HISTELEC NEWS

NEWSLETTER OF THE SOUTH WESTERN ELECTRICITY HISTORICAL SOCIETY

No. 34 **DECEMBER 2006**

SEASON'S GREETINGS

I wished you plenty of sunshine in the last newsletter. The abundance has been breathtaking, so I hope that you have all coped satisfactorily. Is it going to be a warmer Winter too? Hope you have some good inner warmth during the festivities. ***Peter Lamb***

WEEKEND AWAY 2007 – NOW 2008

Unfortunately it has been necessary to cancel the proposed holiday in September 2007 at York due to only 21 people signing up for it. From the returns to our questionnaire there were three places at the top of your choice, Portsmouth, Manchester and York. Now your committee have switched to Portsmouth, but at a later date, since there is not sufficient time to make the alternative arrangements.

*****Please put it in your diaries for April 2008 *****

CAIRNS ROAD PREMISES FIRST

Our Archive Centre hosted its first meeting for the Society on 9th November with the talk by Peter Davey on the "Clifton Rocks Railway". 30 members attended including from far away as Plymouth, Newport and Exeter. The enthusiasm of all those who attended was great and made the effort of those who had spent so much time renovating the premises seem worthwhile. We look forward to many more members visiting. See elsewhere for the report of the talk.

BLACK-OUT IN GERMANY

Did you read that when the German Grid system disconnected a 380kV section of their grid to allow a cruise ship passage beneath, a fault occurred at the same time and the Grid System collapsed? The power cut swept through large parts of Western Germany, France, Belgium, Italy, Spain, Austria, Netherlands and Croatia. In Germany about 100 trains were brought to a standstill and in France five million people were affected, their worst black-out for 30 years. Could this happen here?

WIND FARMS

Following the latest connections, there are now 135 wind-farms fully operational in the UK, some of which are off-shore installations. Even with this number, renewables only made up 4.3% of electricity consumed in 2005.

STERN REPORT

This report would seem to mean that the Country will be going for greener energy policies. This journal has been reporting the latest details of Renewables for some time. Stern's Report, commissioned by Gordon Brown, sets a drastic scenario for the future if nothing is done, temperatures could rise by 5C by 2050. He suggests that Government should put a price on carbon emissions through taxes, regulation and carbon trading.

Most of the papers seem to agree that, if we do go "greener", our reduction in carbon emissions will only be a small part of the global situation. But of course we would be setting an example to others – very noble!

ENERGY SAVING TRUST

Since the Government's Energy Review, which included energy efficiency, we have seen a lot written about energy savings. The most headline grabbing being the introduction of legislation to make manufacturers produce appliances without standby light monitors. We are also being asked to turn off completely our existing appliances, generally TV sets and computers.

Scottish Power is investing in "smart meters", so I read. These are meters, which are capable of taking readings back to a utilities' base station, something which SWEB experimented with 15 years ago, although Keith Sullivan tells me that the latest version can hook up an indicator in your kitchen to show how much energy is being used at any one moment to encourage consumers to save. The Energy Saving Trust (EST) is issuing a booklet on how households may save energy.

CLEANER POWER STATIONS

E.ON UK, the German energy supplier, is planning a new coal-fired power station at Kingsnorth in Kent involving highly efficient supercritical coal fired units, which would reduce carbon emissions. The two 800MW units would be built alongside their existing station, which would be demolished later.

Also a new "clean" gas-fired power station is being planned for Tessside by Centrica with the carbon dioxide being captured and stored beneath the seabed of the North Sea, which sounds decidedly tricky!

BRISTOL TRAMWAYS POWER STATIONS 1895-1941" – A Further Instalment of the Supplement to Histelec News No.30 (April 2004)

This is not so much my Addendum as one occasioned by an email I received from Mr James F. McDermot. Verbatim the relative points that he makes and my comments are as follows :-

In the discussion of the Peckham Cantilever Truck, you omitted to say that two styles of this truck were supplied to Bristol. They were the Standard and the Bristol Extension. The Standard supported a car length of 24 feet- 8 inches, while the Extension supported a length 27 feet- 2 inches. By 1898, nine British and Irish tramways were using Peckham Cantlever Trucks. At a slightly later date, a few tried the Peckham Maximum Traction Truck, but it was not that popular.

