



**An Association for Retired Professional Engineers**

# **NEWSLETTER DECEMBER 2004**

## **2004/2005 PROGRAMME OF EVENTS**

### **2005**

Every Monday 10.30 am. Coffee at the Denton Lounge, Worthing Pier.

- |                       |           |   |
|-----------------------|-----------|---|
| 11 <sup>th</sup> Jan. | Tuesday   | <b>Talk:</b> Safety of Naval Munitions by Randy Kier, Member, 2.30 pm Field Place, Durrington, Worthing.            |
| 19 <sup>th</sup> Jan  | Wednesday | <b>Visit:</b> 2 pm. Heathrow Terminal 5 Construction Site.  |
| 20 <sup>th</sup> Jan  | Thursday  | Coffee - at Spotted Cow, Angmering  |
| 27 <sup>th</sup> Jan  | Thursday  | Coffee - with Partners at Beach Hotel, Worthing   |
| 2 <sup>nd</sup> Feb   | Wednesday | <b>Visit:</b> 2.30 pm Ceres Power Ltd, Crawley.   |
| 8 <sup>th</sup> Feb   | Tuesday   | <b>Talk:</b> Littlehampton Harbour, by Colin Hitchcock, Harbour Master Littlehampton, 2.30 pm Field Place, Worthing |
| 17 <sup>th</sup> Feb  | Thursday  | Coffee - at Spotted Cow, Angmering  |
| 24 <sup>th</sup> Feb  | Thursday  | Coffee - with Partners at Beach Hotel, Worthing   |
| 2 <sup>nd</sup> Mar   | Wednesday | <b>Outing:</b> Skittles and buffet lunch, The Bull Inn, Henfield, 12.00 mid-day until approx 3.00pm                 |
| 8 <sup>th</sup> Mar   | Tuesday   | <b>Talk:</b> Steam Power by Ken Wheeler, Member, 2.30 pm Field Place, Worthing                                      |
| 24 <sup>th</sup> Mar  | Thursday  | Coffee - at Spotted Cow, Angmering  |
| 17 <sup>th</sup> Mar  | Thursday  | <b>Lunch (1)</b> - Northbrook College, Worthing   |

31 <sup>st</sup> Mar	Thursday	Coffee - with Partners at Beach Hotel, Worthing.
7 <sup>th</sup> Apr	Thursday	<b>Lunch (2)</b> - Northbrook College, Worthing
13 <sup>th</sup> Apr.	Tuesday	<b>Visit:</b> 2.30 pm GSK (Beecham), Worthing.
21 <sup>st</sup> Apr	Thursday	Coffee - at Spotted Cow, Angmering.
28 <sup>th</sup> Apr	Thursday	Coffee - with Partners at Beach Hotel, Worthing
11 <sup>th</sup> May.	Wednesday	<b>Outing:</b> 2.30 pm Brighton Railway Station. (To be confirmed)
19 <sup>th</sup> May	Thursday	Coffee - at Spotted Cow, Angmering
26 <sup>th</sup> May	Thursday	Coffee - with Partners at Beach Hotel, Worthing
15 <sup>th</sup> Jun.	Wednesday	<b>Outing:</b> 2.30 pm Wakehurst Place .
23 <sup>rd</sup> Jun	Thursday	Coffee - at Spotted Cow, Angmering
30 <sup>th</sup> Jun	Thursday	Coffee - with Partners at Highdown Towers, Worthing
13 <sup>th</sup> Jul.	Wednesday	<b>Outing:</b> 2.30 pm Duncton Croquet Club
21 <sup>st</sup> Jul.	Thursday	Coffee - at Spotted Cow, Angmering
28 <sup>th</sup> Jul.	Thursday	Coffee - with Partners at Highdown Towers, Worthing
18 <sup>th</sup> Aug.	Thursday	Coffee - at Spotted Cow, Angmering
25 <sup>th</sup> Aug	Thursday	Coffee - with Partners at Beach Hotel, Worthing

