

HISTELEC NEWS

NEWSLETTER OF THE SOUTH WESTERN ELECTRICITY HISTORICAL SOCIETY

No. 18

CAIRNS ROAD EDUC/VISITOR CENTRE

What a saga! We get the go-ahead as reported in the last issue only to be spiked by the Charity Aid Foundation, who administers money for charities from WPD. So we are having to go into top-gear to convert to a charity. A small sub-committee has been formed to pursue this with special regard to changing the Rules to suit. An EGM will be held in the Autumn to approve these.

However all is not lost, WPD have agreed to donate £2,500 on account to enable some basic building works to proceed.

PUB CHANGE

We have moved the lunch venue after the Archive meetings at Cairns Road on the 2nd Thursday in the month to the Cock O' The North, Northumbria Drive, due to the Cambridge Arms pub food going downhill.

SWEHS WEB SITE

Those computer users who are not connected yet are missing out. The Web Site has two new features. Firstly Marcus has arranged numerous linkages, which enables one to access other electrical associated interests with ease, saving you wasted time "surfing the net". Secondly a section includes pictures of members attending our various events. You can see yourself on the "box"! Well done, Marcus.

Enquiries from the web-site are increasing. Recently we had an enquiry from USA, and what's more they have paid us for the information.

UNUSUAL SUPPLEMENT

The supplement this time is a reproduction of a newspaper, the Bideford & North Devon Gazette, we acquired a few years ago, which gives extensive details of the Bideford electricity supply. To achieve this as a supplement, Paul and Margaret Hulbert have spent hours reducing every item from the original broadsheet by typing out each article and scanning each photo and advert. Then it had to be put back together in A4 sheet format. Congratulations Paul and Margaret, it is very impressive.

SEPTEMBER 2001

CAO BUILDING, PLYMOUTH

This Autumn CAO building, which is now part of SWEB/London Electricity etc will be 30 years old. The senior managers wish to celebrate by an article in their journal entitled "LIVEWIRE", which states that it incorporates "SWEB Life"! We are hoping to produce a suitable article for them. Ann Friend is working on an article detailing the complete history of CAO, which will be featured in a future newsletter.

You may be interested that the building is housing bill production for not only the SWEB area, but also London Electricity and Virgin Energy. Derek Lickorish is still to the fore as Managing Director of Customer Services.

KELLYS DEVON DIRECTORY

Recently we had donated copy of a page from the 1939 version of Kelly's Devon Directory, which specifies all the electricity supply companies in Devon at that time. Four of those listed, we have never heard of, i.e. they are not featured in the Archives as follows:-

1. Colyton Electric Light & Power Supply
2. Hartland Electric Light & power Co.
Interestingly the registered office is listed as the New Inn, Hartland!
3. Slapton Electricity Supply Co.
4. Stoke Fleming Electricity Supply

By 1948 these companies had vanished presumably absorbed by adjacent bigger companies. If anyone has information on these, such as where the generating station existed, if at all. It would be very helpful.

WESTERN POWER DISTRIBUTION

By the time you read this, South Western Electricity plc will no longer be so titled. It will have been changed to "Western Power Distribution (South West) plc".

Errata- We were wrong in intimating that WPD owned Swalec, the supply side, which had been sold. The South Wales Distribution is being operated under the banner of WPD.

BLETCHLEY PARK REVIEW

The 19th April visit to Bletchley Park, jointly with the Retired Professional Engineers Association, was well attended. We were fascinated by the code-breaking exhibits and by comprehensive tours by our guide, Allen Pearce. We were impressed by the scale of this top secret operation, which involved twelve thousand people. Despatch riders from listening stations would arrive at the rate of one every minute or two, meaning that they had vast quantities of data to investigate.

We saw examples of the German Enigma encryption machines, and learnt about the fate of the Colossus code-breaking devices, which were effectively early computers. Of the ten Colossus machines, eight were turned into ordinary telephone exchanges (many of the parts were standard GPO).

