Abbey will help produce an article on the compliance needs of electric boats and the BSS for reproduction in a future edition of *EB News*.

Parliamentary Waterways Group

It was reported that Angela Eagle MP, the Waterways Minister would be speaking at the meeting of the Parliamentary Waterways Group on the 3rd February.

It was agreed that a Question should be raised on behalf

of the Association and copies of *EB News* should be distributed at the Meeting (see Report on page 8).

Shows and Rallies 1998

Earls Court and Birmingham Boat shows

Representatives of the Association would be attending both shows and reports would be in *EB News* (see page 6)

Annual Electric Boat Rally

It was reported that the proprietors of the Thames & Kennet Marina had offered to provide the venue for the Annual Electric Boat Rally (formerly known as the Wargrave Rally). It was originally agreed that this would be held on Sunday 12th July 1998. **For operational reasons the event will now be held on Saturday 11th July.**

Lake Windermere Electric Boat Rally

Discussions were continuing with the Steamboat Museum on Lake Windermere concerning the organisation of an Electric Boat Rally. **It was agreed that this event would be held on the 27th June 1998.**

Charging Points

Paul Wagstaffe had been in touch with Ian White, North East Regional Manager for British Waterways (BW) who confirmed that over 80 Hawkins charging pillars had been installed at locations throughout BW's North East and Midlands & South West Regions. Further details of these locations would be collated and included in an Information Sheet. Paul and Pauline Jackson would be updating their list of charging points.

Trophies

Emsworth Trophy:

Nominations for the award of the Emsworth Trophy (longest journey under electric power) should be submitted to the Secretary by the 1st May.

St Davids Trophy:

Nominations for the award of the St Davids Trophy (the promotion of electric boating) should be submitted to the Secretary by the 1st May.

EBA Pennant

Before spending limited resources on new stocks of EBA Pennants, Members are invited to let the Secretary know whether they are interested in purchasing one (or more).



Post Bag

From: Tony Sauer, Winchester

"We have at last decided to build a new 58ft 6ins narrow boat and have arranged a building slot with Reading Marine at Aldermaston. For propulsion I plan to use a DC electric motor, powered by traction batteries, with diesel powered backup charging via a DC generator. This is an unusual project for the builder but he is very interested to work on it.

I would be very pleased to hear from other members of the Association who have a similar boat or are planning to build one. All suggestions would be very welcome."

From: Ian Rutter, Cookham Dean

"As well as being members of the EBA, my wife and I are also members of the National Trust (NT) and enjoy visiting Cliveden by boat. I prefer to use my electric craft

rather than drive by car. National Trust policy is to encourage visitors to arrive other than by car to protect the environment. Our method of travel is doubly beneficial in this respect, by reducing road traffic and using an environmentally friendly power source."

"NT Members are not charged if they arrive at Cliveden by car but are charged mooring fees if they arrive by boat. The NT state that free mooring is defined as a benefit in kind and that no member may receive such without putting the charitable status of the Trust at risk. The Cliveden River Warden is required to charge mooring fees to members and non-Members alike."

"There is a degree of inconsistency here and I would be pleased to have the views of EBA Members."

[Perhaps the mooring fee could be reduced by a sum equivalent to the parking fee foregone by the NT, had Ian arrived by car? Editor]

Any comments from Members on the above letters should be sent to the Editor who will pass them on.

