

# HISTELEC NEWS

NEWSLETTER OF THE SOUTH WESTERN ELECTRICITY HISTORICAL SOCIETY

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## HINKLEY DILEMMA

I am sure that I don't need to tell you the situation, since all the papers are full of it, but what a mess! The 85% state owned company EDF have announced their will to carry on, the French Unions are opposing the project because they believe that the project will bankrupt EDF and the new British Government is having second thoughts, since the contract is still on the table. It reminds me of the Concorde being stopped in UK years ago and France taking it over and that's why Airbus is mainly based in France these days; and of course the same with the Nuclear Industry. Who is right the French for being too adventurous or the British for being over cautious? The French are hell-bent on protecting their industry at any cost. In Britain market forces will prevail, but may be our heavy industry needs some protection? *Peter Lamb*

## NUCLEAR - THE BIGGER PICTURE

Hinkley is just one of many being planned around the World. You may have wondered why the Chinese should be involved? Well China has 10 nuclear power plants existing involving 33 reactors, which only constitutes 2% of the electricity generated. They have roughly 9 under construction, one of which is at Taishan by the French company Areva (EPR design) with Siemens alternators. In China the other 8 power plants are being built by other companies, mostly involving Westinghouse from USA with their PWR design. Rusatom, the Russian combine, is seeking to build nuclear reactors in Nigeria and Egypt. China is attempting to build up its nuclear industry taking the designs from Westinghouse and Areva and formulating their own design (CNP). In Finland at Olkiluoto 3, one is being built by the same combine of Areva and Siemens and the costs are spiralling out of control and date of commissioning keeps falling back. So Hinkley is only "small fry" in the wider scene.

## ELECTRIC CAR SALES SURGE

A big rise in the number of electric car sales in the past 12 months has forced the largest provider of charging points to stop offering free energy! Nearly 50,000 electric or hybrid electric cars were sold in the first six months of this year, up by 22% on the same period last year.. The provider of charging points is Electric Highway operated by Ecotricity and most of their charging points are in Motorway service areas. They are keen to extend their network onto A Roads.

## TUNNEL ELECTRIFICATION

Having completed work on the 6 mile long Box Tunnel by lowering the floor level to enable the normal gantry system to be installed, work is to commence on the 4 mile long 130 year old Severn Tunnel in September closing it for 6 weeks. To get over the problem of limited height, Network Rail is adopting a Swiss compact system of stainless steel roof track operating at the British standard of 25 kV AC; the first time it has been used in the UK. It is so high tech that it has been necessary to set up a school for training technicians and engineers involved.

## ENERGY COMPETITION

The Competition & Markets Authority (CMA) Report on the energy industry came out in June after two years research and analysis and is claimed to be a "whimper"! Thirty full-time staff have been working on the investigation for that period. The recommendations to Ofgem are so minor that they represent only a tweaking of the existing system. It is said by the industry insiders that the modest nature of the CMA's proposals are a sign that competition is working. The main irritation is that the investigation has cost too much money, some say around £80M, but the CMA is adamant that it has only cost £5M – what a waste of money anyway!

## PLUTUS POWERGEN

A West Country firm Plutus PowerGen has obtained planning permission to build a flexible 20MW stand-by generating farm in the Plymouth area. The idea is to place giant stand-by diesel powered generators side-by-side, presumably connected to a common busbar, which can be switched on and off very quickly as a back-up power source when the wind does not blow or the sun does not shine! They are intending to take advantage of National Grid's offer of higher tariff for instant electricity. The company has even put in an application in Bristol to build one in St. Phillips Marsh adjacent to WPD's Feeder Road Head Quarters. It has caused outrage since it happens to be also close to a Nursery School. The firm says that the 48 generators will be housed in acoustic boxes, but their opponents have written 300 letters of objection. Watch this space!! Bring back the remotely controlled pocket power plants that SWEB pioneered years ago.

## REVIEW OF CARDIFF WEEKEND

This year's weekend away was based on the Radisson Park Hotel at Llanedeyrn, near Cardiff from Friday 22nd April to Monday 25th April. In a change to our recent breaks, only the visit to WPD Lamby Way Rumney on the Friday afternoon and that to the National Assembly for Wales – Y Senedd at Butetown, on the Saturday were pre-arranged. The organising committee provided our 40 members and guests a comprehensive list of suggested things to do and see in and around Cardiff.