**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 a.m

## New Members

<p>2004 <b>MIDDLETON, M.R.</b>, CEng. MIEE          3 East View Fields Plumpton Green Nr Lewes East Sussex BN7 3EE  <i>Mike and Mary</i> (01273 890509)          65 Apprentice Cambridge Insts. 66-67 Sullivan Insts. IEE Part 3          67-70 MOT West London Experiment 70-83 Herts CC Traffic          Engineer 83-94 East Sussex CC Traffic Engineer 94- Dept of          Transport Traffic Engineer – Standards, Specs, Advice &amp; Research  <i>Interests:</i> Church activities, Walking, DIY</p>	<p>2004 <b>STRANGE, N.</b> CEng. MIEE, MIMechE.          Tradewinds, Pond Road, Bracklesham Bay, Chichester PO20 8HR  <i>Norman and Diana</i> (01243 670727)          1952-98:- Engineer-Television Development – Pye. Senior          Engineer - Philips. Chief Engineer – Weir Electronics. Director –          Nestra Electronics. Freelance Engineer. Senior Engineer –          Edwards High Vacuum.  <i>Interests:</i> Family, Sailing, Badminton, Swimming, Meeting          People, Photography, Computers.</p>
<p>2004 <b>TOMKINS, A, J.</b> MA C.Eng. MIEE CITP MBCS          2 Badger Drive Haywards Heath RH16 1EP  <i>Tony and Liz</i> (01444 455025)          61-69 Elliott Automation computer logic and system designer. 69-72          Warren Point Ltd. Automotive Systems. 72-77 ITT Data Systems          Division. Message switching system architect and designer. 77-          02 Logica - Comms consultant, line manager, project and commercial          manager.  <i>Interests:</i> Sailing, cruising + racing, classic cars, DIY</p>	<p>2004 <b>RODAWAY K.G.</b> EurIng.BScEng.AKC.CEng.MIMechE          Thurne, 16 Ockenden Way Hassocks BN6 8HS  <i>Keith and Trixie</i> (01273 842120)          58-62 ICI Peterborough and Runcorn. 62-64 Norris Bros.          Haywards Heath. 64-68 CJB Paddington 68-98 APV Crawley-          Project Engineer/Manager on brewery and dairy plants.  <i>Interests:</i> -Charity, Genealogy, Bowling, Folk Dancing.</p>
<p>2004 <b>HARDING, J.A.</b> MIEE          “Brackenside” The Driftway, Old Manor Rd. Rustington BN16 3RN  <i>John and Shirley</i> (01903 788749)          75-78 Industrial Sales Engineer Eastern EB, Watford. 78-92 Energy          Marketing Engineer Seeboard, West Kent &amp; Tunbridge Wells. 92-94          Head of Commercial Energy Sales –Central Division Crawley. 94-97          Account Manager Southern Gas.  <i>Interests:</i> Music (Choral singing), DIY, Walking, Motoring, Travel.</p>	

New members should check that the above entry is correct, if not, please inform the Secretary. Unless otherwise altered, the information as laid out above will appear in the Members Handbook

## Subscriptions for 2004 / 2005

These were due by 1<sup>st</sup> October. One or two members are now overdue. Can you please send your cheque for £12 with reply slip printed at the end of this newsletter to the Hon. Treasurer, B. Buckroyd, 6 Fosters Close, East Preston, BN16 2TL.

## Brief Detail – Talks, Outings and other activities

### Talk:

**Safety of Naval Munitions, to be given by Randy Keir, Member, 2.30 pm Tuesday 11th January 2005, Field Place, Durrington, Worthing.**

An overview of how the Royal Navy overcomes the difficulties of ensuring the explosives safety of its munitions will be given. Explosives trials and their assessment will be included. Future developments in ordnance design will be reviewed.

## Visit

**Heathrow Terminal 5 Construction Site, 1-00pm, Wednesday 19 January 2005.**  
**(Please note the time of 1-00pm, replacing the time given in the last Newsletter).**

A visit to the largest civil engineering project in Europe. Commenced in 2002, Phase 1 will open in 2008 and phase 2 in 2011. The site covers an area roughly that of Hyde Park and at completion, some 60,000 workers will have been involved. The Project is considerably more than a terminal, consisting of several large buildings of modern design, a control tower and all the infrastructure of a modern airport. It is intended as a gateway to Britain for air travellers.

More information can be found at [www.baa.com/main/airports/heathrow/terminal5](http://www.baa.com/main/airports/heathrow/terminal5) then follow the directions.

**RCEA visit.** As expected, site visits are in great demand. The RCEA have been allocated 30 places for the coach leaving the Terminal 5 Visitor Centre at 1-00pm. The tour is expected to take 1 hour. Details are still to be finalised whether will be provided with a guide or some form of commentary. (We expect it to be one or the other.) There will be no charge from BAA for the visit. For the reputation of RCEA and to justify the efforts of those involved, some of whom are not committee members, it is important that the places allocated are taken for this fascinating visit.

Ladies and visitors are welcome, subject to the precedence of members to whom places will be allocated on a first come basis.

