RCEA
(SUSSEX)

An Association for Retired Professional Engineers

NEWSLETTER December 2006

Happy Christmas and Best Wishes for the New Year

PROGRAMME OF EVENTS January – August 2007

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

9th Jan	Tuesday	**Talk:** African Experiences by Colin Hammond
18th Jan	Thursday	Coffee - at Spotted Cow, Angmering
23rd Jan	**Tuesday**	**Talk: Climate Change, Think Globally, Act Locally by Mick Company, Woking Borough Council**
25th Jan.	Thursday	Coffee - with Partners at Beach Hotel, Worthing
13th Feb	Tuesday	**Talk** Bitter Sweet Cuba, by Dave Stallard
15th Feb	Thursday	Coffee - at Spotted Cow, Angmering

22nd Feb	Thursday	Coffee - with Partners at Beach Hotel, Worthing
28th Feb	Wednesday	**Visit:** 2.30 pm Pyroban Ltd. Shoreham-by-Sea
13th Mar	Tuesday	**Talk:** Safety Considerations in Weaponry Manufacture by Jim Buckland
15th Mar	Thursday	Coffee - at Spotted Cow, Angmering
22nd Mar	**TBC**	**Spring Lunch.** Northbrook College, Worthing
29th Mar	Thursday	Coffee - with Partners at Beach Hotel, Worthing
18th Apr	Wednesday	**Outing:** Pub Lunch and Skittles 12.00 – 3 pm. The Bull Inn, Henfield, East Sussex
19th Apr	Thursday	Coffee - at Spotted Cow, Angmering
26th Apr.	Thursday	Coffee - with Partners at Beach Hotel, Worthing
9th May	**Wednesday**	**Visit Three Bridges Railway Signalling Centre**
16th May	Wednesday	**Outing:** 2.00 pm. Herstmonceux Observatory, East Sussex
17th May	Thursday	Coffee - at Spotted Cow, Angmering
31st May.	Thursday	Coffee - with Partners at Beach Hotel, Worthing
6th Jun	Wednesday	**Outing:** 2.30 pm Wisley Gardens, Wisley, Surrey
21st Jun	Thursday	Coffee - at Spotted Cow, Angmering
28th Jun.	**Thursday**	**Coffee - with Partners at Highdown Vineyard, Worthing**
7th Jul	Saturday	**Outing:** 2.30 pm Rother Valley Croquet Club, Duncton, West Sussex
19th Jul	Thursday	Coffee - at Spotted Cow, Angmering

26th Jul.	**Thursday**	**Coffee - with Partners at Highdown Vineyard, Worthing**
16th Aug	Thursday	Coffee - at Spotted Cow, Angmering
30th Aug.	Thursday	Coffee - with Partners at Beach Hotel, Worthing

All Talks and Meetings will 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.
Coffee mornings commence at 10.30 a.m., except at The Beach, which is from 10.45 a.m

Major changes to the programme since September are highlighted bold

Membership

Resignations

D Badby, C Gray, P Mills, R Shipman and D Tye

New Member

2006 BROWN T. S. C Eng MIMechE MAPM

11 Quinta Carmen Seaview Road Worthing BN11 3QX

ruthtimbo@talkgas.net 01903 209542

58-94 Project Management for Gas/Oil and petrochemical users and contractors 95-04 Management initiatives - Stannah stairlifts

Interests: Music (organist), railway history, swimming.

Life Membership

Any member who joined the RCEA in 1985 or before, and has held continuous membership since then, will now qualify as a life member.

Subscriptions for 2006 / 2007

These were due on 1st October. If you have not already done so, can you please send your cheque for £12 to the Hon. Treasurer,

Website for the RCEA

For latest information log into **www.rceasussex.org.uk**

RCEA Annual General Meetings:

In future it is intended that the annual general meeting will be followed by a talk. The last two meetings have been much shorter than expected resulting in an early closure of proceedings for the afternoon.

Following the 2007/2008 AGM, Ken Lane (member) will give a talk on 'The History of the Electricity Supply Industry'.