We were welcomed to WPD Lamby Way by Sean Sullivan, Control Manager, Peter Roberts, Emergency Planning Co-ordinator and Jonathon Whetter, Contact Centre Team Leader. After refreshments, we were given an excellent presentation on the centre, its operation, work load and response targets. We were then shown around the various sections and how these interface with each other and WPD's local work centres. The technological changes over past years were very impressive.

On Friday evening, Fiona Peel OBE, a member of the Wales Official Tourist Guides Association gave a very interesting and amusing 'potted' history of Cardiff, its development over many centuries, its buildings, statues and parks and the importance of the Marquess of Bute (a Scottish family) to Cardiff and the Valleys.

The lasting impressions of the visit to Y Senedd building on the Saturday were of its unique internal design representing a tree featuring much use of timber and Welsh slate and the enthusiasm of our guide, Gareth Coombs, who also outlined the constitution of the devolved Government for Wales.

The many places visited by members in Cardiff included the Castle, the Cardiff Story Museum, shopping area and arcades, National Museum & Art Gallery, Bute Park and a little further afield, St Fagans National History Museum, Duffryn Gardens, Tredegar House, Llandaff Cathedral, and Cardiff Bay. There were good bus services into Cardiff for those not using their car. We were lucky yet again to have had fine weather, a good choice of hotel, so many places to visit and excellent speakers. *David Cousins*

## DEAN FOREST RAILWAY VISIT

On a rather dull morning on the 15<sup>th</sup> June, 34 members and friends arrived at the Headquarters of the Dean Forest Railway just north of Lydney at Norchard and next to the 132/33kV substation.

The Severn and Wye Railway began as a tram road in 1810 and was retained by British Railways up until 1985, when the Light Railway Order was obtained by the Dean Forest Railway. Operations began in 1971 on a small siding at Parkend, moving to Norchard when the former colliery and power station site was purchased from the Lydney Park Estate and the CEGB. In 1978 a running line was opened at Norchard, which slowly extended south towards Middle Forge and in

1991 a further extension across Lydney High Street saw the railway reach Lydney Lakeside Station. In 1995 a second Light Railway Order allowed the railway to extend to Lydney Junction, which remains the southernmost terminus of the Dean Forest Railway and provides a main line rail connection and a passenger link to Gloucester and Cardiff. During 1997 work commenced to refurbish the line between Norchard and Parkend, whilst a new station at Lydney Town was opened by the Mayor of Lydney in 2001.

After a coffee stop in the café we all boarded our reserved carriage at 11:40 for a trip on the railway pulled by steam locomotive No 5541. The locomotive



is one of 11 remaining members of GWR 4575 Class 2-6-2T steam locomotives. We travelled south to Lydney and then on to Lydney Junction where the line would have joined the main line. The engine then did a run around and moved to the other end of the 5 carriages and we returned to Norchard and then north up to Whitecroft and Parkend where the line now terminates.

We were now grateful to be on the train as the heavens opened and it poured with rain. The engine changed ends again and we arrived back at Norchard at 13:10, by which time the rain had eased. We then ate our pre-ordered lunches in the station café. We then had time to visit the excellent museum and browse round the shop. Member Charles Bristow our organiser had also set up a room with maps of the electrical installations around the site and other information about the Railway.

It was an interesting day, particularly for some of us who had been there many years ago and could see what had been achieved by the many volunteers (including Charles) who work in a variety of ways to preserve and add to the facilities. Many thanks to Charles for organising the event and the support from our members, some of whom had come as far as Devon and Cornwall. *David Hutton*

## SWITCHING SUPPLIERS

With 48 energy suppliers now operating in the UK, many households are switching suppliers from the big six suppliers. In the first six months of the year a record number of customers, who had switched supplier, soared to 2.3 million. The small independent suppliers most benefitting from the changes are First Utility and Ovo Energy.

## WESTON ELECTRICITY HISTORY

Member Steve Cole, who was an engineer at Weston for many years, has offered some corrections to the Supplement on Weston-super-Mare's Electricity Supply written by Peter Lamb. Steve wrote a two page epistle of his interesting career at Weston and Bath, which included the corrections as follows :-

"There were two points in the article to which I can offer to add some information. The first was about the two Brush-Ljungstrom generator sets at Weston, which were still in operation during my early years there. I remember that they were always referred to as 1500kW design, but had been up-rated to 1875kW. They were really only operated for peak lopping then, and sometimes didn't manage that too well! Sometimes the peak would occur a bit early for the running and sometimes a bit late. (I will blame the occurrence of the peak rather than the operators of the sets!). It is strange to think of the peak being too late, but there was a problem. Only one of the former wooden cooling towers remained, and it was inadequate for prolonged running.