Please allow plenty of time for your journey, aiming to arrive at the Visitor Centre car park by 12-30 pm. or shortly thereafter. The Visitor Centre itself offers light refreshment but not meals. We are suggesting that maximum use is made of car sharing by way of the Reply Slip. This can then be organised the RCEA as necessary.

In view of Christmas posting and the fact that the name of all members and guests visiting need to be sent to BAA early January *can you please return the Reply Slips as quickly as possible, preferably before Christmas.* Applications will be treated on a first come, first served basis.

**Directions.** It is assumed that travel will be made by way of the A24/M23, M25 and M4. The Visitor Centre is alongside the A4 at the northern perimeter of Heathrow. Certain local details are being clarified with BAA. Full details will therefore be sent to all

successful applicants. A copy of the standard map issued by the visitor centre is however attached to the end of this newsletter.

**Visit:**

**Ceres Power Ltd., Unit 18, Denvale Trade Park, Haslett Ave. East, Crawley,  
2.30 pm Wednesday 2 February 2005**

Ceres Power Ltd. was formed in 2001 to exploit the revolutionary fuel cell technology developed by Imperial College. It produces on site, fuel cell components for assembly into fuel cells by its customers. Ceres Power Ltd. Recently won the Carbon Trust Innovation Award for the small business category. For more detail visit [www.cerespower.com](http://www.cerespower.com)

Places are limited to 12 persons for this first RCEA visit. Applications will be treated on a first come, first served basis. If, as expected the visit is successful, a future visit will be arranged.

*Directions.* Ceres Power Ltd. is situated in central Crawley, close to Crawley Rail Station. Detailed directions, by rail and road, including car parking, will be sent to all successful applicants. Those not successful this time will be given priority on a future visit.

Please complete the Reply Slip at the end of this Newsletter.

**Talk:**

**Littlehampton Harbour, by Colin Hitchcock, Harbour Master, 2.30 pm Tuesday  
8<sup>th</sup> February 2005 Field Place, Worthing.**

The history of this little known but important waterway will be described, as well as the men who have held the position of Harbour Master. The cargoes passing through and the projected future of Littlehampton Harbour will be included.

**Outing:**

**Skittles and Buffet Lunch, The Bull Inn, Henfield 12.00 mid-day until approx  
3.00pm Wednesday the 2<sup>nd</sup> March 2005.**

The Bull Inn just north of Henfield, has a function room with a skittle alley adjacent to the main bar area. We have arranged to hire these facilities for the lunch time period to allow members and guests to enjoy a good quality buffet lunch and try their hand at skittles.

No previous experience is required; teams will be selected on the day to include novices and any experienced players. If you would prefer to watch, come along and encourage those who are going to play while you enjoy the buffet lunch, which will be provided.

The room will be available to us from mid-day until about 3 pm when the pub closes.

Dessert and coffee are not included in the buffet, but will be available an extra charge.

The cost of hiring the room, the use of the skittles and the buffet will be £10 per person. A reply slip for this function is attached at the end of this newsletter.

**Talk:**

**Steam Power by Ken Wheeler, Member, 2.30 pm Tuesday 8<sup>th</sup> March 2005, Field Place, Worthing**

Starting with the Atmospheric Engine of Thomas Newcomen in 1712, the use of stationary steam engines as part of the rise of steam power to become the main power source of the 19<sup>th</sup> century will be described.

**Northbrook College – Lunches**

**Thursday 17<sup>th</sup> March 2005 – Annual Lunch, 12.00 for 12.30pm in the Northbrook College Arundel Room Training Restaurant.**

**AND / OR**

**Thursday 7<sup>th</sup> April 2005 – Annual Lunch, 12.00 for 12.30pm in the Northbrook College Arundel Room Training Restaurant.**

For 2005, Northbrook College will only accept a booking for a maximum of 40 lunches at any one time. As a result, we have booked two dates for next year because this event is always oversubscribed. This means you have the choice of which date you would like to go. If you would like to go on both dates, we will accept your reservation on the understanding that your second date may have to be cancelled if we are oversubscribed by members who have only booked one date. If your second date has to be cancelled, you will be put on a reserve list in case of late cancellations

Reply slips are attached to the end of this Newsletter.

**Visit:**

**GSK plc, Worthing (Beechams), 2.30 pm Tuesday 12<sup>th</sup> April 2005.**

A visit, including introductory talk and site tour, of a major manufacturer of antibiotics and pharmaceutical products, organised for us by Carole Shepperd of GSK plc

**Outing:**

**Brighton Railway Station, 2.30 pm Wednesday 11<sup>th</sup> May 2005**

An 'in depth' tour of the historic Brighton Rail Station.