***Marcus** : I plead guilty – but I was more interested in the Power Station than in the construction of the tram cars.*

The discussion of the four McIntosh and Seymour generating sets did not mention the fact that Horace Parshall had designed the generators especially to meet the load requirements at Bristol. When he designed the original generator series for General Electric, based on the 12 pole unit installed at Chicago in 1893, the smallest generators were the Form A or E with a capacity 200kW. The need for a smaller unit was required at Bristol. The design was so successful, that a 225kW generator was also added to the list. In 1897 Mr. Parshall installed three of these Bristol generating sets at the Clontarf generating station of the Dublin United Tramways.

***Marcus** : When I wrote this article I had not realised Horace Parshalls close involvement with the actual design of the generator sets. Since discovering his involvement in other projects, it is clear that he was influential in modifying and improving on detailed designs.*

Regarding the traction motors, please recheck the HP of the GE 800 motors. According to the blueprints in my files, this motor is rated at 24HP. The GE 52 is rated at 27 HP as you stated. The armature in this motor is smaller than the one used in the GE 800. This can be accounted for by the fact that the GE 52 is a true four pole motor and the GE 800 is not. Also, while the K2 controller can be used on the GE 52 motor, it is really better suited for use with the GE800. The K10 controller is a good match for the GE 52.

***Marcus** : I have had another look at the ratings I quoted for the GE 800 motors - which are direct copies from a BTH pamphlet of the time and from Chas Challengers handwritten notes - and believe them to be correct. They also tally with information on various American websites giving historical tram or trolley car specifications. As these motors were used in pairs the normal quote for the output power was for the pair and this was the generally quoted as a nominal 27kW. This ties in very well with a power output of 15kW for the individual motor. Your 24kW appears either as an optimistic rating for a single motor -or a pessimistic one for two.*

The feed pumps at Bristol, I believe, were built by Daniel Adamson; these were their standard triple-throw pumps. The motors driving the pumps, as well as the other shop motors, were actually standard GE 800 traction motors. If you will look at a photograph of the Adamson pump used at Bristol or Ballsbridge, Dublin, you will notice the suspension lugs used to support the motor, tramway style.

***Marcus** : Yes I can confirm from Charles Challengers notes that the feed pumps were driven by standard GE 800 traction motors.*

What was installed in Bristol, was installed in Dublin. The common threads are James Clifton Robinson and Horace Field Parshall. If you will check the E.P.Allis engines installed at Bristol and Dublin, you will find that the Bristol engines have a two inch larger high and low pressure bore. The same size generator was installed in both plants.

***Marcus** : Yes in both cases BTH supplied the E.P.Allis engines from Milwaukee USA. These were used at the Counterslip Power Station in Bristol and at the Ringsend Power Station in Dublin. The details of the Dublin Plant obtained from "The Electrician" 1901 are as follows with the bold figures in square brackets representing the comparative figures for Bristol :-*

"5 **[4]** cross-compound engines, each direct-coupled to a 500kw. direct-current generator, and 1 **[0]** engine of the same type and capacity coupled to a 500kw three-phase generator. The engines were made by the E. P.Allis Co., of Milwaukee, of the vertical cross-compound type with high-pressure cylinders 20 **[22]** in. diameter, low-pressure cylinders 40 **[44]** in. diameter, and a stroke of 42ín designed to run at 90 rpm, the steam pressure being 150 psi. The engines were fitted with Reynolds' Corliss valve gear, and designed for 650 **[750]** B.H.P. The engines were also provided with independent safety governors, which cut off the steam when the engine speed increased by more than 5 % above the normal. The engines were fitted with fly-wheels each weighing 19 **[37]** tons and measuring 19 **[16]** ft. in diameter."