Broads Authority Electric Charging Points

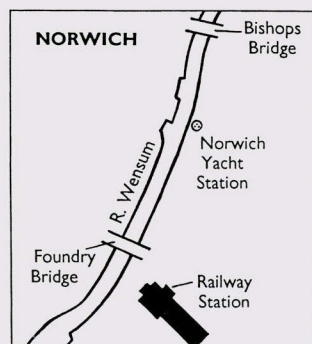
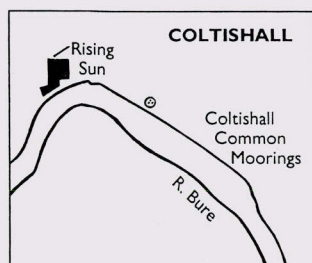
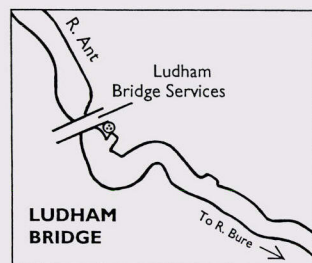
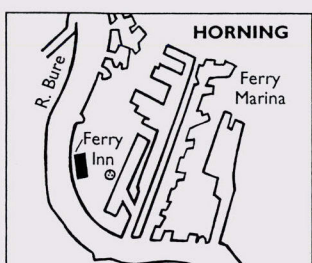
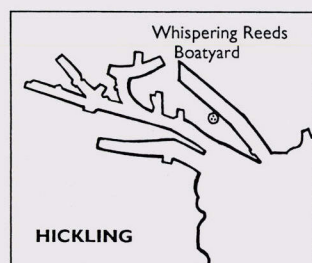
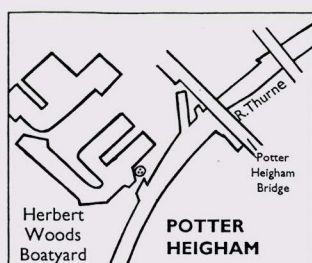
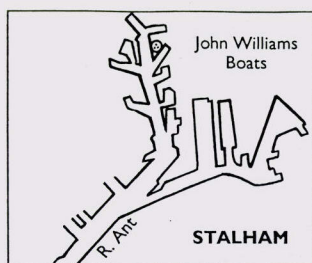
There are presently 8 charging points located throughout the Norfolk Broads: see plans opposite. Boats are plugged into pillars, using their own connection cables and plugs. Electricity is purchased using pre-payment cards obtainable from Broads Authority Information centres and Offices at £1 each. Cash is not used or stored at the charging points.

Electric sockets are positioned on the outside of the charger cabinet with access to the card reader switches and meter via a door opened by a standard triangular pattern domestic meter cupboard key (available from your electricity supplier). There are no arrangements for pre-booking a slot at any particular charging point.

Further information from the Broads Authority, Navigation Office, 18 Colegate, Norwich, NR3 1BQ

Other navigation authorities

Information is being obtained on the charging points on the British Waterways system and we are monitoring the installation of charging points by the Environment Agency on the River Thames.



HOME NEWS



The winning Buckingham School team, with their prize cheque and the model solar boat Britannia

Solar Boats in miniature

During the Autumn a competition was held among schools in Milton Keynes for the design of model solar powered boats. The scheme promoted by the South Midlands Renewable Energy Advice Centre (SMREAC) was judged on the 16th December. Each school was given a talk on solar power, technical assistance, solar cells and motors.

The winning boat *Britannia* was a catamaran entry from Buckingham School. Each of the team members won a

solar hat and the school received a cheque for £325. SMREAC hope to make the competition an annual event. Further details: 01908 501908, Fax 01908 504848, e mail: smreac@natenerg.demon.co.uk

Electric Boats at Bedford River Festival

SMREAC (see above report) are keen to develop a renewable energy display at the Bedford River Festival on the 23rd-24th May. They are keen to hear from any trade or private members of the EBA who might be interested in participating.

Contact: Mr John Crookall-Greening 01234 261066

Coniston goes electric

In 1995 the Lake District National Park Authority began to convert their fleet of petrol-driven hire boats on Coniston Water to electric power. Now, three years later we hear from Geoff Leech, Head Boatman that he is "tickled pink" with the success of the conversion process. Four new 15ft 6ins four-seater boats were ordered for the fleet in 1997 from local builders and two new 17ft 6ins eight-seater boats for the 1998 season. All of the boats were paid for out of the savings achieved since the move to electric power. Geoff installs the battery boxes and the wiring on receipt of the new boat hulls.

The power units are from Minnkota and a trickle

INTERNATIONAL NEWS

America

EBAA: The fourth quarter magazine of the Electric Boat Association of America includes the remarkable news that 16 million households in the USA own at least one boat and the total number of boats owned is 19.6 million. A three-page article explains the principles behind the electric motor.

Details: Electric Boat Association of the Americas, Inc. PO Box 4151 Deerfield Beach, FL 33442, USA

Beckmann Boatshop: Walter Beckmann of Beckmann Boatshop is a member of the EBA. He has recently completed a 47ft boat fitted with twin 4hp electric motors, built to a 1909 design from the Truscott Manufacturing Company of St Josephs, Michigan. The owners of the new boat will be using it in the waters of northern Florida.

Walter Beckmann is producing a range of electric boats which can be recharged using solar panels. One example, the Compromise Solar 21 (see front cover) launch has a 4hp motor powered by a series of batteries. An on-board battery charger can be used to top up the batteries but solar panels can also be fitted which will recharge the batteries in 3 days, thus enabling the boat to be used at weekends and recharged during the week.



Catalogues of electric boats, steam boilers and traditional fittings: Beckmann Boatshop Ltd., 500 Indian Corner Road, PO Box 25, Slocum, RI 02877-0026 USA.

