



2003 PROGRAMME OF EVENTS

Every Monday	10.30 am.	Coffee at the Denton Lounge, Worthing Pier.
14 th Jan	Tuesday	Visit: H + S Aviation, Portsmouth
16 th Jan	Thursday	Coffee - at Spotted Cow, Angmering
30 th Jan	Thursday	Coffee - with Partners at Beach Hotel, Worthing
11 th Feb	Tuesday	Talk: Volks railway by Ian Gledhill, chairman of Volks Electric Railway Association (2.30 pm Theatre Building, Field Place)
18 th Feb	Tuesday	Outing: Royal Pavilion, Brighton
20 th Feb	Thursday	Coffee - at Spotted Cow, Angmering
27 th Feb	Thursday	Coffee - with Partners at Beach Hotel, Worthing
11 th Mar.	Tuesday	Talk: Mauritius – “Your holiday island power supply” by Ray Wort, member. Talk: “What is so special about Shoreham Power Station” by Ray Wort, member.
13 th Mar	Thursday	Lunch - Northbrook College
18 th Mar.	Tuesday	Visit: Shoreham Power Station
20 th Mar	Thursday	Coffee - at Spotted Cow, Angmering
27 th Mar	Thursday	Coffee - with Partners at Beach Hotel, Worthing
9 th Apr.	Wednesday	Outing: “Explosion – Museum of Naval Firepower” and /or the “Royal Navy Submarine Museum”, Gosport
17 th Apr	Thursday	Coffee - at Spotted Cow, Angmering
24 th Apr	Thursday	Coffee - with Partners at Beach Hotel, Worthing

14th May.	Wednesday	Outing: Brighton's Victorian Sewers
15 th May	Thursday	Coffee - at Spotted Cow, Angmering
29 th May	Thursday	Coffee - with Partners at Beach Hotel, Worthing
18th Jun.	Wednesday	Outing: Chichester Harbour
19 th Jun	Thursday	Coffee - at Spotted Cow, Angmering
26 th Jun	Thursday	Coffee - with Partners at Beach Hotel, Worthing
16 th Jul.	Wednesday	Garden party
24 th Jul.	Thursday	Coffee - at Spotted Cow, Angmering
31 st Jul.	Thursday	Coffee - with Partners at Beach Hotel, Worthing
21 st Aug.	Thursday	Coffee - at Spotted Cow, Angmering
28 th Aug	Thursday	Coffee - with Partners at Beach Hotel, Worthing
9 th Sep.	Tuesday	Annual General Meeting.

All Talks and Meetings will be commence at 2.30 pm and be held in the Chichester Room, Field Place, Worthing unless another venue or time is indicated.

Timings for visits and outings will be as printed in the detailed description of the activity and on the appropriate reply slips.

Coffee mornings commence at 10.30 a.m., except at The Beach, which is from 10.45 am Please note change for June, July and August, The Beach Hotel has accepted our booking for coffee mornings during these months.

New Members

We welcome the following new members:

2002 Hammond P. M. MIEE

13 Rodmell Rd, Seaford, BN25 4EE Tel:01323 873011

Peter and Val

1967-70 Marconi, Chelmsford.

1970-86 ITT Creed, Brighton.

1987-97 Crosfield Electronics, Hemel Hempstead,

1998-91 Ford Motor Co., Dunton Essex.

Interests: Country Walking, Folk Dancing, Birdwatching, DIY.

2002 Marshall P.W. MICE

60 Sea Avenue, Rustington, BN16 2DJ Tel: 01903 776841

Philip and Carol

1956-68 London Transport

1968-1990 Greater London Council/Thames Water/NRA -Flood defense design and senior flood warning officer.

1990-99 London Underground. Various projects inc. Jubilee Line Extension.

Interests: Golf, Gardening, Investment Club.

New members are requested to check the above data and inform the Secretary of any errors or omissions so that the information can be incorporated correctly into next session's handbook.

Newsletter

Since the last Newsletter we have had very few comments from members relating to this item or the various queries raised. Can we therefore presume everyone is happy with the current format, etc.?

Association Tie

There has been insufficient support expressed by members for us to proceed with this suggestion.