The other point I can comment on is the 132kV supply to Weston. Certainly there was no 132kV to Weston until around 1970. The CEB supply was a 33kV tower line from Bridgwater operating at 33kV. It was a dual circuit line, but when I knew it, it only operated in parallel. I don't believe the arm spacing would have allowed for 132kV insulator strings. I seem to remember the labelling at the terminating 33/6.6kV transformer enclosure would suggest that was originally owned by the CEB, but, of course, not like that when I was there".

*Steve Coles*

## BRISTOL ELECTRIC BUSES

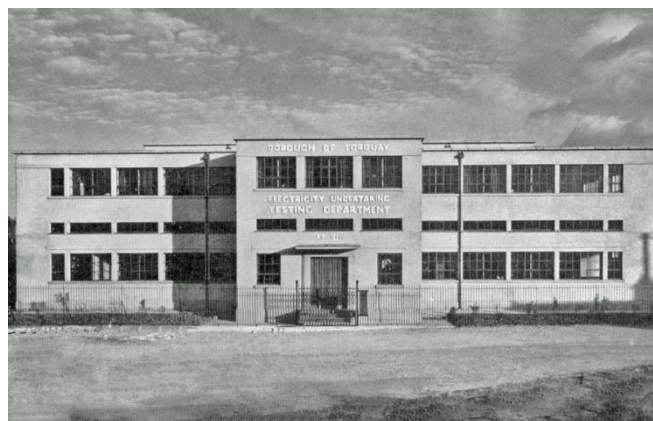
In partnership with DfT, Bristol City Council and University of the West of England (UWE), First West of England has introduced two ADL Enviro400 plug-in hybrid electrics in Bristol. The buses use Geo-Fencing GPS technology to run on pure electric mode in areas of low air quality such as Gloucester Road, producing zero emissions. Range extension is achieved with a small diesel engine driven generator set, which only runs in areas of better air quality. Five of this type of vehicle, have been built for the UK so far with the other three being introduced in east London as part of the ZeEUS Project. Engineers and scientists will examine how the buses perform and their environmental impact.

An induction charging plate has been installed at UWE's Frenchay Campus for wirelessly charging the buses. They will be used on Service 72, which runs from the city centre to the Campus via Whiteladies Road and Gloucester Road and were expected to enter service at the end of January 2016. MD of First West of England, James Freeman, said, "Bristol is the perfect place to trial technology like this. During the Green Capital year in 2015, we trialled a Bio-Methane powered "poo bus", so it is great that we now have another exciting trial". These buses will make a

massive impact to air quality as they spend a huge part of the day running on pure electric mode, meaning that in areas (such as the City Centre) where pollution is a problem, these buses will quite literally be a breath of fresh air. However Blackpool have been even more ambitious buying 8!!

## NEWTON ABBOT METER TEST STATION

We have been contacted by an historian wanting information on the Architect for the old Meter Test Station building at Newton Abbot. Members of Newton Abbot Museum, who wish to preserve the building giving it a heritage status, wanted details of its origins. From our archives we were able to provide her with the full details including Bills of Quantities, Specifications and the Opening Brochure.



Picture from the Brochure

## GIANT SWISS BATTERY

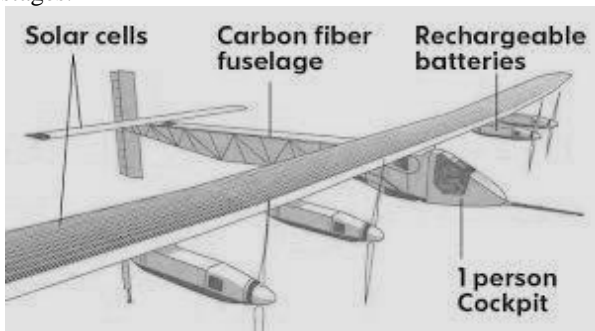
Many members will recall our most enjoyable Snowdonia Weekend in October 2001 and our visit to Dinorwic on the Sunday morning. The pumped storage power station was built for the CEBG to help keep nuclear plant loaded at times of insufficient system demand. The station used the "surplus" to pump water from a lower to upper reservoir, quickly releasing the same water to generate at times of plant or circuit outage or high demand. The greater flexibility inherent in the post privatisation "rush for gas" meant a second similar scheme on Exmoor was not required.