Australia

Australia's Third International Solar and Advanced Technology Boat Race is to be held at Lake Burley Griffin, Canberra on Saturday 9th May 1998. This is a prestigious event, helping to open up the innovative application of renewable energy.

Registration with the Australian Science Festival (Advanced Technology Boat Race) PO Box 193 Civic Square, ACT 2608 Australia.

E mail: science.festival@anu.edu.au



Holland

LATE REPORT: Last year we received details of a new company established to provide a fleet of electric passenger vessels in Amsterdam, Stichting Elektrische Salonboten in

SESA



STICHTING ELEKTRISCHE SALONBOTEN IN AMSTERDAM



Geoff Leech, Head Boatman at Coniston Water with one of his fleet

charge to the battery is provided from a solar panel on the roof of the forward cuddy. The fleet is in use for between 6 and 8 hours everyday and batteries are re-charged at night (using white tariff power) from ten 24v points at the shoreline moorings. Private boat owners are welcome to use the charging points but few take up the offer as other users tend to have a 12v system.

Amsterdam (SESA). The first two boats were named by the Mayor of Amsterdam in the Autumn of 1996. These aluminium craft are almost 9m long and carry 10 passengers in comfort. The roof of the saloon is covered with solar cells which provide enough power on a bright day to give a speed of 7km per hour. There is also power from batteries totalling 1000kg, charged by the solar cells and from the shore mooring. The saloon craft can be hired with or without a skipper. During 1997 the fleet was due to expand by six smaller open craft of 5m with space for 6 people.

Details from SESA, Grote Bickerstraat 49, 1013 KS Amsterdam Netherlands. Tel: 020 6230220, Fax: 020 6258555, e mail: interoce@euronet.nl

France

Electric Sea Boat Challenge
12th-13th September 1998
The Electric Sea Boat

Challenge (see notice, page 8 of Winter 1997/8 EB News).

The 20 mile nautical course will be from La Rochelle and Boyardville Island, returning to La Rochelle

Anyone interested in participating should contact EBA

LA ROCHELLE...
LA MER

Since introducing the electric fleet, many private boat owners on Coniston have bought 12v electric outboards for char fishing.

Details from: Geoff Leech 015394 41366

Viscountess Bury on the move

In late November the historic electric passenger boat *Viscountess Bury* was carried by road from Ely to Newsons Yard at Oulton Broad, Lowestoft. Keith Wood is to oversee the first phase of her restoration which will involve straightening the hull so it is fit to float down to the nearby International Boatbuilding Training College.



Viscountess Bury arriving at Newsons Yard, Oulton Broad.

Eastern Counties Newspapers

Member Michel Rabaland, La Mulotiere 8, 16 Rue G. Meynieu, 44300 NANTES

Austria and Germany

Three of the electric runabouts built by Boesch Motorboote have been sold for use on the Millstattersee and Wothersee in Austria and on the Starnbergersee in Germany. These craft have been used for trick skiing and wakeboarding at speeds of between 25 and 30 km/h for 20 minutes.

Austria and Switzerland

Klaus Boesch Motorboats of Kilchberg, Switzerland launched two electrically powered prototype electric runabouts in 1997. Powered by a 27kW (34hp) 180-volt triple-phase asynchronous motor built by Krautler Electromachines. A bank of batteries can give a speed of 12 km/h for three hours or 10 km/h for 40 kilometres. An onboard charger is supplied or the boats can be connected to a shore socket for overnight recharge.

Prices are the same as for similar petrol engined craft. Environmental concerns are leading to the banning of petrol engined craft from many Austrian lakes.

Stelco Yachttechnik (UK)

Affiliated to Stelco Yachttechnik Entwicklungs GmbH

Stelco silent power throughout Europe

Consultant to the marine industry for the design and installation of electric and hybrid propulsion systems for small private launches to large commercial passenger ferry boats

Overhaul and upgrading of existing systems

Battery testing and replacement at lowest prices

DC motors & generators, controllers, high frequency chargers, converters

Spare parts and complete systems always stocked

(Albright, Best Motors, Chloride, Cupex, Curtis, RD Power, Zapi, Zivan)

New and used electric boat sales from all over Europe

PO Box 203, Salhouse, Norwich, NR13 6HF

Tel : 01603 722117 Fax : 01603 722337

Mobile service Tel: 0411 734271

Solar Energy Alliance

**Solar Panels, Wind Turbines,
Inverters, Charge Controllers**

All your energy needs supplied independently
and naturally

Complete system design, installation and
DIY advice available

Please phone

01502 515532

for more information and price lists

Classified Advertising

NELCO ELECTRIC MOTOR:

For sale, 3 kW NELCO Electric Motor, plus 72 volt Curtis Controller and 72 volt R D Charger. Offers. Contact Paul Wagstaffe on 01628 524376 (evenings).