Tea Service at Meetings

Provision of the tea and biscuit service at our regular meetings has recently involved Hermann Rummeli and Brian Buckroyd (Committee Members) leaving the lecture room for a few minutes each time to ensure that everything is ready for the break in proceedings. It would be appreciated if we could have a few volunteers who could be called on occasionally to carry out this task rather than always expect Hermann and Brian to miss part of any talk or presentation. If you feel you could assist once in a while could you please give your name to a committee member – if we have sufficient volunteers, perhaps we could organize a rota so that no one has to miss more than a small part of one talk per session.

Events January 2003 - March 2003

- **Visit:** H & S Aviation, Portsmouth, 2.00 pm. Tuesday, the 14th January

H&S Aviation is a holder of UK CAA and US FAA certification.

The tour will include the Engine Workshops, Accessory Workshop and the Engine Test Beds. Please support this visit; it is becoming more and more difficult to find companies willing to host visits such as this.

Please telephone Glyn Mathias if you want your name added to the list at this late stage.

- **Talk: The Volks Railway, Brighton**

by Ian Gledhill, Chairman of Volks Electric Railway Association, at 2.30p.m 11th February, in the Theatre Building, Field Place.

Theme A talk on The Volks Electric Railway, which was built in 1882 running along the sea front at Brighton. It is now the oldest surviving electric railway.

- **Outing: Royal Pavilion, Brighton** 2pm. Tuesday the 18th February.

The Royal Pavilion has undergone a £10m restoration programme over the last few years. Built for King George IV the Pavilion was also used by William IV and Queen Victoria. The visit will provide an opportunity for members, wives and guests to visit this very interesting building. We will have the benefit of a guide on our tour of the Pavilion, which will be followed by a cup of tea and a biscuit in their tearoom.

The cost will be **£6:50**. We are looking for a group size, minimum of 20 and a maximum of 30, for a single guide. Should numbers exceed this we will be split into two groups.

Please return reply slip on last page

- **Talk: Mauritius – “Your holiday island power supply”**

by Ray Wort, member, at 2.30 pm 11th March, in the Chichester Room, Field Place.

Theme: A slide presentation showing many of the different power stations in Mauritius including a brief overview of the current difficulties faced by the Island Electricity Authority in meeting the growing demand with a diverse mix of ageing plant over the next few years.

Talk: “What is so special about Shoreham Power Station” by Ray Wort, member, immediately after previous talk, in the Chichester Room, Field Place.

Theme: The visit to Shoreham Power Station on the 18th March will be a **Non Technical Visit** because the few technical employees at site are not available to conduct parties around the site, their prime duty being the day-to-day operation and maintenance of the plant. This short talk (after the tea and biscuits break) will therefore be principally for those members who have asked to go on the visit. A short slide presentation will be given to illustrate the differences a visitor will see at a CCGT power station site when compared to that at a conventional coal or oil fired power station, followed by a brief look at the differences in the steam and water cycles for these two type of plant.

Annual Lunch: – Northbrook College Worthing

To be held on Thursday the 13th March. 12.00 for 12.30pm in the Northbrook College Arundel Room **Training** Restaurant.

The cost this year will be £ **8.00**. Numbers will be limited to 50. Can you please return the reply slip as soon as possible; we will have to allocate places on a “first come, first on the list” basis. If more than 50 members and guests apply, we will prepare a “waiting list”; you will be informed if you are on this list, in all other cases you can assume you have been allocated the places you have applied for. If you were on last years’ waiting list you will be

given a preferential booking providing your application is received before the end of January.

Please return reply slip on last page

Note

{ A number of complaints were received about the quality of the meal and the standard of service at this function last year. These complaints have been addressed to the College and they have apologized for not meeting the standard we were expecting. They believe it may have been due to the fact that the performance of the students was being examined on the day in question. On days such as this, staff interaction with the students has to be minimal and this can result in poor service if the group of students being examined is relatively junior. College staff said they would endeavor to make sure it does not happen again by trying to timetable a senior group of students to look after our needs on our next visit. We would like your feedback on this event as soon afterwards as possible, in case we have to decide to re-schedule next years' lunch to a new venue. }

Visit: – Shoreham Power Station 2.30pm. Tuesday the 18th March.