The generators were supplied by the British Thomson-Houston Co., of London, and were made by the General Electric Co., of America. The armatures of the direct-current generators were mounted on the shafts between the high and low-pressure cylinders. 5 [4] of these generators were of the multipolar direct-current type, each with 10 poles, and an output of 550kw at 90 rpm. They withstood an overload of 50 per cent. for an hour. The efficiency of these generators was 94½ % at full load, 94½ %. at three-quarter load, and 94 % at half load.

Marcus Palmen

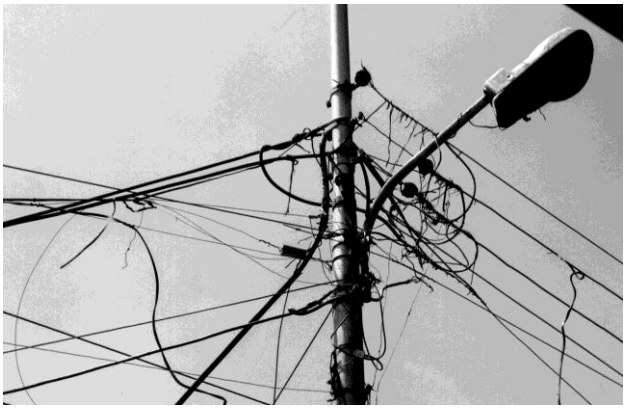
***(**A great deal of research carried out by Marcus here,Ed.)*

MEMBERS PASSING

Leslie Knight – was a longstanding member and 1st engineer commercial, Exeter before retirement.

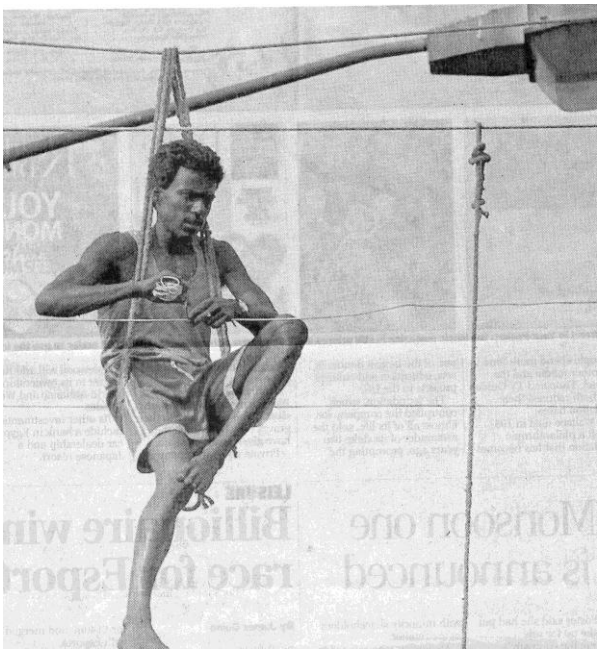
Thomas Carrick. – was keen member drawing our attention to the old generating buildings at Mount Wise, Newquay where he lived.

They will both be missed by the Society.



INDIA'S ELECTRICITY

You may be amused to see this picture of the wirescape I took in India in March of this year. I had intended to insert it in the last newsletter, but there wasn't room, but having read of the shambles of the Indian networks in the Times recently, here it is. India's economy is growing at 10% a year and there is an estimated 30% shortfall in demand and supply, so that there are frequent power failures. Many of India's state-run electricity companies are close to bankruptcy, because 48% of the power supplied is siphoned off as theft or unpaid electricity. Chris Buck read similar information in the Telegraph, but this time with a picture of a guy hanging on the lines with a strap with the caption "An electrician repairs a power cable". If you study the picture, I think you will find that he is making a connection. ***Peter Lamb***



ELECTRICKERY

The other day someone introducing me to give a talk, said the subject was "Electrickery", which I hadn't heard before. That prompted me to mention some of the different ways I have been introduced or thanked. "He is a bright spark" is a common intro and "He will bring a bit of light to our lives".

In thanking "The talk has been very illuminating" or "We thought we were in for a few shocks but -----".