Perhaps the most unusual exhibits were two replica U-boats. These were made as props for a film based on Robert Harris's novel Enigma, which is based closely on actual events (unlike a recent American movie!) The film stars Kate Moss and is due to be released in the autumn. It was financed by Mick Jagger, who kindly donated the submarines to Bletchley. Also on display was a genuine World War II dispatch rider's motorbike, formerly used at Bletchley Park, which appears in the film. We also learnt about Bletchley's lesser known code-breaking work, such as in the war against Japan. A final surprise was that Enigma machines were given to the Russians after the war. They were told that the code had proved unbreakable, and the Soviets adopted the cipher for their own use. Consequently all through the Berlin Airlift we were able to decipher the Russian communications.

If you would like to find out more about Bletchley Park, you can visit their "Station X" website on <http://www.bletchleypark.org.uk/>

Paul Hulbert

REVIEW OF TALK ON BRUNEL IN THE SW

Peter Grey took us on a trip from Bristol to Cornwall with the great engineer, Isambard Kingdom Brunel.

On a bright spring day, 12th May, members and guests met for lunch at the Riverside Christian Centre in Exeter. After a good buffet, our speaker, Peter Grey, introduced us to the fascinating world of railways. Peter came from a railway background and obviously enjoyed his subject.

Starting with the western terminus of the Bristol to London railway, we travelled through Somerset and over the River Exe to the route of Brunel's Atmospheric Railway towards Newton Abbot. Once

over the Saltash Bridge, another Brunel masterpiece, we encountered some thought provoking viaducts on our way to Penzance. At many points on our virtual journey, we found evidence of Brunel's imaginative approach to the problems, which he encountered.

Peter's explanation of the history and engineering helped us to understand the importance of Brunel's contribution to our engineering heritage. The talk was illustrated with some excellent slides, which suffered unfortunately from the poor blackout facilities.

Ted Luscombe thanked Peter for his excellent presentation and said that many of us hoped to take up his suggestion to visit the Railway Museum at Newton Abbot or a day-out to Didcot. *Mike Norman*

REVIEW - VISIT TO AERO COLLECTION, KEMBLE

On Saturday 30th June after an enjoyable pub lunch at the Plough Inn at Crudwell, 25 members and friends visited the Bristol Aero Collection. This extensive collection is housed in a large hanger on Kemble Airfield, Malmesbury. The curator, Oliver Deardon, gave our party a quick summary of the history of the Filton based aviation company, followed by a tour of the exhibits. The hanger itself was interesting construction based upon a German design by Junkers.

The founder of the aviation industry in Bristol was Sir George White who had previously also masterminded the Bristol Tramway and Carriage Company, and so the exhibits ranged from the whole spectrum of his involvement, the earliest item being a horse drawn tram dated 1895. Also seen were sixteen vintage Bristol busses and a modern 2 litre Bristol car. That would be some ride!

However the major displays were related to aviation, ranging from the early pioneering days to the production of many types of military and civil aircraft, such as Bristol Sycamore helicopter, a nose section of a Britannia, a mock-up of the Concorde passenger cabin and, of course, many items of military rockets.

The Britannia was of particular interest to me, since I worked as an electrical draughtsman at Filton in the 1950's and the section on display came from the plane that crash-landed in the Severn Estuary. I would like to point out that the failure was not electrical and therefore was not my fault!!

There was so much to see and therefore was well worth the visit - a great day out. The Aero Collection is only temporarily housed at Kemble, since the trustees are trying to secure a Lottery Grant to move to a site on the Filton Airfield. *John Redgrove*

REVIEW - SUNDAY LUNCH AT THE MANOR HOUSE HOTEL, MORETONHAMPSTEAD

On 15th July some thirty members and their guest met for the Society's first Summer Sunday Lunch at the Manor House Hotel. This luncheon was organised by Roger Christy, Chairman of the South Sub-Committee as an extension of the Society's social programme. The Hotel is well known to many ex-SWEB employees as a meeting and conference venue. After drinks and a chat, we sat down to an excellent three course meal in the restaurant. We then adjourned for coffee and mints and a talk by member, Graham Warburton on the hotel and its history. The original estate was purchased by the W.H. Smith family. During its life as a hotel, it was owned by Great Western Railways. Graham explained its association with the Rural Electrification and SWEB. This was very entertaining, especially with the wisecracks from John Haynes. Among the many conferences held at the hotel, included a meeting of the national Rural Electrification Committee, which led to the Moretonhampstead Agreement, which paved the way to a national rural electrification programme.