*Details to be confirmed*

### **Outing:**

**Wakehurst Place, Ardingly, West Sussex, 2.30 pm Wednesday 15<sup>th</sup> June 2005.**

An outing and guided tour of Wakehurst Place, which consists of an Elizabethan mansion surrounded by extensive grounds containing temperate trees and shrubs, wild flowers, water gardens and now the home of the Millennium Seed Bank.

### **Outing:**

**Duncton Croquet Club, Duncton, 2.30 pm Wednesday 13<sup>th</sup> July 2005**

A pleasant outing to a countryside croquet club. More detail in the next newsletter.

## **REPORTS**

### **RCEA Annual General Meeting:**

**Tuesday, 14<sup>th</sup> September 2004, 2.30 pm Field Place, Durrington, Worthing.**

The unapproved minutes of this meeting are set out below:

#### **Minutes of the 53<sup>rd</sup> Annual General Meeting**

##### ***1. Apologies for Absence***

J. Fuller, R. Parsons, R Norton, A Mole, P Mills, A Macmillan, D Bryan-Brown, S Wright, J Cockburn, L Hurst, P Gibson, G Picken, D Lewis, P Harvey, A Whittaker, J Little, W Simmons.

##### ***2. Minutes of the AGM held 9<sup>th</sup> September 2003***

Item 2 Minutes: A member queried whether reference to a request for the Treasurer to provide a breakdown of Administrative expenses should have been included. Subsequent investigation showed that the discussion was at the 2002 AGM and following a review by the Committee it was decided not to provide a breakdown.

Minutes proposed by R Wort, seconded by K Lane. All were in favour.

##### ***3. Matters Arising***

In response to a question asking how many new non-CEng members have joined since the last AGM the Secretary replied that all new members were CEng. [Subsequent to the meeting the Secretary established that of the 6 new members one was not a CEng]

It was stated that a member who once was once registered as a Chartered Engineer (CEng) can no longer use the post nominal CEng if he/she does not pay the appropriate annual subscription to the Engineering Council. The member can however continue to call him/herself a Chartered (Electrical, Mechanical etc.) Engineer if he/she pays the appropriate Engineering Institution annual subscription.

#### **4. *Treasurer's Report***

The Treasurer pointed out that there had been no need to draw upon reserves during the year. Activities had balanced reasonably well.

The meeting confirmed that Administrative Expenses would continue to be bundled as in the current accounts.

Breaking down the membership fees gave: Newsletter 35%, Handbook 24%, Meeting venues 19%, Administration 16%, and Donations 6%.

The Treasurer thanked the Auditor for his work in auditing the accounts.

The Accounts were proposed by C Harrison and seconded by J Buckland. All were in favour.

#### **5. *Secretary's Report***

The Secretary commented that the membership numbers continue to remain stable at between 100 and 105 each year. All appropriate professional Institutions had been contacted to arrange for them to carry a small advert for RCEA similar to the one recently carried in the IEE periodical. Half of the Institutions had replied and it was the Secretary's intention to ensure that suitable publicity is given in their local periodicals. The Secretary would also contact the intransigent Institutions again to ask for their assistance.

Two members had resigned by default (non-payment of subscriptions) with a further member resigning (Len Nash) since the Secretary's report was published.

The Secretary's report was proposed by E Besley and seconded by L Tavener. All were in favour.

#### **6. *Annual Subscription***

The meeting agreed that the £12.00 annual subscription should remain.

#### **7. *Talks/Visits/Outings***

The Secretary circulated a summary of the completed questionnaires received from members. There had been 27 completed questionnaires out of a distribution of 103.

The members commended C Harrison on his past work as Programme Secretary.

New members should endeavour to give a talk soon after joining the Association to update members on engineering developments. R Budden volunteered to do so.

The meeting addressed each title of the summary report in turn.

This discussion resulted in various suggestions and comments from the floor. These included:-

- ◆ Ask other Institutions whether they are able to suggest speakers



- ◆ Although the occasional (once a year) non-technical talk would be acceptable there was universal agreement that RCEA should confine itself to technical talks.
- ◆ An option might be to have 2 short talks in one session.
- ◆ Although the Folkestone RCEA had been approached in the past it may be possible to obtain ideas for talks and speakers from them.
- ◆ Members were insistent that a knowledgeable guide is present when a visit is made.
- ◆ The Annual Dinner had been moved forward to October.
- ◆ Coffee mornings are still being held in Hove with 4/5 members attending each month (1<sup>st</sup> Tuesday of the month)

The Chairman thanked members for their contributions.