This will be a “non-technical” visit to the new gas fired power station at Shoreham. (i.e. It is unlikely a technical member of the power station staff will accompany us and therefore some technical questions may have to go unanswered.) The visit will commence with a video presentation showing the site construction followed by a guided tour of the plant and control room. Part of this tour will involve walking around the outside plant areas and therefore you should wear stout shoes and suitable outdoor clothing. Safety hats etc. will be issued to all visitors.

This visit is limited to a party of no more than 25. Can you please complete the reply slip if you wish to attend. We will operate a “first come, first booked” list for all replies and a waiting list if an excess number apply. You will be informed if you are on this list, in all other cases you can assume you have been allocated the places you have applied for.

To get to the Power Station from Worthing it is necessary to go along the A259 towards Brighton from Shoreham until you reach the end of the Shoreham Dock area (almost the start of Hove seafront), turn right at the traffic lights and then follow the sea front road back towards Shoreham. Entrance to the Power Station site is through the gate for the Southern Water, water treatment plant. We will meet at the Gatehouse at 2.15pm, before being met and taken to the Training Room.

Please return reply slip on last page

Outing: – Royal Naval Submarine Museum, &/or Explosion Museum of Naval Firepower, Gosport. Wednesday the 9th April.

The first summer outing for the RCEA for 2003 will take place on the 9th April. In Gosport there are two museums, which we believe will be of interest to members and their partners. These are the Explosion Museum of Naval Firepower at Priddy's Hard, the location for the Naval Munitions factory and a state secret for 200 years until it closed in

the 1980's; and the Royal Naval Submarine Museum at Haslar which has exhibits relating to the submarine service and a docked submarine that can be visited.

The day can therefore be divided up to suit individual members requirements. The Explosion Museum will be visited in the morning, members and partners meeting at the Museum at 10.30 am, for this part of the day; lunch can be taken at the museum if required; followed by a visit to the Submarine Museum in the afternoon, meeting at the museum at 2.00pm.

For those members who would prefer a less tiring day, a visit to one or other of these two locations is recommended.

Both Museums have been adapted for wheelchair users except for the visit on board the Submarine. The submarine is suitable however for visits by people who can manage to walk short distances, since there are suitable resting places in each compartment.

The reply slip is laid out to allow you to choose which option suits you best.

The Explosion Museum staff are willing to set up tables for lunch in the cafeteria for our party if we declare how many visitors will need to purchase a lunch.

Cost of lunch including tea or coffee at the Explosion Museum – typically about £ 5.00 with a choice of two or three hot meals available.

Similar facilities exist at the Submarine Museum where costs are probably comparable.

Cost of entry to both Museums for a party of 10+ £5.00

Cost of entry to Submarine Museum – party of 10+ £2.50

Directions for travel: -

- **Explosion Museum – M27 to junction 11. Follow A32 towards Gosport (about 2/3 miles before a left turn just after the Naval Ordnance Depot) and signs to Explosion at Priddy's Hard. Explosion is at the end of Heritage Way. Free parking.**
- **Submarine Museum – M27 to junction 11. Follow A32 to Gosport (4 /5 miles to Gosport Ferry). Pass the Ferry and turn left into Haslar Road (about 200 yards on left after Ferry). Cross Haslar Bridge and the Museum is 2nd entrance on the left. Free parking.**

Please return reply slip on last page

REPORTS

Visit to Hardham Water Treatment Works, 12th November 2002

Water is one of those things that the lay citizen tends to take for granted. One opens the tap and out it comes, fit for drinking. The "water works" is where the liquid comes out of the ground, or somewhere, and gets pumped into the mains on its way to our taps. The water

people are only seen when they dig up the roads to do things with pipes. The engineer, however, knows that there must be more to it than that.

The party of members who visited the Hardham water supply works on 12th November learned that there is indeed a very great deal more to it than that. Here the water goes through a treatment of some complexity before it is allowed to reach our taps.