Roger Christy thanked Graham for his talk and invited the company to take a stroll around the gardens and grounds. Golfers were also invited to take advantage of the excellent course. A highly successful and enjoyable day.

John Gale

QUACK MEDICAL MACHINES

Recently an article has been published by the IEE, it was called "Doctor Volts" by Dr. David Fishlock, on the dubious history of electrotherapy. These machines have always proved a fascination for members, Colin Hill, Mike Wreford and myself, so I will give a brief insight into what was available in bygone years.

The earliest known electrical devices were electrostatic. John Wesley used such a device as far back as 1757 and his patients "found an immediate and some a gradual cure". By the end of the 19th Century a host of electrical devices had been invented. Professor Silvanus P. Thompson, whose early career was in Bristol, warned in 1882 of the quacks and rogues, who ply their trade with these appliances.

So what were they, you ask? The earliest machine discussed was the Wimhurst Machine invented in 1882. Produced by the Sanitas Electrical Co. in 1908, it was a large machine mounted on an oak table. It was designed to give an electrical shock using a very low current. Magneto machines were also produced at the turn of the century giving similar shock treatment from a small wooden box with a handle to turn and electrodes to hold, sometime known as Faraday

Machines, as illustrated below .

Similarly induction coils were used with make and break contacts to turn DC input into an alternating current/higher voltage, which would have been run off a battery or cell. Electric shock treatment was supposed to have incredible curing qualities for a wide variety of ailments from asthma, bronchitis through piles to rheumatism in the knee joints etc.



Museum Magneto-Electric Machine

"For nervous and other diseases"

Photo : Marcus Palmen

The most bizarre items were the electric corsets, which were marketed as a cure for menstrual pain and menopausal disorders. Electric Baths were not much better with electrodes either end, and presumably passing a very low current through the water/body. Dr. Fishlock mused on where the ladies kept the batteries to power their corsets, but after much searching, found that they didn't. The small power claimed to come from their-own bodies, since the garments had built-in discs of copper and zinc pressed against the body, provided a current with the body acting as an electrolyte! That takes a bit of believing.

Nikola Tesla, a Croatian settled in USA, produced in 1891 a coil involving a tuned circuit, which produced spectacular discharges. It became known as the Tesla Coil. By 1902 GEC were producing these for London hospitals and in 1920 a device using a Tesla Coil was marketed as the Roger's Vitalator purporting to treat baldness and skin problems.

We have a number of pseudo-medical devices in the Cairns Road Museum – the hand-held magneto, induction coils, ultra-violet and infra-red appliance and a vibrator (circa 1930). Surprise, surprise, the vibrator cures a similar range of medical conditions as the shock treatment!!

Peter Lamb

MEMBERS NEWS

COLIN HILL – has put on another exhibition of electrical appliances during the Summer at the Colne Valley Museum, Yorks.

BARRIE PHILLIPS – Barrie's wife, Jean, has had a rough time healthwise, but I am assured she is much better now.

MIKE WILLIAMS – spare a thought for Mike & Jenny who are going through a rough patch with a bereavement and illnesses in the family.

DAVID WHITEHEAD - you will be pleased to know that David is making a slow recovery from shingles, which he has suffered from for a year!

SIX PHASE LOW VOLTAGE SYSTEMS!

Many of us will have been involved in voltage changeover schemes at some stage in our careers. Examples are 210v to 240v for low voltage systems in Bristol, 6.6kv to 11kv in Exeter, and 2.2kv to 11kv in Bath. I am sure there are many more examples, and members can no doubt provide some interesting anecdotes about their own experiences. To minimise the cost it was essential to make the best possible use of existing assets, particularly cables which are so expensive to replace.

