

HISTELEC NEWS

NEWSLETTER OF THE WESTERN POWER ELECTRICITY HISTORICAL SOCIETY

Web Site : www.swehs.co.uk

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SWEHS RELATIONSHIP WITH WPD + SWEXIT

At the AGM below it was agreed to change the title of the Society to embed the group more into the culture of Western Power Distribution plc., our sponsoring company. From now on it will be known as Western Power Electricity Historical Society*. Peter Lamb gave a visual presentation at the AGM explaining the reasoning behind the idea and the benefits that could accrue - some are closer links, greater publicity via WPD house newspaper, Power Lines and a wider potential membership. *It will take some months to change both the bank account and the website.

23rd ANNUAL GENERAL MEETING

The 23rd AGM of the Society was held at the WPD Taunton Training Centre on Saturday 18th March, attended by 38 members and guests. David Hutton briefly read his Chairman's report, expanding on some of the highlights of the year. He also gave details of the Treasurer's Report in the absence of Clive Goodman. The accounts showed net assets to be £7,422.60, an increase of £732.61 from the previous year. However David explained that although we made a larger surplus than last year, there is a need to replace two storage heaters in the Museum at around £500.00, one of which has already been completed, but was not included in these accounts.

With the elections a few surprises occurred; the first was that the Secretary Chris Buck was standing down due to ill-health. The good news was that David Peacock had agreed to be Secretary and John Muggleton had agreed to take a seat on the committee. Both were elected with enthusiasm and the full details are as follows:-

Chairman : David Hutton

Vice-Chairman : David Hole

Treasurer : Clive Goodman

Secretary : David Peacock

Committee : Charles Bristow, David Cousins, John Dike, John Ferrier, Susan Hole, Paul Hulbert, Peter Lamb, John Muggleton & Roger Neck.

Memb. Secretary : Paul Hulbert, also Webmaster

Hon. Accounts Certifier : David Legg

After the elections, Roger Hughes, ex-Chairman and Chris Buck, ex-Chairman and Secretary were presented with an award of a piece of Bristol Blue Glass for their excellent past services. See page 5.

BUDGET & GREEN ENERGY

The Green lobby weren't very pleased with the Budget, because no specific decision was made which made investors uncertain of the future. It was announced that a new set of controls would be set out later in the year. The Levy Control Framework was set up in 2011 and was supposed to last until 2020/21 but is soaring out of control. The Government insists that there is no hurry since no changes will be made until after that date. A Government official Climate Adviser, Lord Deben, the former John Gummer has warned that its policies to tackle global warming will cost consumers £200.00 a year by the year 2030! However he also added that it is a small cost to bear and that households and businesses could make considerable savings by replacing lights and appliances with more energy efficient types.

SWANSEA LAGOON

A Government-backed commission on the first tidal lagoon project at Swansea has decided that it would cost £1.3billion to construct. Charles Hendry, who lead the review urged Ministers to grant a 60 year subsidy contract, which could be more expensive than given to the Hinkley Nuclear station. The Swansea Lagoon would generate 320MW and could be a pilot scheme for others along the coast in other areas. Greg Clarke received the report before Christmas and stated that the issues are complex, but the media was not hopeful due to the high costs. Other sea projects are as follows:-

1. A Wave Hub north of St.Ives, which is under way and should start testing next year.
2. Orkney Energy Centre is hosting tests of a huge floating tidal turbine
3. At Pentland Firth in Scotland, MeyGen is testing an array of underwater turbines.

SMART METER PROBLEMS

The Government is funding and passing the cost onto customers via your bills and the project is highly controversial. It appears that the only person getting any benefit is the Supplier, who doesn't have to read the meter from then on since it is automatically read. Many have had to be replaced according to the Daily Mail due to the technology not working properly as some firms have installed non-approved models! I have had one installed by EDF and haven't noticed any changes in my bill. Please let me know if you have had any problems and we will reprint it in the next issue.