First, where does Hardham's water itself come from? The works are licensed to extract up to 75 million litres per day from the River Rother and from underground sources, taken together. The balance is adjusted according to season; in winter, when river flows are high, supply is taken from the Rother, but emphasis shifts to the 60-80 metres deep boreholes into the Folkestone Beds when the river runs low in summer. The suction opening where flow is taken from the river is fitted with an ingenious system of self-cleaning filters for extracting all manner of debris and solid matter. Pumps deliver the roughly filtered water from here to the works proper for treatment.

From here on the process is perhaps more complicated than some of our party expected. It involves the injection of chlorine at various stages, and also of ozone. Chlorine is held at the works in bulk storage, and strict rules govern staff response in the event of any mishap involving chlorine escape. Oxygen is also held in bulk; this is converted into gaseous ozone by an electric discharge process. Ozone injected into the water acts as a powerful disinfectant, but its use has to be carefully controlled and care is taken to see that the flow is completely de-ozone before the water leaves the works. The flow is also taken through carbon filters to clear traces of pesticide from any water that may have been contaminated from agricultural activities.

Following this chemical treatment the flow is taken to clarifiers, open-topped tanks where a chemical coagulant is added to help any solid matter still present to settle. From here the water flows to the final filter beds, where it passes downwards through layers of anthracite, gravel and sand, and eventually to the bulk storage tanks underground. From the bulk tanks the processed article is pumped into large mains serving underground service reservoirs across Sussex; thence to the final consumers. The filtering material from the filter beds is periodically extracted and cleaned for reuse, the inert and sterile filtered-out solids being dried, pressed into cakes - and rejected to land-fill. (The management regretted that, so far, no use had been found for these).

The filter and de-coagulant tanks had originally been open to the weather, but algal growth had proved troublesome. The recent erection of a steel roof (itself an interesting structure) over all excluded daylight and so eliminated algal growth.

Strict quality control is exerted throughout the whole treatment process. This was originally done by chemists examining samples taken from time to time, but the recent modernisation of the works has introduced sensing devices which continuously monitor flows and water quality, enabling the central computer to adjust automatically the flow and chemical input to maintain the desired quality. The whole process is monitored in the works control room, which also receives input signals from the service reservoirs and pumping stations across the county; some of the links are by radio. The control room is manned during the working day, but when the station is unmanned the monitoring and alarm systems are repeated to Southern Water's regional operations room, which is manned 24 hours a day, so that mishaps can be dealt with at any time.

The whole installation is a considerable consumer of electrical power. Supply is normally taken from the grid, but an in-house installation of two substantial diesel generators is held in constant readiness and can be started up within seconds if the grid supply fails. Indeed the generators are capable of power re-export into the grid if called upon.

Altogether, it was clear to our party that what at first sight might appear to be a fairly pedestrian operation - supplying water - is in fact a complex evolution, employing to the full modern techniques of computer-based process control, chemical and mechanical engineering.

Our thanks are due to Mr Corin Fiddaman, the Southern Water resident engineer at Hardham, for giving us a detailed, lucid, highly competent and most interesting presentation on all the engineering aspects of the Hardham water treatment plant.

James Paffett

51st Annual Dinner at the Beach Hotel, Worthing

62 Members and their guests attended the 51st Annual Dinner at the Beach Hotel, Worthing. As can be seen from the few pictures below, everyone appeared to enjoy the evening and we judge it to have been another successful event. Glyn Mathias, our President made a short speech about the problems which will face the Association in the future and Mrs. Pam Lewis gave a vote of thanks.

If you would like a colour copy of any of these photographs it can be supplied as a JPEG computer file to any member who can receive e-mail. Please contact Colin Pilling.





Cooch Memorial Lecture 29th November 2002.

“No New Things Under The Sun” given by John Narborough BSc(Eng) ACGI, CEng, MIEE. Consultant and Curator of the Milne Electrical Collection at the Amberley Museum – Friday 29th November 2002.

John’s lecture was highly thought provoking and of a philosophical nature at least as much as it was technical.

John took as his text the words of Ecclesiastes, the Preacher, son of David the King of Jerusalem. It is worth recording in full, the text which John used: -

Ecclesiastes, or, the Preacher.

The words of the Preacher, son of David, King in Jerusalem.