An earlier generation of engineers were faced with an even more difficult task – a changeover from direct current to alternating current systems. Direct current systems were usually laid out with three core mains cables, with one core operating at +110v and another at -110v and the third being the return wire. Small domestic supplies were provided by connecting between one of the energised cores and the return wire. At premises where more power was required, a 220v supply was provided by connecting between the two energised cores.

As power requirements increased it became essential to change over to alternating current and because of their greater efficiency 3-phase systems were universally adopted. (In America, Edison fought mightily for the retention of his d.c.system in the face of competition from Westinghouse's a.c. system. Is it true that on one occasion Edison used an execution in an electric chair to demonstrate the 'superiority' of the d.c. system?). Three phase low voltage mains required four core cables, one core for each phase and a neutral/return wire. The old dc cables were just not suitable for three phase operation.

In many towns the dc systems were not fully developed and the easiest way around the problem was to abandon the dc cables and lay new three phase ac cables, despite the high cost. However in London and some other places there had been very high

investment in dc cables and more economic solutions were required.

A large area of south London, centred upon Croydon, was converted to ac using Scott connected transformers. These transformers convert 3-phase high voltage energy to 2-phases of low voltage energy that can be distributed using the old dc cables. When I learnt about Scott connection at College, I got the impression that the system was already obsolete. The amazing thing is that 40 years later these systems are still in use! Two major drawbacks of the system are :

- a) No matter how carefully the low voltage loads are balanced over the 2 phases, the load on the 3-phase high voltage system is unbalanced.
- b) The distribution company is unable to offer 3-phase supply to low voltage customers, unless they pay for a dedicated 3-phase HV and LV transformer

In another large area, centred upon Kingston upon Thames and including Teddington and Twickenham, a more ingenious solution was used. At the substation two standard 3-phase HV and LV transformers are installed. One is connected normally producing R, Y and B phases on the low voltage side. The other is connected with crossed connections on both the HV side and the LV side. This produces anti phases on the LV side R', Y' and B' with the correct rotation.

The former dc cables, radiating from the substation, are bunched into three main distributors with load balanced between them as far as practicable. Each of the three cables is then supplied with phase and antiphase (e.g. R and R') from the two transformers. In many situations the six phases are taken outside of the substation using a standard four core cable loop, supplied with normal phase from one end and antiphase from the other end. The phase conductors have to be split at the three joints where the old dc cables are connected. Six phase link boxes with very complicated linking arrangements are not unknown around the streets of Kingston! The system has major advantages :

- a) The transformers installed, since the conversion, are all standard 3-phase HV and LV.
- b) The low voltage system can be reinforced using standard 3-phase cables.
- c) The customers can be offered a 3-phase supply by connection to the nearest 3-phase LV main.

After retirement I worked for 6 months for Seeboard, based in Maidstone though most of the jobs I planned were around south London. It was a very happy experience in every respect. *John Coneybear*

BUDE MEMORABILIA

Member Bill Ellicott has recently donated to the Archives a small booklet published by Bude Electric Supply Company issued in 1908. The flyleaf has a fascinating piece on electric lighting :-

"ELECTRIC LIGHTING

The great advantage of the Electric Light over all other illuminants may be briefly stated :-

1. It does not vitiate the atmosphere nor consume oxygen.
2. It does not injure curtains, hangings, books or pictures, nor tradesmen's stocks.
3. It does not blacken ceilings or decoration.
4. It is quickly turned on and off.
5. It gives comparatively little heat.
6. It is far more conducive to health, and is more comfortable and less injurious to the eyes than any other artificial light.
7. It is far safer to use than gas or oil, no matches, no exposed flame, no combustible material to burn or explode.
8. Its decorative effects are perfect.
9. It is unaffected by the wind.

If properly installed and switched off when not in use, it should cost less than gas or oil and the saving in papering and decorations would soon pay for the installing of the Electric Light."

TECHNOLOGY TEASER

QUESTION ?

Can you guess what piece of technology is referred to here, and in what year it was written? Extra points for naming the author as well!