Peter Lamb

WINTER LUNCHEON REVIEW

On Saturday 4 February 45 members and guests gathered at the Batch Country House Hotel, near Lympsham south of Weston-super-Mare, for our annual winter lunch. This year it had been decided to hold the event in the northern end of our area to benefit members from around Bristol who for the past few years have had to travel to Exeter.

Our guest speaker was Barry Preen who very kindly stepped in at extremely short notice to replace our booked speaker, Jon Yabbsley, who unfortunately was unwell. Like Jon, Barry is a volunteer speaker for the RNLI. He started his talk with a brief history of the origins of the organisation when it was founded with royal patronage in 1824, with the name: the National Institution for the Preservation of Life from Shipwreck – it was not until 1854 that it became known as the Royal National Lifeboat Institution or RNLI for short. It was explained that the RNLI is a volunteer organisation with no government funding relying as a charity on public donations.

This is no mean feat since the cost of a new lifeboat can run into several million pounds. Using short video clips Barry went on to explain the history of lifeboat development and recount a number of notable sea rescues, including the Penlee lifeboat Solomon Browne loss whilst going to the aid of the vessel Union Star. The important role of the RNLI in recent years in assisting at flood disasters such as at Carlisle, drew attention to the fact that the organisation is not only concerned with rescue at sea.

To illustrate this aspect of the work of the RNLI video footage was shown of the dramatic night-time rescue of a lady trapped in a car when it became overwhelmed by flood water when the river Taw flooded at Umberleigh in North Devon. Barry's talk prompted a number of questions including how to call for the services of a lifeboat – call 999 and ask for the coastguard, who will assess the situation and decide the most appropriate facility to dispatch, which may not necessarily be a lifeboat in the first instance. A table top collection raised £215 which was gratefully received by Barry on behalf of the RNLI, which has been donated to the Weston lifeboat station.

Chris Buck

DOWNTON POWER STATION

John Watts lives at Salisbury and describes this old hydro=station in his vicinity.

A small hydro-electric station was first established in 1920 at Downton on the River Avon near Salisbury. It was formed as the Downton Electric Light Company and in the late 1920's was taken over by Wessex Electricity Company. The plant was used as a peak lopper and also had a diesel set as a back-up. The hydro was around 35KVA, the diesel was 150HP. The head of water was 4-5ft only. It did not use the total flow of the river, since there was a leat about a mile long, which also fed a waterwheel driving machinery for a tannery. The hydro plant was built by Armfields of Ringwood specialists in water power and control

gear. The Brush diesel engine flat four opposed pistons and was the smallest engine in the range, driving via V belts an 80KVA generator. I have seen it working and it needed some TLC. At nationalisation it was taken over by the CEA and closed down around 1972.

The final stages were rather sad, since the Army removed the plant (as an exercise). The South Wilts Industrial Archaeological Society was given custody of it, but eventually it was scrapped. The switchgear is in the Museum of Internal Fire in South West Wales.

Member John Watts



Downton Weir near Salisbury

HINKLEY LATEST

The IET latest magazine has given the full details of the new station components, which is quite fascinating. But first they advise that serious work on site started in September with boring new seven metre wide tunnels 11km out to the sea. Three massive boring machines will shift hundreds of thousands of tonnes of material involving hundreds of workers. A new harbour is to be built to ship in the millions of tonnes of building material. It is estimated that 20,000 workers will be involved in the project so that it will be the biggest building contract in Europe. Once operational the two energy efficient EPR reactors will provide 7% of UK's electricity. Each reactor will provide sufficient power to generate 1.6GW of electricity. They will power the biggest steam turbines in the world manufactured by GE Power at 1,770MW, and will be longer than an A380 jumbo-jet, costing \$1.9billion. Security of the plant will be amazing with the outer casing being strong enough to withstand an aeroplane collision and a bund wall built to withstand a tsunami or very high sea flooding. No wonder it will take so long to build!!