### ***8 Election of Officers and Committee for the year 2003/4***

The new Committee was voted for and carried en bloc by the meeting as follows:-

- President                      G Mathias
- Vice President                B Buckroyd
- Secretary                      C Pilling
- Assistant Secretary        R Norton
- Treasurer                      B Buckroyd
- Assistant Treasurer        H Rummeli
- R Wort                         (Newsletter Editor)
- S Renew
- C Harrison                    (Programme Coordinator)
- K Lane

Auditor E T Besley was re-elected

### ***9. AOB***

There was a correction to the Newsletter: The coffee morning scheduled for 30<sup>th</sup> December would not take place.

### ***Discussion Topic – Survey of members***

#### ***Technical Talks***

All members would attend with a slight majority favouring the period September-March. Worthing was preferred as the venue with strong support for outside lecturers at £3/per head.

Suggestions: Present & Future Technology, Chunnel/Rail Link, Aviation, Space, Energy, Communications, Transport, Automation, Robotics, Talks from new members, Medical engineering, Industrial Computing.

#### ***Non Technical Talks***

Most supported having non technical talks with a majority in favour of monthly talks during September-June.

Suggestions: Financial and Economic issues, Antiques, Archaeology, National Parks

### ***Technical Visits***

All members would attend with a majority in favour of monthly talks during September-June. Talks should not always be in Sussex; the preferred distances ranging from 30 to 100 miles. There was a fair support to include lunch at £10/12 per head.

Suggestions: Manufacturing, Construction, Assembly, Design, Maintenance, Utilities, Docks, Transport, Distribution, Testing, LEC Refrigeration, Edwards High Vacuum, CAE, Thales.

***Outings with Partners:*** Two thirds would attend with an equal split between April-July and All Year. Most are prepared to travel outside of Sussex and half would take lunch at £10/12 per head.

Suggestions: Gardens, Historic Houses, Boat trips, Didcot Preservation Railway Centre, Wakehurst Place, Butser Iron Age Reconstruction

### ***Lunch Only***

A two thirds majority preferred lunches twice per year in March and September. An equal split favoured Sussex as the location with a preferred maximum cost of £15 per head

Suggestions: Old Tollgate, Highdown Hotel, West Worthing Club, Northbrook, Shoreham Yacht Club.

### ***Dinner (Formal)***

Half would attend and preferred once a year in winter (In October or November). Almost everyone wanted the venue to be in Sussex with a maximum cost of £25-£30

Suggestions: Old Tollgate, Tudor Restaurant Ferring, Beach Hotel, Windsor Hotel, Holland Forge.

### ***Dinner (Informal)***

40% would attend and preferred once a year in winter

Suggestions: Boathouse Restaurant Amberley, Windsor Hotel Worthing.

### ***Coffee Mornings with Partners***

Once a month preferred although it was unclear how many would attend

Suggestions: Alfriston, Henfield, Rottingdean, Rustington, Brighton.

### ***Coffee Mornings – Members only***

Once a month was preferred but only 25% would attend. £2 per head preferred.

Suggestions: Spotted Cow, Beach Hotel, Highdown

### ***Interest Groups***

No one is interested!

## **Outing :**

### **Sussex Theatre Organ Trust – Wurlitzer Organ Concert, Sunday 26<sup>th</sup> September**

A group of 20 or so members attended an Organ Concert at the Worthing Assembly Hall on Sunday the 26<sup>th</sup> September, courtesy of Jim Buckland, RCEA member and Chairman of the Organ Trust.

The organist was Walt Strony who had flown over from Las Vegas to give the concert.

This most enjoyable concert included a wide range of music from musical shows and popular classics.

Thanks to Jim for making the tickets available, (at the Annual General Meeting); it was really appreciated by all who attended.

**Presentation:**

**Tuesday 12 October 2004, 2.30 pm the Barn, Field Place, Durrington, Worthing, Presentation by the Royal Navy.**

An audience of some 60 members and guests, including local Probus and Royal Naval Association members, attended the opening event of the RCEA season. Commander Ross Thoburn, Lieutenant Frances Mansergh and the RN team gave the Presentation.

