

# HISTELEEC NEWS

NEWSLETTER OF THE SOUTH WESTERN ELECTRICITY HISTORICAL SOCIETY

Web Site : [www.swehs.co.uk](http://www.swehs.co.uk)

No. 43

DECEMBER 2009

## HAPPY NEW YEAR

We hope you had an enjoyable time with the Christmas festivities. The Society has had a difficult time with its social events this autumn with two cancellations. Firstly the Balmoral Trip cancelled due to bad weather, but we will probably have another go at that in the future. Secondly Derek Lickorish's talk at Cairns Road, we were obviously sorry to hear that Derek was in hospital undergoing back surgery, which was a great shame since many old colleagues were hoping to meet up with him once again.

## NEW GOVERNMENT INITIATIVE

In November the Government announced that 10 nuclear power stations would be built at a cost of up to £50billion. Does this mean that the Government are putting money into the "pot" to speed things up? In other words are they to play a more pro-active role or is it just hot air? People from within the industry say it is already too late since by 2015 there will be an energy crisis with the closing of ageing coal-fired power stations. They could be relying on the IPC, Infrastructure Planning Commission to fast track planning permissions, which could all be turned on its head if the Conservatives get into power and disband the Commission as they have threatened so to do.

Elsewhere it is said that the Government has pledged £19 million towards engineering firms to develop and update technical processes relating to the nuclear business and £15million to set up a Nuclear Manufacturing Research Centre, which is due to open in 2011. Rolls-Royce has also signed an agreement with EDF to provide engineering and technical support in the building of the nuclear reactors. Interestingly Hinkley Point is scheduled to commence construction in 2013 and to enter service in 2017. (See article on the new grid line overleaf).

## AYLOTT ARCHIVE

Recently we have had a considerable archive deposited with us. It is the personal archive of Henry J Aylott, Joint Managing Director of Christy Bros of Chelmsford between 1933 and 1948. Chris Aylott grandson of Henry Aylott passed 14 items to your Secretary for safe-keeping, including material of Christy Bros, Henry's later time (post 1948) with the Eastern Electricity Board and a booklet entitled "The Story of the County Company", a history of the London County Electric Supply Company Ltd, which includes all the undertakings in Essex and Kent encircling Central London, an incredibly useful document to us. *See Picture overleaf.*

## WEST WALES MUSEUM

The Princetown Proteus Gas Turbine engine has been donated by WPD to the Internal Fire Museum of Power at Tanygroes in West Wales. They have now got it up and running, alongside their many other engines. They have quite an incredible collection including Tangye, Petter, Paxman, Gardner, Lister, Foden and Ruston engines, all in working order. If you don't believe me – look in on their web site : [www.internalfire.com](http://www.internalfire.com)

They are asking SWEHS members to visit to celebrate the 50<sup>th</sup> anniversary of the commissioning of the Princetown "Pocket" Power Station in November 1959. For those who are very keen, it is situated 6miles from Cardigan on the A487. *See page 5 for picture.*