RCEA Archives:

Brian Buckroyd has continued his search of the Archives and attached to the end of this Newsletter are three documents, which show how little the Association has changed since its formation over 50 years ago. Our programmes are still remarkably similar to those illustrated.

IEE / IET :

In the RCEA handbook, members who were chartered members of the Institution of Electrical Engineers last year are still registered as FIEE, MIEE, etc. Providing this designation was awarded before the 1st April 2006, the member can continue to use this abbreviation. If however, the designation was granted after the 1st April 2006, or the member wishes to use the new designation of FIET, MIET, etc. then it will be necessary to inform the Secretary so that this change can be made to the entry for next year's handbook.

Similarly, any other change to the handbook data can also be made by informing the Secretary before June 2007.

Brief Detail – Talks, Outings and other activities January – April 2007

Visit:

J T Howarth Ltd, Worthing. – Musical Instrument Makers. (Originally scheduled for October / November 2006). Date still to be confirmed.

The visit to the workshop of T.W. Howarth, generally recognised as one of the world's finest oboe makers, has been delayed until January or February 2007. Members who have applied to go on the visit will be informed once a new date has been agreed.

The response for this visit was greater than the number that can be accommodated with one visit. A standby list has therefore been prepared and a second visit will be arranged if possible.

Talk:

Tuesday 9th January; African Experiences by Colin Hammond

The speaker will outline the 1970's Water and Sewerage plans for Kampala and Jinja in Uganda, and describe his work on the water supply and for both towns. The talk will include descriptions and slides of Kampalaand the wild life in the Ugandan National Parks.

Talk:

Tuesday 23rd January: Mick Company, Climate Control Project Coordinator, Woking Borough Council Energy Saving Scheme.

Title of talk - Climate Change, Think Globally, Act Locally

Mick Company will give a presentation at Field Place describing their work establishing and running district energy saving schemes. This talk will be as an introduction for a proposed visit to the scheme in the 2007/2008 session.

Talk:

Tuesday 13th February. Bitter Sweet Cuba, by Dave Stallard

The talk will describe the political and economic situation in Cuba, with particular regard to the rail system. Trips on the State rail system and the sugar cane lines, using steam, diesel and electric trains, will be included.

Visit:

Wednesday 28th February 2.30 pm Pyroban Ltd. Shoreham-by-Sea

We have arranged a visit to the works of Pyroban Limited, a leading company in the field of Explosion Protection Systems, which ensure the safe operation of diesel and electric industrial vehicles used in areas where potentially explosive atmospheres can occur.

The works is located at the far eastern end of Dolphin Road Shoreham by Sea. Dolphin Road runs alongside the north side of the railway line from the east side of Eastern Avenue and is the first turning on the right after crossing the level crossing behind Adur Council offices on the A259. A limited number of location maps will be available on request.

Car parking is very limited and car sharing wherever possible is requested.

Their full address is: -
Pyroban Limited
Endeavour Works
Dolphin Road
Shoreham by Sea
West Sussex BN43 6OG

The Application Form is at the end of this Newsletter.

Talk:

Tuesday 13th March, Safety Considerations in Weaponry Manufacture by Jim Buckland (Member).

A talk on the safety considerations, and some failures, associated with military weaponry, based on long experience in the relevant supply industry.

Spring Lunch.

Thursday 22nd March (Date still to be confirmed), Northbrook College, Worthing

12.00 for 12.30pm in the Arundel Room Training Restaurant.

The cost this year will probably be £ **8.00.** Numbers will be limited to 40.

At this stage we cannot guarantee the date and time because the College has yet to take firm bookings.

However, based on this date 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 40 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 we have to make any change to price, or date, we will contact you, probably in January to give you the choice to cancel your booking.

Please return reply slip at the end of the Newsletter.

Outing:
Wednesday 18th April: Pub Buffet Lunch and Skittles,
The Bull Inn, Henfield 12.00 mid-day until approx 3.00pm
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 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.

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 buffet will consist of:
Nibbles (Crisp, Peanuts, etc), Marinated olives, Bread sticks, Garlic bread, Garlic bread with cheese, Dough sticks with garlic and pesto mayonnaise, Spicy chicken wings, followed by a selection of Pizzas and Salad

The Bull Inn is located about 1 mile north of Henfield at Mockbridge on the A281 Shoreham to Horsham road.