The opening film focussed on the need for a modern Navy to serve this Country on a global basis. It included an introduction by the First Sea Lord, Admiral Sir Alan West. With 31,000 personnel and 7000 Royal Marines, the Royal Navy is the second largest in the world, with surface ships ranging from aircraft carriers to coastal patrol vessels, submarines of the Vanguard, Trafalgar and Swiftsure class, and Harrier fixed wing aircraft, plus helicopters.

Commander Thoburn and Lieutenant Mansergh introduced themselves with brief summaries of their careers to date. An overall picture was presented of the role of the Navy in the modern world. This included the defence of maritime trade, defence of British territories overseas, and a peacekeeping and humanitarian role in areas of conflict.

To assist in the above, emphasis is placed on co-operation with the Army and RAF, in areas such as joint HQ, joint helicopter command and joint training. This activity extends to co-operation with civilian agencies such as Sea Vision UK for maritime trade. With the UK a full member of the United Nations and NATO, the Royal Navy plays an active part at this international level.

The many skills required by the modern Navy were described, with emphasis on training and the use of the acquired skills and qualifications in future civilian careers.

Included was the importance given to the RN and RM Reserves, where the above skills continued to be of service.

For the future, two major units, large aircraft carriers are approved and construction will shortly commence. These will be complemented by the new F35 combat aircraft.

Finally there was an active question and answer session and during refreshments, the Team met the audience to discuss further matters of interest. Our President, Glyn Mathias, led a well-deserved vote of thanks.

(C Harrison)

### **53<sup>rd</sup> Annual Dinner, Beach Hotel Worthing**

40 members and their guests attended this year's dinner at the Beach Hotel. The committee had hoped that the numbers this year would have been better than this as a result of moving the date forward in the year to October, i.e. away from the darker, colder evenings of November and December, but this was not to be.

This event appears to have declined in popularity over the last few years for unexplained reasons. Is it the cost, the location, or the date, which is a problem to members? The committee would welcome your suggestions for revitalising this event. It is still viable, but only just!

Please contact a committee member with any suggestions you may have to make the event more attractive to the wider membership.

### **Visit:**

#### **Tuesday 9 November 2.30 pm. Gatwick Aviation Museum, Charlwood, Surrey**

Some 20 members assembled at the Museum on a cloudy but dry afternoon. The weather was significant as the aircraft on display were in the open. We were welcomed and guided by Ted Wright, Senior Volunteer at the Museum. The owner and founder, Peter Vallance was in the USA on further aviation business.

The museum is situated near the end of the runway of Gatwick Airport and our visit was accompanied by the sight and sound of aircraft taking off. The site, purchased in 1981 had been a battery farm. It was developed into a small industrial area and the museum. The long low building of the previous farm contains the indoor display and museum workshops. Plans were displayed showing the projected major re-development of the site.

The collection is from the cold war era and consists of some 20 aircraft, including Shackletons, a Buccaneer, Sea Vixen, Lightning, Canberra, Meteor, Harrier and a Whirlwind Helicopter. Some aircraft were accessible and we went inside a Shackleton and Sea Prince. A major feature of this outside display is the ability to run the engines and operate the control surfaces of some of the aircraft. The Lightning is currently being re-furbished in this respect.

The interior collection included piston and jet engines, some cut away to reveal inner workings. For model enthusiasts there are over 500 model aircraft on view. Memorabilia from the cold war included radios, radar, test and recording equipment.

In addition to the general public, Gatwick Aviation Museum works closely with schools and youth groups who have organised events. An interesting visit.

(C Harrison)



### **The Cooch Memorial Lecture**

**The Tay Bridge Disaster by Jim Hatfield, Member, 2.30pm Thursday 25<sup>th</sup> November 2003, The Barn, Field Place, Durrington, Worthing**

A good attendance of members and guests at Field Place heard a most interesting and thorough review of the Tay bridge disaster when the bridge collapsed and a train with 75 passengers on board crashed into the river, and from which there were no survivors.

Jim, a chartered Building Surveyor and a keen and knowledgeable industrial historian, commenced his lecture by going through the process which preceded the building of the bridge, which was to provide a direct rail link from Edinburgh along the East Coast of Scotland to Dundee and beyond. The other part of the link was the Forth Bridge, which was to replace Ro-Ro train ferries.

The designer of the bridge was Sir Thomas Bouch, who also designed the Mark 1 Forth Bridge, the design of which was abandoned after the Tay bridge disaster. Design work commenced in the 1860's and the bridge was opened in June 1878.