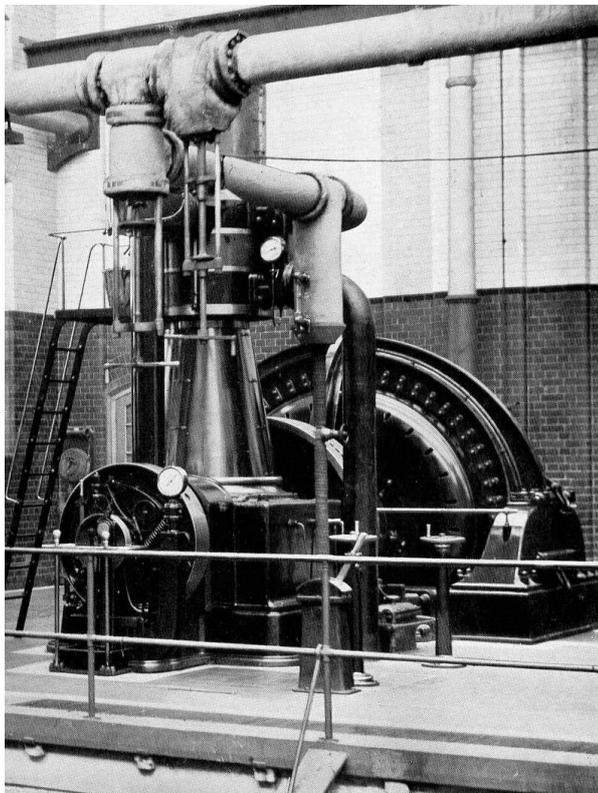
## SUNBURST

Prof. Guy Nason of Bristol University has been studying the data from NASA's monitoring of the Sun's activities to try to predict when the next major sunburst could occur. He says that sunbursts are occurring all the time but the last major sunburst occurred 150 years ago on 1<sup>st</sup> Sept. 1859. Darkness came early, and the skies were lit up so brightly that it was possible to read a newspaper at midnight. The Earth was being buffeted by a solar super-storm, a massive influx of electro-magnetic energy bursting from the Sun in a gigantic malevolent flare.

If the same thing happened again, he reckons it could be catastrophic for our modern day facilities. Prof. Nolan maintains that it would knock out grid systems and satellite infrastructure throughout the developed countries. Telecommunications would cease to exist, the internet would crash, television and radio channels would be off the air, causing incredible disruption of food and other supplies to modern man. It has been suggested that it would take years to recover and put things back as they had been before the storm.

## RAIL ELECTRIFICATION

According to the Railway Magazine Sept.2009, railway electrification is to proceed immediately for the Liverpool to Manchester rail line, the oldest in the world. The Paddington to Swansea route was also included in new proposals. The Great Western route will be operated by Hitachi SET (Super Express Train) including a hybrid bi-modal version, which would have diesel generator vehicle at one end and an electric transformer vehicle at the other. This would enable coverage of inter-related services to Devon and Cornwall in particular and may be also Worcester, Gloucester, Cheltenham and Carmarthen.



**London County – Wandsworth Alternator 1897**

### **HINKLEY CONNECTION**

The government has announced ten new nuclear stations which need to be built in a hurry if shortages of electricity are to be avoided in about 2017. Hinkley Point on the North Somerset coast just west of Bridgwater is one of the stations to be enlarged with a plant Hinkley C of 2x1800 MW total of 3600MW to replace Hinkley B of 860MW (70% of full cap.) The present B station feeds eastwards to Melksham and southwards to Taunton and onwards to Devon and Cornwall at 400kV. A more local connection at 275kV feeds Bridgwater 275kV Substation and thence into the Western Power 132kV system. The extra output needs to be fed northwards picking up Churchill, which will supply Weston and on to Portishead to connect to the existing 400kV S/S at the gas fired station at Seabank just north of Avonmouth.

#### The Options

The National Grid Co is going to great lengths to consult with local councils and the population at large by proposing a choice of route corridors for people to choose. Corridor 1 involves replacing one of the existing 132kV circuits owned by WPD with the new 400kV line. The main advantage of this proposal is that no new tower routes are needed provided WPD are agreeable. This would mean that apart from Weston all supplies to the 33kV system would be from 400kV substations. Corridor 2 would mean a new tower line in addition to the existing 132kV lines, Churchill would not be picked up enroute and the route would pass over the lake between Nailsea and Backwell, which would be completely unacceptable.

#### Another Option - Submarine

At one of the public meetings the idea of laying cables in the Severn Estuary between Hinkley and Seabank was mooted. This idea seems very attractive at first until one finds that to transmit the amount of power required at least 12 single core cables would be required even

allowing for an enhanced current rating of 40% for the cooling effect of the water. In the difficult tidal conditions of the estuary, lack of water and strong currents, the laying of all these cables satisfactorily would be impossible. It would be more practicable to lay cables ashore under normal ground but many times more costly than an overhead tower line.

#### Conclusions

Route Corridor 1 must be the option to go for. The line should be kept well clear of houses as much as practicable, say about 350 metres. Finally it should be remembered that there are hundreds of miles of 400kV lines in service in this country and at even higher voltages overseas which cause no harm to humans or animals.