"One can seriously say that the _ _ _ _ has created a whole new way of life for mankind, filled with progress, advantages and worries. The voice of humanity that arrives every morning when we wake to tell us how humanity has spent the previous day, proclaiming so many great truths, so many terrible lies, but always recording every step man takes, marking every hour of our lives, isn't it something truly great, despite all the mistakes and misery found there?"

"But at the same time that it is necessary for the collection of our thoughts and actions, isn't it terrible and even repulsive to hear all the details, when there is fighting everywhere, and the weeks and even months flow with insults and threats, without ever clarifying a single question and without suggesting a sensible improvement?"

ANSWER

No, it's not the internet, television or even the radio. It's actually the daily newspaper. This piece was written in 1842 by French woman novelist, George Sand (real name Aurore Dupin), Chopin's lover.

Submitted by Paul Hulbert

HAVE A GO !!

CROSS NUMBER PRIZE COMPETITION

See below and next page for details & PRIZE!!

ACROSS

1. Eighteen across plus 1
3. 12 down times 18 down
6. Fluid ounces in 7 gallons
7. No. of degrees in a circle
9. A cube
11. A prime number
12. 4 down plus 152
14. 3 across minus 1368
16. 12 down plus 22
18. 19 down plus 5
19. Rating of domestic cut-out (amps.)
20. 3 across minus 2
22. 6 across plus 950
23. 21 down times 11

DOWN

1. 15 down minus 59
2. Hand tools safe volts
3. 16 across plus 11
4. 14 across minus 3162
5. Watts in a HP + 150
8. 14 across minus 1203
10. Three times 7 across
12. 11 across minus 30
13. A decade
15. 6 across minus 23
17. 5 times 9 across
18. 16 across times 2
19. Old Grid volts + Primary volts
21. 13 down times 5

GEC/MARCONI ARCHIVES & MUSEUM PIECES

It is sad to hear that the GEC/Marconi Museum artefacts housed at Chelmsford have been dispersed to other museums. Fortunately they have managed to keep the archives together and if anyone is interested, they can access these via their web site as follows :-

www.marconi.com

If you go to "about us" first then "history", all the information is there.

BIG PRIZE !!

CROSS NUMBER PRIZE COMPETITION

The first correct entry to land through the editor's letterbox will receive a bottle of red wine. Address given at the end of this newsletter. John Haynes is not qualified to enter, since he found and modified the competition to suit our membership. Thanks John, hope everyone enjoys the puzzle.

HOW TO GIVE A CAT A PILL

- 1) Pick cat up and cradle it in the crook of your left arm as if holding a baby. Position right forefinger and thumb on either side of cat's mouth and gently apply pressure to cheeks while holding pill in right hand. As cat opens mouth, pop pill into mouth. Allow cat to close mouth and swallow.
- 2) Retrieve pill from floor and cat from behind sofa. Cradle cat in left arm and repeat process.
- 3) Retrieve cat from bedroom, and throw soggy pill away. Take new pill from foil wrap, cradle cat in left arm, holding rear paws tightly with left hand. Force jaws open and push pill to back of mouth with right forefinger. Hold mouth shut for a count of ten.
- 4) Retrieve pill from goldfish bowl and cat from top of wardrobe. Call spouse from garden.
- 5) Kneel on floor with cat wedged firmly between knees, hold front and rear paws. Ignore low growls emitted by cat. Get spouse to hold head firmly with one hand while forcing wooden ruler into mouth. Drop pill down ruler and rub cat's throat vigorously.
- 6) Retrieve cat from curtain rail, get another pill from foil wrap. Make note to buy new ruler and repair curtains. Shattered figurines and vases will need to be glued later.
- 7) Wrap cat in large towel and get spouse to lie on cat with head just visible from below armpit. Put pill in end of drinking straw, force mouth open with pencil and blow down straw.
- 8) Check label to make sure pill not harmful to humans, drink 1 beer to take taste away. Apply Band-Aid to spouse's forearm and remove blood from carpet with cold water and soap.
- 9) Retrieve cat from neighbour's shed. Get another pill. Open another beer. Place cat in cupboard, and close door onto neck, to leave head showing. Force mouth open with spoon. Flick pill down throat with elastic band.
- 10) Fetch screwdriver from garage and put cupboard door back on hinges. Drink beer. Fetch bottle of scotch. Apply cold compress to cheek and check records for date of last tetanus shot. Apply whisky compress to cheek to disinfect. Toss back another shot. Throw Tee shirt away and fetch new one from bedroom.
- 11) Call Fire Brigade to retrieve the f----- cat from tree across road. Apologize to neighbour who crashed

into fence while swerving to avoid cat. Take last pill from foil-wrap.