Vanity of vanities, saith the Preacher,
Vanity of vanities; all is vanity.

What profit hath a man of all his labour which he taketh under the sun?
One generation passeth away, and another generation cometh, but the earth abideth for ever.

The sun also ariseth, and the sun goeth down, and hasteth to his place where he arose.
The wind goeth toward the south, and turneth about toward the north, it whirleth about continually, and the wind returneth again according to his circuits.

All the rivers run into the sea; yet the sea is not full; unto the place from whence the rivers come, thither they return again.

All things are full of labour; man cannot utter it. The eye is not satisfied with seeing, nor the ear filled with hearing.

The thing that hath been, it is that which shall be; and that which is done is that which shall be done; and there is no new thing under the sun.

Is there any thing whereof it may be said, ‘See, this is new’?
It hath been already of old time, which was before us.

There is no remembrance of former things; neither shall there be any remembrance of things that are to come with those that shall come after.

I have seen all the works that are done under the sun, and behold, all is vanity and vexation of spirit.

‘I returned, and saw under the sun, that the race is not to the swift, nor the battle to the strong,
neither yet bread to the wise, nor yet riches to men of understanding, nor yet favour to men of skill;
but time and chance happeneth to them all.’

John went on to offer “a few light thoughts on our profession” from an historical viewpoint:-

- Originality
- Social/economic benefit
- The engineering temperament
- Careers and their rewards
- The longer term view
-

A correct “valuation” of past versus present.

His next thought concerned the role of the (electrical) engineer compared with other professions such as Clergymen and Doctors by quoting from an article in the Daily Mail c 1947 by C L Boltz saying that the professional engineer is not constrained to hold any special religious or political views to maintain his position concluding: - “ This then is the lot of the successful electrical engineer; he has position and his work is important to the community and this work has variety and interest; at the same time he is free. What more could a man (or woman) desire?”

John then went on to quote from Albert Speer’s Autobiography written when he was incarcerated in Spandau Jail. He was contrite when writing of his role as “top representative of technology” in the use of technology without compunction in an assault on humanity.

The philosophical aspects of the talk ended with the twin questions “Who hosts the value added aspects of the profession and who pays”.

John then turned to the technical matters and demonstrated with numerous examples that many “modern” developments were envisaged years ago and were practical in an embryonic state perhaps 80 years ago. Two stood out. The Fax machine was conceived in 1853 and one – the Fultograph – a copying telegraph, worked in 1920. Similarly, the floppy disc was truly a floppy disk when first operate in 1950.

The talk concluded with a summary of John’s thoughts on the profession of engineering:-

- Nothing changes – No New Thing Under The Sun
- Do not go on with the waste, use common sense
- Take account of human nature
- Get through to the young the sheer fun of engineering.
-

Members raised many searching questions which invoked a lively discussion.

Afterwards, we could view numerous examples of “old” technology, which is yet “new” which John, had brought along from the Amberley Museum.

Yet another memorable Cooch Memorial Lecture.

Richard Norton

“Production of oil from the North Sea – The Early Years”

given by R.K.Williams, member, at Field Place on Tuesday 10th December 2002

Introduction

The talk covered the early years of development of the North Sea Oil fields providing an overview of the design, construction and installation of the production facilities, which were installed offshore to enable crude oil to be safely handled for transportation by tanker or by pipeline.

Background

The commercial justification for the development of North Sea oil, for which the pipelines and fixed platforms were extremely costly, was explained in terms of the rapid rise in the price of crude oil, which took place in the early '70s. This price rise, which was caused by problems in the Middle East together with a rapid rise in the demand for oil by the U S A, caused the price of crude to rise from around US\$2.3/bbl in 1970 to US\$11.65/bbl by January 1974.

The environmental conditions, which were a major factor contributing to the cost, were mentioned and included 140m water depth, 30m waves and 160 mph wind speeds together with extended periods of sub-zero temperatures.