*Mike Hield*

### **REACTION FROM THE TERRITORY**

People along the route have had a letter from the National Grid informing them of the project. Surprisingly retired CEGB members of our organisation have immediately told us that this project has been around for a long time. An exhibition is touring the towns and villages along the route. The project is being greeted by considerable opposition from environmentalists and councils throughout the territory, as one might expect!

Already Professor Henshaw of Bristol University is adding his voice to the objectors. You may recall that the professor was involved in experiments on behalf of the Government to show whether there was any connection between leukaemia patients, who had been living near very high voltage power lines; a Government research project that never proved anything worthwhile as far as I am aware. He advocates burying a 400kV cable on the seabed in the Severn Estuary close to the North Somerset coastline. The MP for Weston-super-Mare has asked the National Grid to publicise the costing of this alternative. Since there are roughly two existing pylon lines in the proposed corridors, it is more likely that one will be replaced by the much larger pylon line.

The ultimate responsibility for giving the appropriate planning permission lies with the Government's new quango, the Infrastructure Planning Commission, which has been given sweeping powers for making the decision associated with this project.

### **BIOMASS POWER STATIONS**

A number of biomass power stations are to be built in the UK burning timber. About half a dozen are being considered, but the two front-runners appear to be in Port Talbot and Royal Portbury Dock, Bristol. This is very controversial, since as you may imagine being situated at ports, it is intended to ship in the wood from foreign parts, such as Canada, Scandinavia, Brazil, South Korea. The Port Talbot plant would consume about 3 million tonnes of wood a year, equivalent to 30% of the UK's domestic wood harvest, and would generate 300MW.

Many voices are raised against this idea as it is reducing other people's tree population and the carbon footprint of transporting the wood to this country over vast distances seems madness. It would also have an adverse effect on wood prices for furniture and other wood products.

## VISIT TO FINCH FOUNDRY

On a fine, sunny autumn day 23 members, partners and guests arrived at the Devonshire village of Sticklepath, near Okehampton, to visit the Finch Foundry.

We met at the Taw River Inn, a charming, unspoiled village pub, to catch up on news and gossip and to enjoy a pre lunch drink. The pub has a reputation for good food and it certainly did not let us down. We enjoyed a relaxed and pleasant lunch during which we met a long standing member, Colin Brewer, who has not been able to attend many of the society's events.

After lunch we crossed the road to the Finch Foundry, which is really a forge. This is now owned by the National Trust and stands on a site where mills have stood for 700 years. The present building was originally a serge mill and was leased by the Finch family in 1814 and converted into their tool works where they produced a range of agricultural tools, which they sold throughout the West Country. In its heyday it employed 25 men and boys and produced 400 tools per day. The forge is powered by three waterwheels which take water from the River Taw via a leat and return to the river after use. The waterwheels are of the more efficient overshot design and drive the machinery through shafts and pulleys.

One of the custodians gave a talk and demonstration in the main room of the forge. He explained the purpose of the drop hammers, the trip hammers and the metal cutter. He started up the waterwheel driving the trip hammers, drop hammers and metal cutters and demonstrated their use. In spite of the original machinery being 300 years old it still works, although it could not be run at its original speed for fear of damaging the building. He painted a vivid picture of working conditions in the foundry with 25 men in cramped quarters in a smoke filled room. Suffice to say health and safety would not have been impressed. As the forge was always warm it fulfilled a further function of drying out children who had got wet on their walk to school. Their teacher would send them round to the forge to dry their clothes.

The forge remained in use until the 1960s, when lack of maintenance and the heavy vibration from the trip hammers caused the rear wall to collapse. The foundry was restored as a working museum by Richard Barron and a team of volunteers and was given to the National Trust in 1994 by the North Dartmoor Museums Association. It is the last water powered forge in England where a working trip hammer can be seen.

Members had a chance to look at a selection of the tools made at the forge and also at the grinding workshop, which sadly was no longer working. We also had a chance to see an historical display, which showed that a Mr Gee used to work at the forge. Any relation to our Mr Gee I wonder?

As it was such a nice day many members took the opportunity to look around the gardens and other features of the site. One or two followed the course of the leat, which runs along the backs of some houses, in contact with the rear walls.