The cost of hiring the room, the use of the skittles and the buffet will be £10 per person.

The reply slip for this function is attached at the end of this newsletter.

REPORTS

Outing:

Autumn Buffet Lunch and visit to Highdown Winery, 5th October 2006.

Thirty-four members and their guests attended the visit to the Winery at Highdown. The visit commenced with a quick visit to the vines to see some of the current crop and the methods used in the cultivation of the vines. All of the white grapes had by this time been harvested, but the red grape vines were still heavily weighted with grapes, which were due to be harvested within the next few days.

We then assembled in the 'lecture / dining room' for an interesting talk by Ross, the co-owner of the Winery, on the history of wine making in the UK, and on the Highdown Winery in particular.

This naturally led on to a demonstration of the way to taste wines with tips on what to look for and how to classify them. We were then invited to test a number of different white, rose, red, and sparkling wines produced at some of the different wineries in the UK; each tasting leading to a discussion of the merits or otherwise of that particular wine. These tastings served to demonstrate how right Ross is when he says that English Wines have really improved over the last few years, and that now they can compete on taste and quality with the best.

A superb buffet, followed by teas and coffee was then provided for the group to bring the visit to a close.

After the Buffet Lunch, the group had the opportunity to visit the Winery Shop, if they wished, to view or purchase any of the wide range of English Wines on offer (plus a number of beers and other speciality products).

Talk:

Tuesday 10th October. Recollections and conclusions of Bluebird K7 and the 1967 Water Speed Record Attempt. Ken Wheeler RCEA.

This talk was given as a tribute to Ken Norris, the Designer of Bluebird K7

It is almost 40 years to the day when members of the female staff were sent around the houses in the vicinity of the Norris Brothers offices in Burrell Road, Haywards Heath to post letters saying that Mr. Donald Campbell was having a new engine fitted to his hydroplane BLUEBIRD K7 in the large wooden shed adjacent to our offices, that on certain evenings during the week the engine would need to be fired up to half power in

order to check that all was well before the vessel left Haywards Heath to be shipped to Coniston Water for an attempt to raise the water speed record above its present level. BLUEBIRD which was some 13 years old in 1966 had originally been fitted with a Metro-Vick Beryl turbo-jet delivering around 3500 pounds of thrust and was now being modified to accept a Bristol Orpheus jet giving 5000 pounds of thrust at full power.

Additionally, she was to be fitted with a larger tail fin made from the rudder of a Folland Gnat. The Gnat with a time expired airframe provided an Orpheus engine and was cannibalised in the yard of the Norris buildings. BLUEBIRD was also to incorporate a new feature; a braking system. At a meeting with Donald Campbell in October Ken Norris, John Stollery from Imperial College, myself and one other, whose name I cannot remember, discussed ways of braking the speed of the boat once it has passed through the measured kilometre on its first run and as it went around Coniston Water's Peel Island sited at the southern end of the course before refuelling and traversing the measured kilometre in the opposite (northerly direction) for its second run; the average of the two speeds through the measured kilometre in each direction recorded by the official timekeepers would determine the speed for the record. The solution took the form of a water brake mounted on the transom. After looking at several complicated ideas one of us, I can't remember who, said that as the density of water was some 814 times that of air a cylindrical rod lowered under power into the water could supply an enormous braking force and it was determined by the proverbial "back of the envelope" calculations that a rod 2 inches diameter penetrating 6 inches below the free surface of the water would suffice subject to the detail design of an integral hydraulic jack of adequate strength.

The overall BLUEBIRD K7 (1967) project was undertaken on the assumption that there was no money; Campbell certainly had none and we would procure the materials and equipment if possible without charge. Man-hours with the exception of Ken Norris and myself were charged to Mr. Campbell's account on the assumption that some day in the future it would be paid. Personnel from the Company were co-opted onto the project from other paid work as and when the need arose. The engineers were Ken Norris as Principal, Tony James as Project Manager, Ted Ravenhill and myself. Workshop staff included Leo Villa who was Campbell's mechanic and fitters Bill Izatt, Peter Pateman and Maurice Parfit. Outside support came from Bristol Engines, Imperial College and others. To keep costs down I, whose normal function was General Manager of Norris Brothers R & D, was charged with maintaining a critical path network schedule updated on a daily basis and to design the water brake. For outside services and parts we submitted orders with a note inviting the suppliers to provide without charge for the publicity they may receive; a device which was quite successful. Items provided free usually meant someone collecting them and as I in the eyes of some had the least to do, got the job.