SCILLY ISLES CABLE FAULT

The residents of the Scilly Isles, which number around 2,200, were plunged into darkness in Mid-March when the 33kV cable linking them to the mainland faulted. St. Mary's Power Station generators kicked in within minutes restoring the supplies. WPD have located a fault 17km from Land. A vessel has been chartered to sail from Global Marine Systems, Portland to the site to carry out repairs. The cable was laid 30 years ago and has never given any trouble until now. WPD have stated that there is enough fuel on the island to last indefinitely!!

AGM TALK - The First Atlantic Telegraph Cables

John Dike gave a very interesting and lively illustrated presentation on the laying of the first Atlantic telegraph cables, from a book belonging to his father about the Great Eastern. John brought a sample of the cable and instruments used to provide the means of sending and receiving the Morse code messages.

Around the 1840/1850's proposals were made for a telegraphic cable across the Atlantic, cables had already linked Britain to France and Nova Scotia to Newfoundland. Cyrus West Field, a New York businessman and financier liaised with Samuel Morse and others to work on the cross Atlantic telegraphic cable project. Money was raised by American and British investors and their respective Governments. Prior to the use of a telegraph cable, messages would take 10 days or more to receive by sea.

In 1836 Samuel Morse with others developed the electro-magnetic telegraph and a system of code representing either a text character (letter or numeral) using a sequence of dots and dashes. Charles Wheatstone and William Cooke also developed electric telegraph devices. The cable was manufactured by two British companies with the American and British Governments provided two laid up ships, HMS Agamemnon and USS Niagara to be modified as cable layers. The cable had a copper core embedded in a compound of gutta percha, resin and tar with a stranded wire armour embedded in jute and tarred hemp.

The first two attempts to lay the cable between Ireland and Nova Scotia were not successful but the third was. Prof. William Thomson (Lord Kelvin) and Dr Edward Orange Wildman Whitehouse, each located at remote ends of the cable were responsible for testing. A congratulation telegram was sent by Queen Victoria to US President Buchanan. The process of sending the first message was very slow taking over 17 hours to complete. Thomson and Whitehouse disagreed on the voltage to be used and the cable failed.

A British Government Committee sitting over a two-year period took evidence from everyone involved in the submarine telegraph industry following the failure of the 1858 cable and concluded that a properly designed, carefully constructed and thoroughly tested during its manufacture from best quality materials and properly laid would last many years. It took 6 years for Cyrus West Field to raise sufficient capital this time using SS Great Eastern which had been laid up. The ship was purchased for the project and modified to carry 2,500 nautical miles of cable in three tanks. The first attempt in 1865 failed due to a cable break and its loss overboard but in 1866 another cable was successfully laid and the 1865 cable was relocated and repaired and completed. The Great Eastern was used for many cable laying projects around the world and was finally cut up off Liverpool. The presentation was thoroughly enjoyed by 40 members and guests.

David Cousins

NEW GRID CONNECTIONS

National Grid's key project at the moment costing £1.4billion is to build a long HV cable link to Norway – the longest in the World at 450 miles! It will be capable of transferring 1,400megawatts of electricity at 515kV DC and the route would be from Kvitlidal (a hydro-electric scheme) in Norway to Blyth in England. The route is very perilous since Kvitlidal is roughly 50 miles inland from Stravanger, involving depositing the cable in a long Fjord. Due to one of UK cable links having been severed by a ship's anchor last year, it is proposed to bury the cable using a robotic gusher blasting water beneath the cable to provide a trench. Work is due to begin at sea in 2018 providing the cable is made on time!! It is believed that the contract has been awarded to Prysmian Cables, a multi-national company with factories at Wrexham and Milan, Italy and elsewhere.

At present NG has 4GW of interconnectors and it is proposed to increase this to 9GW with further cables Belgium, Denmark and second link to France. Work has already commenced on this last one. It is a 43 mile route between Folkestone and France, costing £600M and using the Channel Tunnel, which is to be completed by 2019. Another being considered is between Hampshire (Fareham) and Normandy

TESLA PLAQUE

On our visit to Croatia in August last year, my wife and I joined a tour of Zagreb old city centre and in due course came across a wall plaque of Nicola Tesla. The tour guide knew all about him, since he lived only 40km from the City, so I asked him a question which has been nagging me for years. "Was Tesla a Serb or a Croatian"? The answer was he was Croatian born of Serbian parents.