CAMBRIA RESTORATION PROJECT

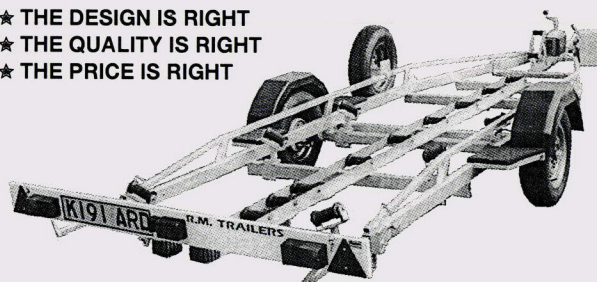
Details of restoration project for Thames Sailing Barge CAMBRIA. Contact Tony Ellis, 157 St Saviours Road, Reading, RG1 6EY.

Anyone wishing to place classified advertisements should contact the Editor.

R.M. TRAILERS LIMITED

Specialist trailers for electric boats, river craft and classic boats

- ★ THE DESIGN IS RIGHT
- ★ THE QUALITY IS RIGHT
- ★ THE PRICE IS RIGHT



1300kg. gross model showing keel guide rollers, side rollers for bilge runners.

Options shown include electric winch, spare wheel, mudguard steps.

Designs incorporating cut-out for shaft drive also available. All weights catered for.

Prospect Rd., New Farm Ind. Est.,
New Alresford, Hants. SO24 9QF.

Fax: 01962-734027. Tel: 01962-732560.

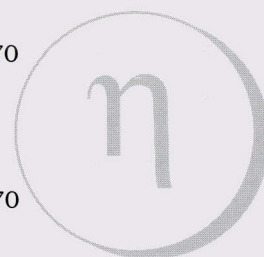
New from Designeta

The Combi Electrical Unit is an economically efficient combination of the Eta 21 Monitor, Eta 31 Controller, joystick and contactor assembly. Built, wired and tested it requires only connecting two battery and two motor power cables to complete your system.

The Integra Power Unit is a complete power unit. It consists of the Combi Electrical Unit with a 3 to 8 kW Lemco motor, belt drive with choice of ratio, built into a frame, ready to drop into the hull. The unit connects to your prop shaft bearing and requires only connecting of two battery power cables to complete your system.

Designeta

Unit 1 Phone 01494 510770
Spearhead Industrial
Estate
Lane End Road
High Wycombe
Bucks, HP12 4JQ Fax 01494 510770



Total Solutions For Electric Boats Total Solutions For Electric Boats Total Solution For Electric Boats

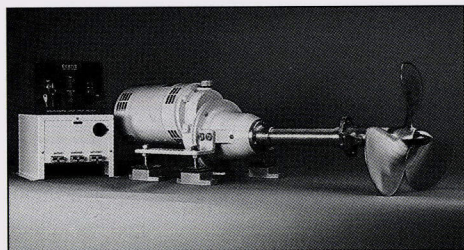
BRIMBELOW

PRECISION ENGINEERS – STERNGEAR
MANUFACTURERS. est. 1973

THE OLD MILL
THE STREET
CATFIELD
GT. YARMOUTH
NORFOLK NR29 5DH

E-DRIVE PROPULSION SYSTEM

The BRIMBELOW E-DRIVE is an easy to install system suitable for inland waterway use for boats up to 13 metres length.



E-Drive incorporates the following features:

- Low battery consumption.
- Easy to install motor mount, bearing and gland assembly.
- Meets requirements of EN50081-1 and EN5002-1.
- High efficiency, long life 1.4kw, 1.6kw or 2.0kw LSE (NECO) motor.
- Integral helical gearbox with wide range of ratios for perfect propeller match.
- Purpose made LSE electronic controller with overload and under-voltage protection.
- Joystick control providing step-less variable speed, forward and reverse.
- Suitable for 48 or 72 volt batteries.

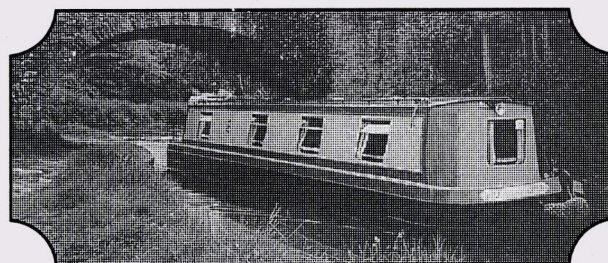
COMPLETE KITS

We supply complete equipment packages for new builds or conversions including: batteries, chargers, sterngear.