Peter Lamb

HYDRO POWER IN CROATIA

We have recently enjoyed a Swan Hellenic cruise around Italy, visiting *ancient treasures* from Livorno to Venice. I have no sympathy now for Napoleon being exiled on Elba. The itinerary also included a brief visit to Tunisia (Carthage) and a couple of ports in Croatia. Dubrovnik was as delightful as promised – we were there on a quiet day with just one other small cruise ship at anchor, but it can become overcrowded in high season with up to 11 ships and over 20,000 visitors in the relatively small walled city.

From Sibenik on the Croatian coast we travelled inland to the Krka National Park – a large area of 109 km². It takes its name from the river that runs from the foot of Mount Dinara some 72 km to the sea near Sibenik. It is an area of outstanding natural beauty with rich and diverse flora and fauna. The total area of the basin is 2,088 km² - so a tremendous amount of water flows. The mean annual flow at Skradinski buk (waterfall) is 55 cubic metres per second with peak flows of 350 after heavy rain. With all this water cascading over the beautiful waterfall (17 steps and a total fall of 45.7 m) it came as little surprise to discover the remains of a hydro power station. The information board told me it was Jaruga 1 and was the second hydro scheme in the world, being completed and lighting the city lights of Sibenik on 28 August 1895 - just 2 days after Niagara hydro was completed. However, it claimed to be the first in the world to provide a public d.c. supply, because it was not until early 1896 that the lines from Niagara to Buffalo were completed. (No mention of Okehampton or Lynmouth!)

A second generator was added in 1899 raising the power to 470 kW and a second Jaruga plant of 5.4 MW was built in 1904 followed by Miljacka in 1906, Ozalj in 1908 and Kraljevac in 1912. Jaruga 1 was in operation until WW1 and the turbine runners and guides are still in surprisingly good condition, if looking a little neglected.

Today, Croatia has the lowest CO_2 emissions per capita in Europe. Hrvatska Elektroprivreda's 21 hydro stations, of both reservoir and run-of-river types, total 2076.1MW capacity and produce well over half of the country's electricity. Their thermal and nuclear stations totalling 1851 MW supplement this renewable generation.

Barrie Phillips

WASTE TO ENERGY

There is nothing new in making electricity from our household waste. Falmouth had an incinerator back in 1906, Bristol had a generating station in Avonmouth, which was closed over ten years ago. Now Bristol is at it again with an idea to produce electricity from the City's rubbish.

This time a private company, Compact Power, has won a £5 Million grant from the Department of Environment, Food and Rural Affairs (DEFRA) to build a £20Million plant to generate 3.8 megawatts of electricity from a revolutionary process, which cooks at high temperature instead of burning the rubbish. The process is described as a world first in technology, but the articles in the Bristol papers do not divulge whether there is any material left over.

SHIPHAM GRUFFIES

In the August newsletter Peter referred to taking coffee in the twilight on the patio at the back of my house and being fascinated by an "unusual feature" of the garden. He extracted a promise that I would provide an explanation for the next newsletter.

Shipham has a long history of mining, not only the simple quarrying of limestone, but the extraction of metal ores. In Roman times lead mining took place at Shipham and Charterhouse and a Roman Road ran through the village whereby the extracted lead was taken down to Uphill for shipment. Subsequent entrepreneurs have re-smelted the slag left by early miners, the last time as late as the latter half of the nineteenth century. Shipham miners took part in this work and the old Roman road leading up to Charterhouse became known as the Slaggers Path.

It was the discovery of zinc ores in the early part of the eighteenth century that made such an impression on the fields surrounding the village. Bristol had become a major centre of the brass industry helped by the discovery of deposits of "calamine" (zinc carbonate) in the nearby Mendip Hills. Workings of the calamine were of two sorts, much the more obvious were shallow trenches following veins of the ore across fields. In addition pits, called "gruffs", were dug, often of considerable depth. The spoil from these workings were piled just as far as a miner could throw it and then left for nature to do it's best at healing the wound.

In 1781 it was recorded that almost all the inhabitants of Shipham were miners "constantly employed in raising the *lapis-calaminaris*". The account went on "there are upwards of 100 of these mines now working, many of which are in the street, in the yards, and some in the very houses. The extracted ore was washed and then roasted. There were four of these roasting places in Shipham. Mining ceased by 1853 as cheaper ores were imported and the local workings becoame too deep for the simple equipment then available. Several of the shafts remain and are accessible, and one called the "Singing River mine" featured on a recent HTV programme. In this one of our members, Geoff Hoyland, was involved concerning Hannah Moore, who established a charity for the "poor miners of Shipham", of which he is a trustee.