The variability of wind and solar renewables has brought the pumped storage concept once more to the fore, using water as a giant battery.

The Swiss Alpine town of Linthal is home to a new 1450 MW pumped storage scheme with a difference. The project utilises variable speed asynchronous motor-generator technology acquired by GE with the recent takeover of Alstom's power business. Water is pumped from Lake Limmern (23 billion gallon) up to Lake Mutt when there is a surplus of renewable energy and released to generate when demand requires. With an overall efficiency of 80% the technology allows pumping input to precisely match renewable generated surplus and is claimed by GE "...to be one of the most powerful tools for putting more renewable technology on the grid." *Barrie Phillips (See overleaf in the UK)*

## SOLAR POWERED PLANE

The Solar Powered plane, Solar Impulse piloted by Bertrand Piccard, a 57 year old Swiss adventurer, attempt to fly around the World set out from Abu Dhabi in March 2015 and then crossed the Indian and Pacific Oceans to the USA in June, but required long daylight hours to cross the Atlantic. This has been achieved during July touching down in Abu Dhabi on 18<sup>th</sup> July. The epic journey has taken 17 months to achieve a solar powered flight around the World with a co-pilot alternating the thirteen stages. The plane is only a single seater with a wingspan of a Jumbo-jet, but weighs the same as a car. Mr Piccard a psychiatrist dreamt up the idea in 2003 and then raised £100M in sponsorship to develop a prototype; this is the second version. He did have a co-pilot, who piloted alternative stages.



## ELECTRICITY PIONEER

Have you ever heard of Francis Ronalds? Well, according to an article in the IET Journal, he was an electrical enthusiast, who started the electrical telegraph 20 years before Samuel Morse in 1814/15, when he published his papers in the Philosophical Magazine. Ronalds even prophesied the age of electricity, saying the "most extraordinary fluid or agency, electricity, may actually be employed for a more practically useful purpose than the gratification of the philosopher's inquisitive research, the schoolboy's idle amusement... it may be compelled to travel... many hundred miles beneath our feet... and... be productive of... much public and private benefit".

He said "Give me materiel enough, and I will electrify the world." His services were recognised eventually after the transatlantic cables were laid in 1866 by conferring a knighthood on him in 1870.

## MORITZ IMMISCH

Here's another electrical pioneer, sent to me by a volunteer at Tyntesfield, thinking that I may have heard of him. His name has cropped up in articles discovered at the house about a watch and a thermometer, purchased by the then owner Antony Gibbs between 1870 and 1880. It appears that he was a son of a German watchmaker, who migrated with a younger brother to London in 1860 gaining British citizenship twenty years later. He initially made watches, but after designing his own DC motor, he patented it and set up an electrical factory in Kentish Town. They sold well, since his motors were less weighty and more efficient than conventional motors at that time.

## PUMPED STORAGE TO THE FORE

Pumped Storage systems are becoming more important with the present volatile generation sources, where power plants are intermittent, such as wind-farms and solar systems, so says Hugh Finlay Generation Director of Scottish Power, who own Cruachan, situated above Loch Awe. They wish to expand their present capacity from 440 MW to 1,040 MW. As more wind-farms are commissioned and coal stations shut-down, there are times when there is too much wind and others when there is too little wind requiring an instant action for more generation; pumped storage is ideal in such circumstances. At present the UK has four schemes, Cruachan and Foyes in Scotland and Ffestiniog and Dinorwig in Wales totalling a capacity of 2,800MW. During the first three months of this year, 25.1% of Britain's electricity came from renewable sources, which is up from last year's 22.8%. Plans are afoot to increase our pumped storage facilities to 4,400 MW with SSE wanting to build an £800 million one at Coire Glas in the Great Glen with a capacity of 600 MW.

## SMALL NUCLEAR

Companies other than EDF are interested in other sites around Britain to provide nuclear generation on a smaller scale than Hinkley. They include those from Britain, China, USA and Korea, who are showing an interest in the Snowdonia site of the former nuclear power station. It is thought that the site could be a potential test-bed for a fleet of miniature nuclear reactors, known as small modular reactors (SMRs) with an output of 300MW. So far 38 companies have expressed an interest to participate in a competitive exercise. Some of the bidders are Westinghouse, Bechtel and CNNC, the Chinese state-owned company.