Peter Lamb



Nicola Tesla Plaque at Zagreb

TOSHIBA NUCLEAR IN TROUBLE

The Japanese industrial giant, which owns Westinghouse, the provider of Nuclear expertise for the company, has suffered a severe financial loss and are likely to pull out of a deal to build a nuclear power plant in Cumbria known as Moorside near Sellafield. The project was intended to install three Westinghouse Reactors there, but for now it is put on hold.

CHINESE NUCLEAR REACTOR

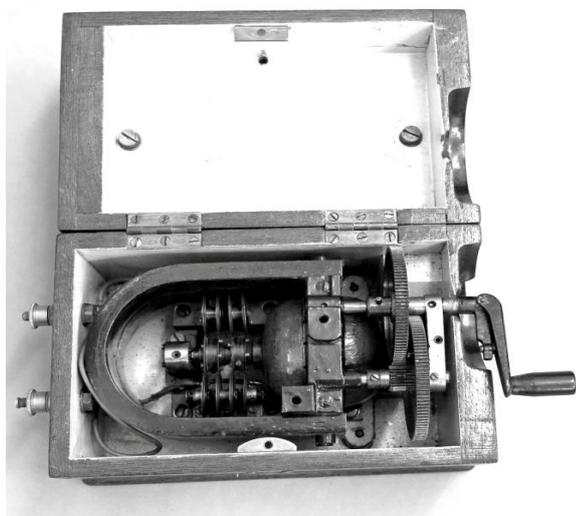
We have reported before that the Chinese were developing their own version of a Nuclear reactor. Well now British nuclear experts are to be given the chance of a detailed technical appraisal of the Hualong model to establish whether the design is safe. The Government have been approached to construct a new station at a site on Bradwell-on-Sea. Don't expect quick results, it is anticipated to take four years! The Chinese are building one at Fangchenggang in China.

FINNISH NUCLEAR WASTE

Finnish engineers are drilling a massive catacomb 437metres below ground to store nuclear waste under an Olkiluoto Island off the coast of Finland. They are happy to do so since the rock structure is the most stable in the world and it is proposed to keep the waste there for 100,000 years. This is something which in Britain we have failed to find a suitable location. It seems an incredible legacy to leave future generations!

EVERSHED & VIGNOLES HAND GENERATOR

A very old hand generator, a testing device, which is dated 1906, was patented by Sydney Evershed in 1900 and has been donated to us by new member Roger Salter. It is basically the forerunner of the modern Meggar, which tests the insulation levels of circuits and appliances.



AIA BOOK DONATED

As we are an affiliated group of the Association for Industrial Archaeology (AIA), they have sent us a copy of a book "The industrial Archaeology of Shropshire", which is centred on Ironbridge. Anyone wishes to read this, please contact Peter Lamb.

CAT ON POLE

A cat in Cam, Gloucestershire got stuck up a 30ft electricity pole in January, see picture below. WPD were asked to come to its rescue, which involved switching off the electricity first. What a fuss it caused with the Fire Brigade and RSPCA present as well, before a linesman removed the cat with his gloves on. Paul Hulbert says it was reported in the Daily Mail, the Dursley Gazette and WPD Facebook.



FRENCH SOLAR ROAD

France intends to roll out on a large scale some new Solar Roads, dubbed the Wattway in Brittany and Provence. The hardy panels set into the roadway are stated as capable of surviving 2000 cars a day passing over them. The Environment Minister explained that using road surfaces to generate electricity would save rural land from being swallowed up by unsightly panel arrays. This idea seems crazy since no explanation is given on how the panels are to be kept clean!

GRID BATTERIES

National Grid is seeking a scheme consisting of 200MW of batteries to power the Grid at short notice to be charged at times of low demand. Thirty seven companies have so far submitted tenders, they include AES of America, RWE of Germany and a British company RES. The US company is building a 100MW battery array in Los Angeles to be charged up by solar farms in the deserts and then available for peak demands in the evenings.