The day concluded with a cup of tea and a cake at the café and we all departed for home. Congratulations to John Ferrier for a well organised and interesting trip.

*John Gale*

## THE NUCLEAR CASE

Member, Gwyn Evans is a keen supporter of nuclear energy and is a member of SONE (Supporters of Nuclear Energy). He puts the case firmly in favour below.

-----  
I am concerned that Nuclear Energy has had such a bad press, mainly I think, because of the publicity associated with the meltdown of one of the four nuclear reactors at Chernobyl on 28.4.1986. The reactor was badly designed and recklessly operated. The panic was exacerbated by a photograph in the New York Times showing a hospital, which turned out to be a scene of victims of the 1984 Bhopal, India release of methyl isocyanate, which killed 2850 people.

On our UK roads in '08 there were 2500 deaths and 26000 seriously injured, but we still drive while many want to ban nuclear, because there might be another accident. No person has been killed in the UK by the Nuclear Energy process in 50 years of operation. No unprotected member of the staff or public is exposed to significant levels of radio-activity :-

(a) Official publications show that nuclear discharges are responsible for less than 1/1000<sup>th</sup> of our average annual radiation intake of 2.6 units. There are areas where radon gas gives 5 units but these figures are low and our bodies cope. Drivers who transport radioactive instruments and materials are limited to a total annual dosage of 20 units.

(b) The COMARE 2006 report stated that there were no significant increases in the levels of radioactivity in any of the areas within a 25km radius of all UK NE facilities - generating, storage, treatment or waste. So, there is no problem with present uranium waste storage.

As only 1 tonne of uranium fuel produces as many electricity units as 100,000 tonnes of coal, the waste from the latter has a huge quantity of permanent poisons such as arsenic 50-300 tonnes per annum in hazardous landfill sites. There is no clean coal.

The total cost of generation per kwh in 2008/09 after adding subsidies for the Renewable Obligation Certs (ROC), is Nuclear at 3.8p, coal at 5.1, gas at 5.2, wind onshore at 17.8p and offshore at 19.8p. It should be noted that the consumer's bill included ROC at 8.6p per kwh.

The French are showing us the way with 77% nuclear stations and 13% hydro-stations. Between 1981 and 2000 EdF built a total of 63 GW of nuclear power stations in various countries.

*Gwyn Evans*

## BIGGEST SOLAR STATION

China is to build the largest solar panel power station in the World in their northern territory of Inner Mongolia. They have signed a contract with First Solar of the USA, the largest manufacturer of solar panels. It is intended to carpet 25sq.miles of open terrain with gleaming panels, consisting of 27million thin film panels to produce 2000 megawatts of electricity.

## THE BIG STORM

I well remember the violent storm of Thursday 25<sup>th</sup> January 1990, which toppled hundreds of trees and which wrecked the SWEB network! It took a massive effort to rebuild the overhead system and all supplies were not restored until eight days later. It took place exactly 20 years ago and it has itself become history.

At that time I was working as Planning Engineer for Cornwall Area, based at Pool. Severe gales hit West Cornwall at around 08:00 hours on the Thursday morning and by 10:00 hours chaos reigned! Reports began flooding in of loss of supplies and at 10:10 hours St Austell BSP was lost, followed shortly by Rame BSP at 10:23 hours. By noon about eighty 33kV and 11kV overhead line faults had been recorded, and all the Cornwall BSP's had lost their 132kV supplies. The whole of Cornwall was then without power, a total of 82,000 consumers!

The storm then roared on across the South West leaving a massive trail of destruction! At 12:24 the Supergrid went down and 450 MW of SWEB's load was lost. 400,000 SWEB consumers were off-supply at that time, and grid supplies were not fully restored until 14:12 hours. The failure of the SWEDAT (substation data collection system) in Cornwall system made our job of information gathering much more difficult. Also, although many linemen were in position, the gales made it impossible to climb poles, which seriously delayed the repair work.