## DONG ENERGY

Never heard of them? Well they are the biggest developer of off-shore wind-farms. They are a Danish state owned energy company, 49% of which is being floated on the open market. Dong is building the 1.2GW Hornsea Project One 75 miles off the East Yorkshire coast near Hull. The company has built 26% of the World's wind power capacity.

## SMART STREET PROJECT

Some of you may remember when Paul Jewell of WPD gave us a talk on the experimental projects being undertaken by WPD. Well, the other Distribution Companies have been given similar projects by Ofgem with funding from their Low Carbon Networks Fund. Electricity North West is running the Smart Street Project, where they are analysing the effect on the networks of solar panels, electric vehicle charging and heat pumps. The trials are intending to minimise the costs of upgrading the networks to cater for the above connections, since it is estimated that a total of £15 billion across Great Britain could be needed over the next ten years. The trials will use controllable switching devices demonstrating a fully centralised low voltage management system. The project will run up December 2017. To find out more, visit [www.enwl.co.uk/thefuture](http://www.enwl.co.uk/thefuture)

## MEMBERS NEWS

John Gale – John has had a cancer scare, but has been declare OK, much to his relief.

Roger Hughes – Roger, our ex-Chairman, has decided he is not able to drive to Cairns Road from his Mendip home at our monthly get-togethers. We shall certainly miss him doing some of the chores, like gardening. The Society sends him our best wishes and grateful thanks.

John Ferrier

Member John Ferrier and keen committee member, pictured, probably does more miles than any other member regularly coming up from Cornwall. He has organised the visit to the Devonport Dockyard Museum and in between was diving off to Ireland via the Pembroke ferry with a trailer carrying model steam engines not only driving up from his home from Falmouth to Pembroke, but then driving the length of Ireland to a steam fair in Northern Ireland and back.



**John Ferrier at Dean Forest Railway (Haynes photo)**

## JOHN LYONS OBIT

John Lyons ex-President of the EPEA has died and will be remembered by many engineers as a dynamic President of the Engineers' Union. Roger Neck, member knew him well and writes "There can be no truer expression when paying tribute to John Lyons, John was so unique with his brilliant intellect and humble yet steely manner witnessed throughout his service to the EPEA/EMA, but most of all he was a true Gentleman and a wonderful friend. - John's lasting memorial was the protection he fought so hard to secure as we moved into the Privatisation of the Industry and his lasting legacy will be of having the members' pensions rights written into the Legislation."

*Roger Neck*

## MANCHESTER SHIP CANAL NEWS

Members who went on the Mersey Ferry last year may be interested in the following :- "More than 70 people were rescued from a passenger ferry in the River Mersey when a hole was torn in the hull as it ran aground yesterday. Water poured into the "Royal Iris" but there were no reports of injuries. The 69 passengers and 5 crew were helped on to a dredger, which was used to pump water from the ferry." Also the local distribution company is replacing EHV cables situated in a tunnel under the Canal. *News by David Hole*

## EULOGY – ERIC EDMONDS

EWAE, as he was known to us his subordinates in West Cornwall District of SWEB, Eric was born 1917 in Buenos Aires, Argentina, where his father was managing a large engineering project. He was sent for schooling to Tonbridge, Kent, and saw very little of his parents, living most of the time with an aunt. He attended Faraday House and graduated in Electrical Engineering in 1939, thence acquiring a post with the Cornwall Electric Power Company (CEPC). He joined the Territorial Army, and was called up for WWII spending much of the War in India, including a period serving with a Gurkha Regiment. He rose to the rank of Major, and on demob he returned to his employment in CEPC. With nationalisation, promotion came quickly for him, by 1950 he was District Engineer at Central Cornwall District, operating from the Falmouth office. Later he became DE for a larger district of West Cornwall based initially in Camborne and then Redruth. He continued in this post until about 1972 when he was appointed Regional Safety Officer for Devon and Cornwall.

At each re-organisation that took place during his career it was custom to clear out many old documents but this was alien to Eric's principles and he quietly skimmed off amassing much material. He also undertook lots of research over the years, and recently passed everything to the Society's archives. He had a very deep rooted interest in Cornish Industrial History and was a leading authority on the mining scene, and on the Camborne and Redruth Tramway, being a stalwart of the Trevithick Society. He had a lifelong passion for Rugby Union, and served Redruth Rugby Club for many years, initially as a player and later as Chairman and then President.