BLUEBIRD and other hydroplanes can be considered to be in one of three states. As a displacement vessel, as a hydro plane or airborne (out of the water.) An important factor is that the independent vectors for the air and water freestreams are not always parallel.
For BLUEBIRD in common with other hydroplanes with forward sponsons relied on the aerodynamic pitch up being countered by the weight moment and engine thrust forcing the nose down. Conventionally, the pitching moment, weight and thrust moments are measured about the transom eliminating the rear shoe reaction from the calculations. The vessel in reality reacts about its centre of mass in all planes of pitch, roll, yaw and heave. For BLUEBIRD's configuration the centre of pressure about which the aerodynamic forces react is forward of the centre of mass such that for a free body (i.e. out of the water) the pitching moment about the centre of mass will cause the vessel will rotate counter-clockwise when viewed with the nose to the right hand side of the centre of mass.
It is important to note that pitching moment is expressed as a function of the angle of attack of the vessel relative to the air freestream and not the water freestream. BLUEBIRD K7 was a conventional 3 pointer in the plan position on its 3 planing shoes. Vessels of this format invariably "flipped over" about the transom if the pitching moment exceeded the restoring weight moment. A free body diagram established from the scarce data available showed that the reaction on the forward shoes is affected by the all up weight (AUW) which is the fully fuelled vessel and pilot, the shoe drag and the thrust moment; the fuel tank was located about the centre of mass to allow fuel depletion to have little effect of the longitudinal trim.
Typically, BLUEBIRD'S forward planing shoes were immersed to a depth dependent on the square of the velocity through the water this being just over 0.1 of an inch at 294 mph. The spring rate of the shoe was extremely high. This stiffness meant that for considerable changes in the value of the front shoe reactions the shoe immersion depth changed little and the vessel followed the contour of the free surface of the water.
BLUEBIRD K7 gained 7 successive speed records from 202.32 mph on Ullswater in July 1955 to 276.33 mph on Lake Dubleyung, USA in December 1964. On January 4th 1967 on Coniston Water the Orpheus powered BLUEBIRD K7 (1976) in its final build completed its first run travelling south through the measured kilometre without incident at an average speed of 329 mph using the water brake to slow down before turning to refuel and return through the course. For some inexplicable reason he started his return run without waiting to refuel and without waiting for the water, which was grossly disturbed by the enormous kinetic energy dissipated by the water brake to die down in spite of the protestations of the experienced Leo Villa who could sense danger; as this was an unplanned event Ken Norris was on his way back to Sussex at this time. What happened during the last fatal run was filmed by the media from the shore. BLUEBIRD left the

water at speed at a low trajectory rising to some 28 feet above the water rotating backwards and rolling slightly to port before coming down almost vertically into the lake, cart-wheeling forward and sinking.

I have been asked over many years to give a talk on K7, which inevitably would mean discussing the cause of the crash. I didn't know the reason and I had no intention of saying anything in deference to and during the lifetime of Ken Norris who last discussed the matter with me some 12 years ago. I now feel free to give a talk and the conclusions regarding the crash are mine alone produced from an intensive period of research and calculation using data and comment provided by others including Ken Norris and Leo Villa.