Due to my previous nine years as Construction, Operation & Maintenance (C,O &M) Engineer, in East Cornwall District, I was drafted in to help set up a Local Control covering Mid-Cornwall and East Cornwall Districts. I spent the next six days at Bodmin Office, sharing with Peter Bray the duty of Local Control Engineer, working a 12 hours-on, 12 hours-off shift system.

During the course of those 6 days, land-rovers and trailers arrived from many other Area Boards to assist in the network repairs. Bodmin Depot car-park was full of 'foreign' vehicles, sporting logos such as YEB, NORWEB, MANWEB, South of Scotland EB, SEEboard, Eastern Electricity and the CEGB. Northern Ireland Electricity staff even arrived by air, landing at St. Mawgan Airfield, near Newquay! All these men had to be given temporary Authorisations to work on our network, and then guided around Cornwall by our own staff. It is interesting to note that none of these Area Boards, and hence their logos, now exist. They were swept away during Privatisation in November 1990.

Although the South West suffered from several lesser storms during that week, supplies were gradually restored. The daily SWEB figures for those consumers still off-supply gradually fell from 223,500 at 8:45pm on Thurs 25<sup>th</sup> January to 85,000 on Sat 27<sup>th</sup> to 32,250 on Mon 29<sup>th</sup> and by Thurs 1<sup>st</sup> February to 1,400.

From Wednesday 31<sup>st</sup> January staff from the other Areas gradually began to make their long trek homeward. They were issued with special "Storm Force 90" T-shirts and

lapel badges as they left. Our own staff were also issued with shirts and badges a day or two later.

Writing these notes nearly 20 years after the event has brought back other half-forgotten memories, a couple of which I note below:-

1. Two of my car windows were broken in the Pool Office car park when chippings were hurled from the SWEB Office roof by the ferocious winds. I had to drive a SWEB van between Falmouth and Bodmin Office for three or four days while my car was out of action. Restoring supplies was far more important than getting car windows repaired!

2. My youngest daughter and several other pupils had to be 'rescued' from her school in Flushing on Thursday 25<sup>th</sup> January, when a large tree fell and blocked the only road out of the village. This was the morning when dozens of trees were blown over at the nearby National Trust's Trelissick Gardens. *John Haynes*

## RENEWABLES

Renewable energy projects have been much in the news in the last few months with journalists having a field day in criticising the Government for not doing enough to create the right financial climate for speedy action to top up our urgent generation needs. Wind energy has made the best progress with on-shore wind energy reaching 4GW in less than 20 years. Off-shore wind has lagged behind at only 1GW involving 6 wind farms off the English shore, but more are on the way stumbling a bit due to the recent "credit crunch". Renewables are now stated as 6% of total generation of which only a quarter is wind energy.

## NEW STATION?

You may have read that Eon have deferred or even may have cancelled their scheme to build a "clean-coal" power station at Kingsnorth in Kent. Now they have announced that they wish to build a gas-fired station at High Marnham in Notts on the site of an old station closed in 2003. The size has been quoted as 1600MW – pretty big! They were criticised for promoting the poor carbon footprint at Kingsnorth, now they are criticised for making Britain too reliant on overseas gas supplies. They must feel that they are on a no-win situation!

## SPANISH WIND

Recently the Spanish Government were pleased to announce that during a five hour period in November 53% of their electrical energy needs had been generated by wind power. Their government had invested £890million in wind power infrastructure in 2007 and now they have reaped the first benefits.

## PASSING OUT

We have some very sad news to tell you. **Albert Coombs** ex-SWEB Foreman in Bristol only months ago joined the Society with his wife Joan, having deposited some archival material with us, has died aged 82 in November after having a severe heart attack. Albert will be sadly missed as he was a popular member of the Bristol staff.

**Ian Walker** has died tragically at 59. Ian started his career with SWEB moving into the Nuclear Industry. He was working for British Nuclear Fuels in Gloucester.

## MEMBERS NEWS

John Haynes and his wife Ellie have been to Italy with the Cheddar Male Choir on a six day tour of Tuscany. The choir sang in churches in Florence, Montecatini Terme (a Spa Town) and San Gimignano (a hill-top town, with 13 towers).

Peter Lamb becomes Chairman of Backwell Probuss Club in January, but has given up being Membership Secretary of Backwell Playhouse after five years and is pleased to remove 560 names and addresses from his computer.