12) Tie the little bastard's front paws to rear paws with garden twine and bind tightly to leg of dining table, find heavy duty gloves from shed. Push pill into mouth followed by large piece of fillet steak. Be rough about it. Hold head vertically and pour 2 pints of water down throat to wash pill down.

13) Consume remainder of Scotch. Get spouse to drive you to the emergency clinic, sit quietly while doctor stitches fingers and forearm and remove pill remnants from right eye. Call furniture shop on way home to order new table.

14) Arrange for RSPCA to collect "mutant cat from hell" and call local pet shop to see if they have any hamsters.

Submitted by Brian Byng

WHAT SORT OF NEWSLETTER?

The editor wishes to thank all the contributors. When first sitting at the computer, all I had were reviews of our recent meetings. The contributions for this issue are super with a wide variety of articles etc. However one thing is lacking and that is news about the membership.

Before the next issue in January, I will remind the total membership, not just the e-mailers, to send me information about members. This will be in the November notice and hopefully I may get a reasonable response. Over to you!!

DIARY NOTE

SAT.29th SEPT. VISIT SEATON TRAMWAY

Lunch before at the Harbour Inn, Axmouth.

FRI/SAT/SUN.19th/20th/21st OCTOBER

SNOWDONIA WEEKEND

SAT, 24th NOV. -BRISTOL MEETING

"HISTORY OF CLIFTON SUSP. BRIDGE"

Slide/talk at the Rudleigh Inn, Easton-in-Gordano by the Bridge-Master, preceded by lunch there.

SAT. 26th JAN. ANNUAL LUNCHEON AT THE HOLBROOK HOUSE HOTEL, WINCANTON

with a morning tour of the Haynes Motor Museum. -

***PLEASE NOTE THIS DATE IN
YOUR NEW DIARY***

NEXT EDITION

This newsletter is produced every four months, depending upon material available. Please send information, articles, members news, photographs or letters to Peter Lamb at 35 Station Road, Backwell, Bristol BS48 3NH or telephone him on 01275 463160 Or e-mail him on lambpandv@talk21.com

TOURIST TIME MACHINE

Paul and Margaret Hulbert recently visited Mallorca, and travelled on a fascinating railway and tramway.

The town of Soller on the northern coast of Mallorca used to be isolated from the rest of the island by the mountains. To transport agricultural produce from Sóller to the markets of Palma it had to be transported over the Sierra de Alfabia mountain range by cart or shipped round the island by sea from Puerto de Sóller.

A bold project was begun to build a narrow-gauge (3 ft) railway some 27 km in length from Palma to Soller. Thirteen tunnels were needed and an impressive five-arch viaduct had to be constructed. The track curves back on itself within the mountain to lose height, and even the initial survey must have been a serious undertaking.

Work began in 1907 from both ends of the line. The workers at the Palma end were aided by a small locomotive, called Maria Luisa, but at the Soller end they only had mules. Many villagers would not believe that the two groups would really meet. But despite local scepticism, the tunnels met in 1911. Services began on the 16th April 1912, the day after the Titanic sank. A 3ft gauge electric tramway from Soller to Puerto de Soller was opened the following year.

In 1929 the main line was converted to electric traction. The original wooden-clad rolling stock is still in use - if you travelled first class you had a quilted seat, but second-class passengers had to sit on wood.

By the 1930s the train and the tramway had already started to become a tourist attraction, and now they are one of the most popular excursions on Mallorca. They offer spectacular views of the mountains, a chance to travel through the orange and lemon groves (you can actually smell the fruit as you go through) and the opportunity to visit an historic town and a charming Mediterranean port.

Paul Hulbert