For further information Telephone 01692 582707 Fax 01692 580036
Member of the British Marine Industries Federation

WALES

MONMOUTHSHIRE & BRECON CANAL



Enjoy the beauty of the BRECON BEACONS
NATIONAL PARK onboard one of our
ELECTRICALLY propelled all steel narrowboats.

We are a small, non-agency family business,
giving a personal service.

For a free colour brochure contact:-

CASTLE NARROWBOATS

Davina or David

Tel: 01873 830001

JOHN WILLIAMS BOATS

BUILDERS OF
FINE YACHTS & LAUNCHES



DEAREST - Exquisite 21ft Saloon Launch GRP Hull and Roof. Mahogany Cabin and Decks. Steam, Electric, Petrol or Diesel Propulsion. 29ft and 31ft fully fitted or open launches also available.

Boatbuilding
Boat Sales
Repairs & Restoration
Painting & Varnishing

John Williams Boats

The Staithe, Stalham,
Norfolk, NR12 9DA

Cranage
Marine Engineers
CRP Moulders
Winter Storage & DIY

Telephone: 01692 580953

Facsimile: 01692 582132

LYNCH MOTORS - No. 1 for Marine Drives

Recent achievements:

World Waterspeed Record, 1989
Trip Boat, Castle Howard, Yorkshire
Sail Auxiliaries, Camelot Craft and
S A Knights, Norfolk
Dayboat Fleet, Redon, France
TELCO 'Selectric' Diesel-electric
drive for National Rivers Authority
& Broads Authority, Norfolk
Norfolk Wherry Yacht Charter
Lake Tyers Day Boats, Australia

Seaway, Cornwall,
yacht hydraulic drives
David Graham, Thames Edwardian
saloon launch
Trip Boats, Scanship, Holland
First Passenger Solar Boat,
Neuchatel, Switzerland
Columbia University, First in Class,
Solar Splash, Milwaukee, 1995



Camelot yacht on the
Norfolk Broads.



NRA's 'Lambourn' on the Thames

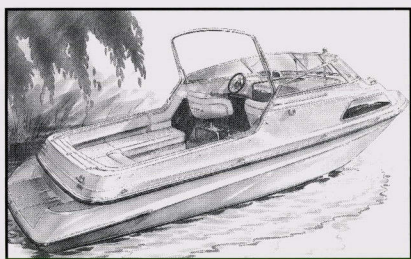
**From single Lynch motor to complete installations -
Dayboats, Launches, Sail Auxiliaries, Diesel-electric
Hybrids, Solar Power Lynch Electric Outboards,
up to 200lbs thrust**

Lynch Motor Co,
P.O. Box 919, London N1 1XL
Tel: 0171 607 8141
Fax: 0171 609 3625



STELCO

ELECTROYACHTS



DELTIC

Our Stock Deltic Electric Cruiser will be available from early April for trial demonstrations. Brand new development of Deltic outboard version available to view.

Propulsion Systems

We are happy to advise on all current drive systems for new builds or retro fit. We have the new shunt motors now available for demonstration.

THE ELECTRIC BOATING CENTRE

NOW AVAILABLE FOR SALE

Simon's beautiful electric Canoe built for 1997 Inland Show. Blue hull, rust tapestry interior.



MAYFLY

SWANCRAFT

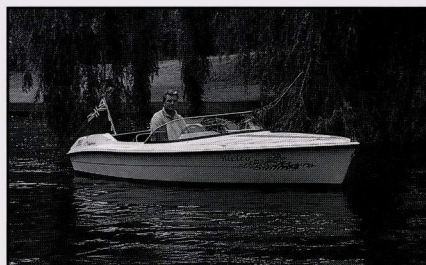
Start with hiring before buying an electric launch

Phone Barry for any repair work
0118 9402577



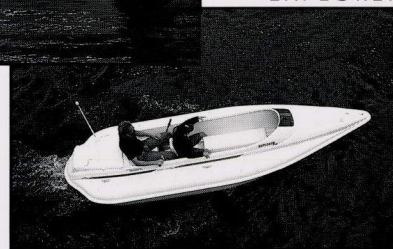
MAYFLOWER

Exciting new hourly electric boat hire



SUNNY

EXPLORER



OVERNIGHT MOORING
WITH **FREE** CHARGE

St. George & Dragon Boathouse
Henley Road
Wargrave on Thames
Berks. RG10 8HY

Tel: (0118) 9401402 Fax: (0118) 9401800