SEV, a Danish utility have already used Lithium-ion batteries to store electricity obtained from the Husagi Wind farm near Torshavn, the first commercial use on a large scale in Europe. Now the Faroese Government is planning to do the same in order to use more renewable energy.

DRAX IN TROUBLE AGAIN

Britain's largest power station, which once was the cleanest coal fired station, was encouraged to change from coal to wood pellets, because the EU classed wood pellets as "carbon neutral". Now it is suggested that the burning of wood pellets are 13% higher in emitting carbon dioxide. The trouble is the tax payer is subsidising this crazy idea.

PRINCETOWN HERITAGE

In the last issue we featured an old 1923 generator building being under threat of demolition. Now in the same vicinity is another more modern building which once housed a remote controlled small generating station, known as a "Pocket Power Station". The plant has long gone having been bought by the Museum Of Power (previously of Internal Fire) in South West Wales. Now the historians are trying to prevent a redevelopment of the entire site losing both buildings.



Remote Controlled Pocket Power Station building with the older building seen in the background

LITHIUM-ION BATTERIES

Have you ever wondered how the Lithium-ion batteries suddenly sprung into being as the best battery for years? Well the IET have explained in their latest journal. Lithium-ion technology was first commercialised by the Sony Corporation in 1991. They were manufacturing magnetic tapes for audio cassettes, coating the film with magnetic slurry and tried coating the same onto metal foil and found after cutting the foil into slices that they had produced a battery. The article says that Lithium-ion devices don't follow the normal rules of chemistry, since they allow the ions to move from one side to the other releasing energy and when charging takes place, the process is reversed. Other manufacturers have improved the original idea by using other materials with Lithium such as cobalt, nickel and manganese. They are most suited to the electric car market since they enable the cars to go farther on a single charge, some advertising 200 miles

BATTERSEA PROJECT

Member Bill Tincknell's son Rob Tincknell is Chief Executive of the redevelopment of Battersea Power Station 42 acre site. The £9 billion development is turning the site into apartments, offices, shops and restaurants. Rob has been in the news recently stating that most of the 3,500 workers on site are foreign and the turnover recently has been bad with many leaving due to the Brexit vote.

MINI NUCLEAR STATIONS

NuScale Power, an American company are keenly developing smaller versions of conventional nuclear power plants. They are termed small modular reactors (SMR). NuScale anticipates manufacturing these units at a site in the UK if they win the competition set by the Department of Energy & Climate Change. The company is so confident that it is placing an initial order with Sheffield Forgemasters to manufacture key components. The idea is that these units can be factory built and produced far quicker and shipped to the required locations.

DOGGER BANK ISLAND

Plans have been drawn up by a consortium of energy companies from Netherlands, Denmark & Germany to create a new artificial island on the notorious Dogger Bank. It would be 2.5sq. mile in size and would have its own airport and living quarters to administer the energy exchange, since it would be surrounded by wind turbines and be an energy hub involving interconnections with the those three countries plus UK, Norway and Belgium. It is a European Union backed plan and it is hoped to be approved in Brussels on 23rd March.

From the magazine of The Institution of Engineering and Technology.

A mind reader called for a volunteer and asked her to think of any number between

1 and 10.

"Have you thought of a number? Do not tell it to me."

- "Yes," she replied.

"Please add 3 to it," he said. "Then double the result."

"Yes, I've done that."

"Next add the number you first thought of to the number you have now." "Yes"

"Next, divide the number you have now by 3.

Lastly, take away the number you first thought of -

"OK, I have done all of that."

"I want you to think very strongly of the number you have now. Without speaking, try to project it into my mind... The number you are thinking of now..... is two." "That's right! How did you know?"

How did the mind reader know?

The answer to the puzzle.

I sent the puzzle to my 17 year old grandson and he soon cracked it!