The design process was fraught with arguments, especially on the question of wind loading of a lattice girder bridge. Numerous 'experts' expressed views, all empirical, ranging from no need to take wind loading into account to the figure used by Bouch of 20-lbs/sq ft. At the time the USA used a figure of 50-lbs/sq ft, whilst the figure in the present UK design standard equate to 100-lbs/sq ft.

The tendering, contracting, supply and building of the bridge saw many flaws in the processes, so it was hardly surprising that trouble ensued. Lack of funds, refusal by the user, North British Railway Company, to put any money into the project, lack of inspection, the wrong people inspecting, lack of maintenance, and probably corruption all came into Jim's fascinating story.

After the disaster, a major inquiry was held and it appears that almost everybody managed to avoid any blame except Sir Thomas. This broke him and he died 10 months after the publication of the report.

It seems clear that the basic cause of the disaster was wind loading with a train of a locomotive and slab sided coaches on the bridge in a 100 mph westerly gale which was blowing at the time. But Jim left the audience with the clear impression that numerous other factors contributed to the failure, not least the use of cheap materials, poor design even by the standards of the day, largely dictated by an insistence on cost saving and an appalling standard of quality control.

This disaster led to a new bridge being built; some of the landward spans were used but the main central section, all spans of which ended up in the river, was moved 60 ft. away from the original line. At the same time the track was doubled throughout.

The rebuilt bridge remains in use to this day but the remains of the original piers are still visible.

Your reporter feels, after listening carefully to an excellent lecture, that Sir Thomas Bouch was more sinned against than sinning because of the obstacles placed in his path, but then perhaps he should have just said 'No'. But how many engineers are prepared to face down the money men?  
(R Norton)

### **Christmas Lunch – 2<sup>nd</sup> December 2004**

At a recent Beach Hotel coffee morning, one of our members suggested we try to organise (at very short notice) a small group to take Christmas Lunch at Highdown Towers as a trial for future events. A few members and partners had taken lunch at the Highdown during the summer following one of the summer coffee mornings held there, and since this had been deemed a success, a Christmas Lunch seemed to be an obvious follow up.

Although there was limited time to arrange a lunch because of the late decision to go ahead and the booking conditions, 45 members and guests were able to participate in this 'trial' event. (Four had to cancel at the last moment, or it would have been 49.)

The meal was a mixture of served courses and self-service carvery, principally a Christmas menu. Members and guests assembled from mid-day onward with the meal serving commencing at 12.30 pm. to allow time for members to meet and socialise.

The event was obviously popular, more members turning up for this than for the Annual Dinner and therefore we are of the opinion a similar event should be arranged in future years as a scheduled event.

What we would like now are suggestions from members about a venue for next year. If you have been out this year for a Christmas Lunch which you think provided:

- Good service
- Good value for money,
- Well cooked food with a good choice,
- At a venue which could host 50/60 members and guests,

the committee would like to hear from you so that we can make an early decision for a venue for a similar function next year.



## **Talk**

**Steam Railways of Cuba by Dave Stallard, Member, 2.30 pm Tuesday 14<sup>th</sup> December 2004, Field Place, Worthing**

As a result of illness this talk had to be postponed at the last minute. It is hoped that we will be able to re-schedule the talking one of our future programmes.

## **Talk**

**DC Electrified Railways, Derek Webb, Member, 2.30 pm Tuesday 14<sup>th</sup> December 2004, Field Place, Worthing.**

At very short notice Derek was able to step in to provide a talk on 'DC Electrified Railways'.

Principally the talk concentrated on the Southern Region DC Electrified Railway system with which Derek was very familiar, having worked in various engineering and management positions in the Region for over 30 years.

Derek described in some detail, with the aid of diagrams, the electrical systems of the Region and its development since its inception. He described the power system basic design concepts, the prime 33kV AC power supply network and its inter-connection with the Area Board Transmission system, the AC / DC rectification stations and the DC power rail distribution systems.

In the main all of the interconnecting 33kV distribution cables are run on the surface in concrete ducts adjacent to the track, a feature which makes them easy to maintain but prone to occasional damage.

Currently, the DC network is supplied from the 33kV AC network through a multitude of Rectifier stations. Each of these rectifiers is specified to provide 750 DC volts at the substation bus-bars when the rectifiers are operating at their full load capacity. The rectifiers are 12 pulse rectifiers, thus reducing the harmonic content in the output waveform. The 750 volt DC output is higher than the 660 volts that used to be the norm through the period from the 1950's up until the 1980's, to provide the extra power for the newer trains.

The DC system has had to be designed to meet the peak current demands with a minimum acceptable 'train' voltage of 675 volts. The peak current for a modern 12 carriage train approaches 6800 amps, (previous designs required only 5000 – 5500 amps).