In 1963, together with the District Manager, he interviewed a 22 year old Student Engineer, who he thought was good enough to join his staff. Since he retired in c 1980 I have often joked with him that if he had not appointed me then, I would have spent my whole career on the dole!

He was a very important asset at the formation of the Society, having a considerable photographic archive of Cornwall electricity history including a complete history of the Cornwall Electric Power Company, which was essential to many of the Society publications. He died on 17th April 2016, 98 years young, a true gent of the old school, well deserving of a grand Funeral Service in Truro Cathedral, which it was my honour to attend as your representative. Our sincere condolences are proffered to Rosemary and her family.

*John Ferrier*

## FREE ELECTRICITY!

Can you believe it – British Gas is offering customers with Smart Meters eight hours of free electricity at Weekends which could save average households £60 a year. Experts said it was a gimmick!

### Latest News -

#### EDF NUCLEAR OFFICE

EDF are so confident that Hinkley will get the go-ahead that they have opened a new control centre in central Bristol at Bridgewater House (Yes with an 'e'). They call it their Command Development Centre which will house 750 staff overseeing everything associated with building the new nuclear station. Staff numbers could rise to 1500 as it is intended to be the centre for building nuclear stations in Britain including one at Sizewell. EDF estimates that the project will generate £200 M in the West Country business economy during construction over 10 years, since already 300 firms have registered their interest in the supply chain.



Spotted by John Haynes at the Dean Forest Railway

#### IET ARCHIVES

One of their biggest collections of the Institute of Engineering & Technology is the BTH Collection dating from 1898 to 1939 from their base at Rugby, including 28 photograph albums and 13,000 glass slides. IET are embarking on a project to digitise it.

#### INDUSTRIAL ARCHAEOLOGY

Many of you will be unaware that the Society is affiliated to the Association of Industrial Archaeology (AIA). We have their regular Bulletins and their ½ yearly main Journal, which are available to members particularly those visiting Cairns Road occasionally. In the May edition there appears a fascinating article "The Heritage of 30 years of Mobile Communications in UK". It is so interesting to see a historical article on something we have all lived through so recently, and which has brought such major changes to our lives!! Anyone particularly interested in this subject matter, please contact Peter on 01275 463160.

#### QUOTE FROM THE ARCHIVES

*From a talk given by the 1<sup>st</sup> Chairman of SWEB on 18<sup>th</sup> July 1951 :-*

An ESI Conference was held with many high officials present, when in walks a somewhat insignificant individual. Eventually someone noticed him and asked who he was? He replied "Oh I am only a consumer". "What is that?" they said, "What do you do? He said "I am the chap who pays for it all!"

#### ARCHIVE ACTIVITY

During July we had a surge in enquiries, one all the way from Australia asking us for photos of George Eveleigh; we found five, one of which is shown below.



George Eveleigh at his retirement with Len Locker

Another enquiry came from a lady writer on women in engineering and was enquiring about an engineer in the 1920's from Devon, her name was Margaret Partridge. We hadn't heard of her, so the lady sent us two articles written by Margaret. It appears she organised the early electricity supplies at two small villages, Bampton (1926) and South Molton (1927), both DC hydro-schemes of which we have records. There is no mention of Margaret, but it seems she set up her own contracting business in Exeter for a number of years. She was largely put out of business by the rural AC revolution of 11kV circuitry of the Exe & Culm Valley Companies (West of England Electricity) in the early 30's.

With John Gale and Peter Lamb feeling their age, it is imperative that we encourage some new archivists to get involved in looking after our vast libraries. Please come and investigate our huge resource and find out more - ***YOUR SOCIETY NEEDS YOU!***

#### FOR YOUR DIARIES

##### **Sat 17th Sept - VISIT TO PLYMOUTH DOCKYARD RN MUSEUM**

Arrangements already advised. Meet at 10.30am including a buffet lunch at 1.00pm.

##### **Tue 18th Oct. VISIT TO ROLLS ROYCE MUSEUM, PATCHWAY, BRISTOL**

Arrangements to be advised later

##### **Sat 19th Nov. DEVON MEETING- Talk "Early Supplies of Electricity in the SW"**

By Peter Lamb at Nutwell Lodge Hotel, near Exmouth with lunch beforehand.

**NEXT EDITION** - This newsletter is produced every four months. Please send articles, photographs etc to :- Peter Lamb 35 Station Rd, Backwell, Bristol BS48 3NH or telephone on 01275 463160 or e-mail him on [lambpandv@btinternet.com](mailto:lambpandv@btinternet.com).