The nature of crude oil and the different conditions in which it is found were described and the Brent field in particular was mentioned as producing a light, gas saturated, crude having, initially, a high residual pressure at the wellhead. The gas oil ratio for Brent crude was originally 2,000 SCFD/bbl

Facilities Design

The major functions of the fixed platforms were described, namely to support the facilities necessary for the drilling of the many deviated production wells which were required to cover the breadth of the reservoir and to carry the equipment for the separation and disposal of the very large volumes of gas produced. The problems of removal of water produced with the oil were also described, explaining the necessity to prevent the formation of undesirable emulsions and hydrates in the pipelines and equipment downstream of the platform.

For reservoir pressure management and to optimise the overall recovery of hydrocarbons, pumps and filtration equipment for the injection of water and compressors for the reinjection of gas, into the reservoir were required. The provision of considerable power generating capacity was therefore required on each platform. Brent A alone carried gas turbine driven generators capable of producing over 50MW of electrical power. Addition of biocide to the injected water was necessary to destroy sulphate-reducing bacteria and prevent the formation of hydrogen sulphide.

Other utilities were outlined, notably the provision of an accommodation module for up to 180 men on each platform.

Design features of the self-installing jacket and of the gravity sub-structure were outlined, with some photographs of the shipping and installation of these structures.

The offshore storage capacity provided by the gravity structures was illustrated and the value of this to provide residence time for the separation of water was mentioned.

Finally the talk covered a description of the design and procurement process for the topsides mentioning the types of drawings and specifications produced, problems with contractual and design interfaces, offshore hook-up, offshore weather windows. Weight control of all offshore lifts and of the overall substructure support capacity were mentioned.

A major constraint in the design was the necessity to ensure proper segregation of hazardous and safe areas, including the correct specification of electrical equipment in each area and the provision of adequate separation between air intake and exhaust points, in accordance with the relevant IP Code.

Ken Williams

Talk – Nuclear Power from British Energy

The talk scheduled for the 7th January was cancelled at the last moment because the speaker failed to turn up. This was due to a major administration error on the part of British Energy. They have promised to make up for this poor service by providing another speaker in the not too distant future. (Watch this space !)

As a result, we have to thank John Fowler, for stepping in to give us a few of his thoughts on Nuclear Power Generation and some of the problems associated with it. This resulted in a lively question and answer session on the topic, during which John was able to explain some of the mysteries surrounding the subject.

=====

To: G.E. Mathias, 16 Tamarisk Way, East Preston, BN16 2TF

Tel: 01903 859191

I wish to participate in the visit to **The Royal Pavillion, Brighton on Tuesday the 18th February 2003 meeting at 2.00 p.m.**

Full Name(Block capitals)

Address
.....
.....

Phone No..... **Applications by 1st February 2003**

I enclose a cheque payable to RCEA for.....(**£6.50 per person**)

R P Wort, Sylvan Glen, Longlands, Worthing, BN14 9NS Tel: 01903 217747
Alternatively reply to raywort@eurobell.co.uk

I wish to participate in the visit to **Shoreham Power Station, 2.15pm at the gatehouse on the 18th March 2003**

Full Name(Block capitals)

Address
.....
.....

Phone No..... **Applications by 1st March 2003**

To: B Buckroyd, 6 Fosters Close, East Preston, Littlehampton BN16 2TI Tel: 01903 784926

I wish to participate in the Lunch at **Northbrook College** on, Thursday the 13th March 2003 at 12.00 for 12.30 p.m.

Full Name(Block capitals)

Address
.....

**Applications at the latest by 3rd March, 2002.
Waiting List will apply for over subscribed applications.**

Phone No..... My partner will be.....

I enclose a cheque payable to RCEA for..... (£8 per person)

To: G.E. Mathias, 16 Tamarisk Way, East Preston, BN16 2TF Tel: 01903 859191

I /We wish to participate in the outing to the **Gosport Museums on Wednesday the 9th April 2003.**

Please delete as appropriate: -

I/We would like to visit BOTH museums - meeting at 10.30 am – Cost £5.00 per person

I/We will need to purchase lunch at the Explosion Museum (Yes) (No)

I/We would like to visit the submarine museum –meeting at 2.00 pm – Cost £2.50 per person

Full Name(Block capitals)

Address
.....
.....

Phone No..... **Applications by 29th March 2003**

I enclose a cheque payable to RCEA for.....(**£5.00 or £2.50 per person**)