The field, on which my house was built in 1963, was mined for calamine and the old workings ran in a diagonal line roughly west to east. The edge of the workings came half way up my back garden. In the 150 or so years since mining ceased the field had become a wonderful example of what is known locally as "gruffy ground". Nature had healed the wounds and carpeted the spoil heaps with a profusion of wild flowers tolerant of the mineral spoil, Thyme in particular. There were two sizable "gruffys" in my plot, one of which the builder utilised to install our septic tank! (it has proved to be a marvellous soakaway for over 40 years.). We decided to retain the feature, so we have inherited a genuine "gruffy hole", which has naturally converted to a charming rockery.

In 1972 the Farmer, who owned the adjacent field, levelled all the remaining workings and produced some very indifferent pasturage. This was followed by the infamous "cadmium scare", beloved of the media at the time. So we are custodians of a bit of local history.

Roger Hughes

(Reference : "The Heart of Mendip" published in 1915 by F A Knight and reprinted in1971).

VISIT TO CHRISTCHURCH MUSEUM

About 20 members and friends met at the Fisherman's Haunt Inn at Winkton for lunch on 5th October, where we had the conservatory to ourselves with a very enjoyable meal. After lunch we drove the three miles down the road to the old Christchurch generating station, the home of Scottish & Southern's Electricity Museum. We were welcomed by three retired engineers eager to show us around the extensive displays including their newest exhibit an electric tramcar. We were entertained by demonstrations of the Tesla Coil and a talk about Faraday. It was a super day out and well worth the 2 ½ hour car journey.

CLIFTON ROCKS RAILWAY – THE TALK

The talk by Peter Davey at Cairns Road on the above topic was fascinating. The railway was opened first in 1891 in order to transport people from Hotwells Road up to the Pumproom to take the waters adjacent to the then Grand Spa Hotel, now renamed the Avon Gorge Hotel. Two pairs of cars on four rails operated by pumping water out of and into tanks fixed beneath the cars similar to those still operating at Lynmouth, which is not surprising since both projects were financed by Sir George Newnes. An original plan in an open cut up the Gorge had been thrown out and Sir George had gone for a tunnel so as to avoid spoiling the cliff-face. It ceased trading 17 years later and George White of Bristol Tramways bought it and reopened it in 1912, but it failed again in 1934. During the War the tunnel became home to the BBC studios as a safe place from which to broadcast news, music and comedy despite the tunnel being at a 45 degree angle. The preservation group, of which Peter Davey is Chairman, wish to restore it and aim to have a few cars running on two rails only one day.

THANK YOU

Many people have handed archival material or museum pieces into us over the last six months. I apologise for not writing individual letters, but suffice to say thank you to John Perkin, John & Margaret Roberts, David Hood and Keith Hulbert and others who I may have omitted.

Peter Lamb

ARCHIVAL ACTIVITY

We have had many enquiries over the last few months, nothing to compare with the first months of the year however. Three interesting enquiries stand out – one from a TV Production Company wanting information on early electricity history in London and another from the Black Country Museum wanting advice on a period electrical installation for a 1910 house they are rebuilding in their complex. We have yet to give a detailed reply. Lastly a Cornish magazine wanting a picture of Hayle Power Station in its prime.

BACK TO BASICS
If we were limited on how many electric appliances we used, may be to conserve energy or because we were too poor, which basic electrical appliances would you choose?

When poor black South African families first receive an electricity supply, the first appliances they buy are a television set and an iron. 40% of the population is still not supplied with electricity. What a disgraceful statistic! However they have a target of 200,000 connections a year and Eskom, the state owned electricity generator and supplier, anticipates running out of generation capacity as soon as 2007.