Considerations arising for a post incident investigation suggested that a computer model was inappropriate due to the shortage of hard data of sufficient calibre and the expense of such an exercise and I decided that a simple first order study using the methods and knowledge available in 1970 be used. The first step was to determine the value at which the pitching moment about the transom as a function of the angle of attack to the air freestream at 294 mph matched the restoring weight moment which was the AUW less ½ tank of fuel; the engine having cut out provided no thrust moment. The pitching moment was further enhanced by engine failure increasing the frontal drag from the intakes producing an additional up moment. The values for the pitching moment were derived from the wind tunnel results at 250 mph, which was the highest speed ever tested. The value of angle of attack to the air freestream when pitching and weight moments are equal is 4.5 degrees. Graphical data shows that BLUEBIRD at 1.05 seconds after the engine cut-out left the water at an angle of 3 degrees and where the starboard sponson was already about 12 inches above the free surface of the water; the other two shoes were still in the water. I believe the sponson lifted due to the vertical fin applying a rolling moment aided by the port shoe flow straightener as the vessel rolled to port about its centre of mass under conditions where the restoring moment was low. Because of the 3-point shoe configuration the vessel subtends an angle of attack to the free airstream of 1.8 degrees. At the same time the swell in the water due to the water brake disturbance made worst by the returning waves from the shore of this relatively narrow waterway produced an angle of 3 degrees in the water freestream which increased the angle of attack to the airstream to 4.8 degrees thus reducing the restoring moment margin to zero. At this point the vessel left the water as an un-powered projectile with its centre of mass travelling forward at an angle of 3 degrees to the horizon with the aerodynamic moment about the centre of mass causing the vessel to rotate backwards followed by the subsequent crash.

Ken Wheeler October 2006

EXTRACT FROM A LETTER SENT BY KEN TO AN INTERESTED PARTY FOLLOWING THE TALK

I attach a synopsis herewith which is not for publication. As you will see I used the techniques of the time whereas today a computer model would be the way. Typically, treating the vessel in the pitching mode as a free body diagram where the force vectors are steady state values and where taking moments about the transom is a mathematical construct it appears that the natural frequencies, which are a function of forward speed, were considered to be high enough (exceeding 5 hertz in pitch and roll at speed) for this first order treatment to be adequate and in practice progressive increases of speed on the lake were used to check things out. Also, the wind tunnel model was only tested for pitching moment up to 250 mph, which was the original design limit for the vessel. I used perturbation theory in an attempt to linearise the data. Unfortunately this does not consider dis-continuities such as when the vessel left the water and I am still hard put to explain the events thereafter. Using the amorphous equation where the level of expertise equals the perceived all possible failure cases I think the old boat does quite well considering that the 1967 attempt was an exercise in extrapolation something they now warn some students about in LARGE LETTERS. I have had fun doing the talk and the satisfaction of knowing how well it was received. Incidents in the roll mode seem to be the undoing of several speed record attempts. Both the Bluebird K7 and the Bluebird CN7 car had troubles with roll together with several American attempts. Quicksilver is a 4 pointer intended to remove the pitch up angle if a sponson leaves the water ----------

Ken Wheeler November 2006

NOTE

A major fund raising exercise and project is currently underway for a new attempt on the water speed record. .For information on the design of the craft, the team and much more, log on to:-

http://*www quicksilver*-wsr.com/

The Cooch Memorial Lecture

Tuesday 14th November: 19th Century Sussex, continuity and change by Chris Hare,

Following a few words in commemoration of our Founder, Herbert Cooch, the President, Richard Norton introduced Chris Hare, a well-known local Historian and former County Councillor.

A picture of Sussex in the early 19th century, pre and early Victorian, was presented. This showed a picture of a sparsely populated, rural county that, in 1800, had a population of approx. 200,000. Change was slow, as it had been for centuries. Superstition and belief in witchcraft were rife. This period contained much poverty, with a working class life expectancy of less than 50 years. Generally people travelled little from their home village, moving 20 to30 miles at most, throughout their lifetime, mainly for reasons of employment or marriage. 'Foreigners' were regarded as those who came from outside the local area and certainly from beyond the County. The few roads were in poor state, depending on the season, vehicles being drawn by horses or oxen. Daniel Defoe, who travelled to Lewes, wrote of the bad roads in Sussex where transport was slow, and dangerous due to highwaymen. Where practical, use was made of the rivers as a means of transport.

Employment came from agriculture and fishing, and a brisk trade in smuggling. Piddinghoe was a well-known smuggling village. Sussex is geologically rich in chalk, the basis of the lime industry. There were limekilns in Washington and Amberley. Iron making had taken place since the 16th century, mainly in the east of the County where there were deposits of iron ore and trees for charcoal. Limestone was used as the flux.