If the number chosen is N, then the number produced is $((N + 3) \times 2 + N) \div 3 - N$

If we use some algebra, the 'N's cancel out and we get 2, showing that it will work every time for any number.

If N = 5, then $(5 + 3) \times 2 = 16, + 5 = 21, \div 3 = 7, - 5 = 2$

David Hutton



AGM Picture Chris Buck Presentation

OUT OF THE MOUTH OF BABES

I was recently asked to talk to my granddaughter's junior school about the electricity industry. I included some curriculum-relevant things like mentioning conductors and insulators, plus a strong safety message to avoid them "investigating" things I'd mentioned like substations. The children were very aware of solar panels - many of them had them on their roofs at home - and wind turbines. They even used the correct terminology, not calling them windmills (and this was children 7 to 9 – impressive!

They asked some intriguing questions that cast light on a modern child's world view and concerns:-

"I live next door to a substation, and my cat keeps wandering in there. Could it get hurt?" (My answer: I think it will be OK. Cats don't fiddle with equipment, people do!")

"I know we shouldn't climb into a substation to get a ball back. But what happens if my mobile phone goes in there?" Go and tell an adult, and show them the notice on the substation that's got a phone number for Western Power. They will send someone to get it out".) "What happens if my drone hits an overhead line?" ("The lights might go out, and your drone won't work. Don't fly drones near overhead lines!")

"What happens if a cat sits on a pole and puts its tail across the wires?" ("It gets a very fried tail" - the class collapsed into giggles.

The most striking conversation I had was the nine year old who said "Poles are made of wood but pylons are made of metal because it's stronger and can carry a heavier load. What's more, if you look, the metal is in triangles because they're stronger than squares" (Even the teacher looked puzzled but I explained that he was exactly right – "You can pull a square over, but you can't push a triangle over – Future engineer material!

I obviously enthused one of my granddaughter's friends - he went home, borrowed a reflective jacket and some tools, and went around the house "being an electrician".

Paul Hulbert

MEMBERS NEWS

23 Years Ago

At the AGM in his presentation regarding "A Closer Relationship with WPD", Peter Lamb took the liberty to show a picture of those who attended the first AGM 23 years ago and congratulated those who were still members and present that day. They were John Haynes, John Dike, David Cousins, Ted Luscombe and of course Paul Hulbert who took the photo. In the picture but absent and still members were Mrs May, Barrie Phillips and John Ferrier. Congratulations went also to Clive Goodman, who has been Treasurer for all those years.

MEMBERS NEWS

Steve Coles – Steve has reached the grand age of 90 and is feeling his age. He wishes he could join us sometimes, but is infirm. We are sorry to hear that.

ROY DICKINSON

We are sad to report the death of a long-standing member. Although Roy wasn't a founder member, he did join in the first year and was a very keen member! Roy had a very successful career being a popular guy. Prior to 1975 he was 1st Engineer Taunton and was then appointed District Engineer, Crewkerne, later District Manager, West Devon and in 1983 he was appointed Area Engineering Manager, Somerset retiring around 1990.

LONDON EXHIBITION

An exhibition has opened in London at the Wellcome Centre in Euston Road, Kings Cross on "The Spark of Life". It is a mixture of art and science about the early rumblings of electricity, starting with Thales, a Greek philosopher using static electricity. A large French advert in 1910 is the centre-piece of the Times Supplement showing an athlete getting some electric lotion – see picture!!



FOR YOUR DIARIES 2017

ADVANCE NOTICE

Thursday 18 May - Visit to Underfall Yard, Bristol followed by lunch at the nearby Lockside cafe.

Tuesday 27 June - Visit to Exeter Energy from Waste Site, Matford with lunch after at the nearby Devon H.

WEEKEND AWAY IN THE STROUD VALLEYS

29th Sept. - 1st Oct. 2017

Around Stroud are 7 valleys and the rivers flowing through these powered industry in the past. We will visit restored mills; Woodchester Mansion, an un-finished neo-Gothic house; and the headquarters of Ecotricity. There is much more to explore in the area.

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.