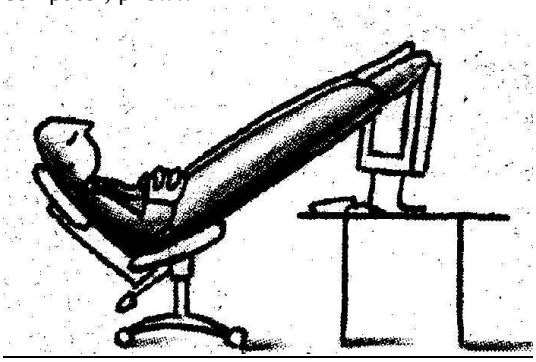
PADDY JOKE
Paddy and Mick were working for the city works department. Paddy would dig a hole and Mick would follow behind him and fill the hole. They worked up one side of the street, then down the other, then moved on to the next street, working furiously all day without rest, Paddy digging a hole, Mick filling it in again.

An onlooker was amazed at their hard work, but couldn't understand what they were doing. So he asked Paddy, "I'm impressed by the effort you two are putting into your work, but I don't get it why do you dig a hole, only to have your partner follow behind and fill it up again?"

Paddy wiped his brow and sighed, "Well, I suppose it probably looks odd because we're normally a three-man team. But today the guy, who plants the trees, called in sick." ***Submitted by Alan Burrows***

HULBERT PROBLEM
Paul & Margaret Hulbert's daughter got married in June at St Peters, Wapley just up the road from the nature reserve that Paul has been involved in for many years. Katherine's new husband is Darren Miles. His brother married a Catherine (with a "C") so there's confusion when the two Mrs Miles ring each other at work. "Can I speak to Katherine Miles please?" Certainly whose speaking? Answer given Catherine Miles – No I said whose speaking? Etc etc.

MEMBERS NEWS
Peter Lamb – has had great difficulty compiling this newsletter, having contacted Cellulitis, inflammation of the right leg, and the cure demands antibiotics and keeping his leg above hip level even when at the computer, phew!!



CHRITMAS CARD BLESSING
I have a list of folk I know, all written in a book,
And every year, at Christmas time, I go and take a look,
And that is when I realise that these names are a part,
Not of the book they're written in, but of my very heart.
For each name stands for someone
Who has crossed my path sometime.
And, in that meeting, has become
A treasured friend of mine.
For, once you've met such people, the years cannot erase
The memory of a pleasant word or of a friendly face.

When I send a Christmas card that is addressed to you,
It is because you're on that list of folk I'm grateful to.
For be you relative or friend or just someone I've met,
You happen to be one of those I don't want to forget.
And whether I have known you for many years or few,
In some way you have been a part in shaping things I do.
So may this spirit of Christmas, that eternally endures,
Convey its richest blessings to the hearts of you and yours. ***Anon***

CRACKER JOKES
Q : What is the most shocking city in the world?
A : Electri- city!

Q : What is the definition of an archaeologist?
A : Someone whose career is in ruins!

FOR YOUR DIARIES – a Reminder

PROGRAMME for the NEW YEAR

Sat.27th Jan. ANNUAL WINTER LUNCHEON
12.15pm at the Gisson's Arms near Exeter off the A38. John Muggleton has agreed to be the speaker "TQM and all that Jazz".

Sat. 17th Mar. AGM AT TAUNTON + Talk "SUN DIALS" by Cyril Routley at WPD Training Centre at 2.00pm, and lunch beforehand at 12.00pm at the Merry Monk Inn.

****PLEASE NOTE THE CHANGE OF LOCATION****
Tues. 22nd May VISIT TO SS GREAT BITAIN
12.00 noon lunch at the Pumphouse Inn, Bristol. Tour from 2.00pm.

Thur. 21st Jun. VISIT SOUTH DEVON RAILWAY Buckfastleigh to Totnes Early lunch at the Dartbridge Inn before making for Buckfastleigh for 1.30pm.

Wed 10th Oct. SEVERN BARRAGE – Talk by David Kerr – joint meeting with the Retired Professional Engineers Club at St. Peters Hall, Henleaze 2.00pm. Lunch beforehand at the Eastfield Inn.

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 lambpandv@btinernet.com (Note new e-mail address)