These days all rectifier stations are of the silicon diode type, (4 MW output in the main; 2.5 MW output if not yet up-rated), having replaced the original rotary converters as initially installed and the subsequent upgrade to mercury arc rectifiers.

The changes over the last few years have been driven by the introduction of new rolling stock, all of which now have three phase AC motor drives instead of DC series motor drives. These drive systems are very sophisticated and are controlled by complex computer systems which can provide the train operator a wide range of options for optimising his operational speeds and costs. The challenge now is going to be to maximise the benefits for the customer.

The talk concluded with a lively question and answer session during which Derek was ably assisted by one of his colleagues, Ian Wethrell, another Southern Region career engineer.



**Reply Slips: -**

Subscription Reminder:

**To: B. Buckroyd, 6 Fosters Close, East Preston, BN16 2TL**

**Tel: 01903 784926**

Please find attached Cheque / PO / Cash to the value of £12 as my subscription for membership of the RCEA 1<sup>st</sup> September 2004 – 31<sup>st</sup> August 2005.

Name .....

Address .....

.....

.....

.....

**(Separate cheque please)**

---

---

**To: Colin Harrison, 41 Cluny Street, Lewes, East Sussex BN7 1 LN  
Tel 01273 487026.**

**Please reserve .....place(s) for me (and my guest) to join the visit to  
Heathrow Terminal 5 Construction Site, 1pm Wednesday 19<sup>th</sup> January 2005.**

Full names.....(Block Capitals)

.....(Block Capitals)

Address.....

.....

.....

Phone number.....If this is your first RCEA visit, please tick.....

If you would like a seat/seats in a member's car, please indicate number required.....

If you have car seats available for sharing, please indicate the number.....

**Applications by 1<sup>st</sup> January 2005 at the latest.**

INTENTIONALLY

BLANK

**To: Colin Harrison, 41 Cluny Street, Lewes, East Sussex BN7 1 LN  
Tel 01273 487026.**

**Please reserve a place for me to join the visit to Ceres Power Ltd, Crawley, 2.30 pm. Wednesday 2<sup>nd</sup> February .**

Full names.....(Block Capitals)

Address.....

.....

.....

**Phone number..... Applications by 20<sup>th</sup> January 2005**

If this is your first RCEA visit, please tick.....

---

---

**To: R P Wort, Sylvan Glen, Longlands, Worthing, BN14 9NS**

**Tel: 01903 217747**

**Please reserve.....places for me for the Skittles and Buffet Lunch, at The Bull Inn, Henfield, 12.00 mid-day until approx 3.00pm, Wednesday 2<sup>nd</sup> March 2005**

**My guests will be:**

.....

**Please indicate 1) who would like to play: .....**

**2) who has played before : .....**

**2) who would like to be a spectator : .....**

**I enclose my cheque for £.....(£10 per person to cover cost of lunch) payable to R.C.E.A.**

**NAME .....(Block capitals) Phone**

**No.....**

**Applications by 1<sup>st</sup> February 2005**

**(Separate cheque please)**

---

---

INTENTIONALLY

BLANK

**To: B. Buckroyd, 6 Fosters Close, East Preston, BN16 2TL**  
**Tel: 01903 784926**

Please reserve.....places for me at the **Thursday 17<sup>th</sup> March 2005 – Annual Lunch, (1) in the Northbrook College Arundel Room Training Restaurant.**

**My guests will be**

.....

I/we would like to sit with..... who have agreed to make a reciprocal request

**I enclose my cheque for £.....(£8 per person) payable to R.C.E.A.**

**NAME .....(Block capitals) Phone**

**No.....**

**Applications by 1<sup>st</sup> March 2005**

**(Separate cheque please)**

---

---

**To: B. Buckroyd, 6 Fosters Close, East Preston, BN16 2TL**  
**Tel: 01903 784926**

Please reserve. ....places for me at the **Thursday 7<sup>th</sup> April 2005 – Annual Lunch, (2) in the Northbrook College Arundel Room Training Restaurant.**

**My guests will be**

.....

I/we would like to sit with..... who have agreed to make a reciprocal request

**I enclose my cheque for £.....(£8 per person) payable to R.C.E.A.**

**NAME .....(Block capitals) Phone**

**No.....**

**Applications by 1<sup>st</sup> March 2005**

**(Separate cheque please)**

---

---

INTENTIONALLY

BLANK

VISITOR CENTRE MAP