John Muggleton and his wife Sally went to the Theatre Royal in Bath in October and were surprised to find Peter and Valerie Lamb sitting beside them having booked independently – is this a record?

## EDEN PROJECT ROW

The Eden Project is hell-bent on proving its green credentials by developing a biomass boiler and getting involved in a major programme of geothermal electricity. This is Hot Dry Rocks (HDR), which is an experimental method of drilling two deep bore holes (2km deep) and injecting water down one and the returning water up the second having been heated up by hot rocks below ground. The first system at Rosemanowes has closed, but the latest idea is now to establish a similar scheme at the Eden Project. The Trustees are being criticised by environmentalists for allowing a series of events publicising EDF's green messages, basically because they don't believe that EDF is as "green" as it makes out, being a major disposer of nuclear waste.

## VIENNA

We have recently visited Vienna - a fine city with lots to see. On our last morning I spent a couple of hours at the National Technical Museum. It is a well organised museum with lots of electrical interest including electric locomotives cut-away on one side so that the inner workings are visible, a complete distribution substation, a model power station, a number of early electric motors and a large collection of domestic appliances. The entry price is reasonable and I got a concessionary price with my West Yorkshire bus pass. The museum is short tram ride from the Westbahnhof.

*Best wishes, Colin Hill*

## ENGINEERS' ACCOLADE

In The Times Magazine dated 25<sup>th</sup> July '09 there was a write-up about the excellent progress on the Olympics site. Peter Lamb has already written on this topic in a recent HISTELEC News, but a paragraph in the Times Magazine caught my eye. I quote:-

“Meeting the cross-section of men and women responsible for turning hopes and ideas and plans into reality, what's impressive is the confidence and competence they exclude. These are people who get things done, “how” people, rather than “why” people, the sort of men and women who, presented with a problem, aren't minded to wish the problem would go away or ask how it landed in their lap, but to start doing something analytical and practical to solve it.

In a word: ENGINEERS, the forgotten profession.”

*John Haynes*

## WELCOME NEW MEMBERS

Roger Clouter from Weston-super-Mare, Harold Harvey from Torquay. We wish them a long and happy association with us.

## QUOTE FROM THE PAST

From the examination of William Henry Preece, Chief Electrician to the British General Post Office, before the House of Commons' select committee on lighting by electricity on May 2 1879: -

**Q:** Do you consider that the telephone will be an instrument of the future which will be largely adopted by the public?

**A:** I think not.

**Q:** It will not take the same position in this country as it has already done in America?

**A:** I fancy that the descriptions we get of its use in America are a little exaggerated; but there are conditions in America which necessitate the use of instruments of this kind more there than here. Here we have a superabundance of messengers, errand boys, and things of that kind.

Submitted by **Paul Hulbert**



*The Proteus Alternator Set at West Wales Museum*

## FOR YOUR DIARIES – a Reminder

**Sat. 30<sup>th</sup> January 2010 ANNUAL LUNCHEON**

**Guest speaker Robert Symons**, Chief Executive of WPD at Gypsy Hill Hotel. Prior to the luncheon in the morning, visit to Devon County Record Office.

**Sat. 20<sup>th</sup> Mar AGM AT TAUNTON + “KENNET & AVON CANAL”** Talk by **Michael Horseman**

at WPD Training Centre at 2.00pm. Lunch beforehand at 12.00pm at the Merry Monk Inn.

**Sat. 22<sup>nd</sup> May VISIT TO TYNTESFIELD HOUSE,**

**North Somerset** Meet at the Failand Inn for lunch at 12.00noon, then visit to Tyntesfield at 2.00pm.

**Thur. 17<sup>th</sup> Jun VISIT DARTINGTON GLASS WORKS + RHS ROSEMOOR GARDENS**

Arrive at Torrington at 10.15am for a tour of the Glass Works followed by lunch at a nearby Inn, and then an afternoon visit (2.00pm) to Royal Horticultural Society's Rosemoor Gardens.

## NEXT EDITION

This newsletter is produced every four months. Please send information, articles, photographs or letters 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)