During the first half of the 19th century there was high unemployment and much poverty throughout Sussex, rural life was far from idyllic. Reasons such as the poor roads are noted above. Additionally, though the Industrial Revolution had commenced in the previous century, the benefits did not reach Southern Counties until long after. In the early stages, competition from Northern England added to the hardship in Sussex. During the 1830's, there was mass emigration, mainly to the USA and Canada. Farms were sold cheaply. Mobs burnt threshing machines and hayricks, this developing into the Swing Riots, with much violence. The authorities reacted by hanging, and transportation to Australia of offenders.

The benefits of the Industrial Revolution reached Sussex in mid 19th century in the form of the railways. These provided rapid transport to and from London, created rail towns such as Haywards Heath and Burgess Hill and caused expansion of the coastal towns. Goods and

food were supplied to the capital, permitting farms to flourish and create businesses such as chickens and eggs. The South Downs breed of sheep was introduced. People from London increasingly moved to Sussex and commuted, leading to a demand for housing, hence bricks and brickworks. County landowners made much profit and were powerful in their influence on the rail network, such as the diversion away from Cuckfield, and the distance of the rail station of Arundel from the town.

The close of the 19th century saw Sussex far more prosperous than at the opening of the period, leading to the developments in the following century including a modern population of approx. 1.5 million.

This most interesting talk by Chris Hare was followed by a well-deserved vote of thanks proposed by Brian Buckroyd.

C Harrison

Talk: **Tuesday 12 December, Maintaining the Railway Signalling Infrastructure: by Roger Penny.**

A good audience, including a number of guests, gathered to hear this talk. Following graduation, Roger joined British Rail in 1963 as a Signals Engineer, becoming Divisional Signals Engineer for the South East Region in 1974, responsible for the maintenance engineering in that area. In 1988 he became Signals and Telecommunications Engineer for the South Western Division, and following privatisation in the early 1990s, Technical Director of AMEC Rail. In 1998, upon retirement, Roger took up his present position as Consultant with Atkins Rail, with additional interests in the maintenance of part of London Underground, Chief Engineer for the Isle of Wight Railway and work with the IET and Engineering Council.

Maintenance in the rail context was described as effort to keep the network operating safely, reliably and economically, and the restoration of operations following breakdown. Regarding safety, this is a high priority, the travelling public expecting a higher level of safety compared to the national road network.

The exposed environment associated with railway signalling and its maintenance can be severe. Weather is a significant factor, with May usually being a month of high temperature variation, affecting electronics components. Signalling equipment connected to the rail track, is subject to vibration and periodic drainage problems.

To keep the rail network operating as described above, emphasis is placed on preventative maintenance, with reliance on the experience of successful actions such as lubrication of points, cleaning of signalling surfaces to ensure visibility, measurement of gaps at points to prevent short circuits, voltage measurement of track and insulation, and the testing of circuitry by remote control. The frequency of maintenance is influenced by experience and formally set out. Maintenance records are kept either at equipment sites or in nearby records office files. Two laboratories are available in the Region for failure investigation. Rapid Response Teams are available in urgent situations.

The talk discussed the staff responsible for the maintenance of the rail system, the range of skills required, their training, assessing and licensing. Following a series of major organisation changes in the rail industry, the speaker was of the opinion that the staff again had a sense of real responsibility and an assured attitude to safety.

The afternoon concluded with a lively question and discussion session. Subjects included reversible signalling, automatic train protection and train warning systems of signalling, factors involved to increase track capacity, various types of level crossings, including the effect of certain crossings on horses!

Derek Webb proposed the vote of thanks, warmly approved by members. The RCEA looks forward to the tour of the Railway Signalling Centre at Three Bridges, arranged by Roger Penny, taking place on Wed. 9 May 2007.

Christmas Lunch:

Thursday 14th December, the Beach Hotel, Worthing.

Fifty-four members and their guests attended the lunch at the Beach Hotel. The service was very efficient and we were served a most enjoyable meal. The lunch was informal with only a few introductory and closing comments from the RCEA President, Richard Norton.

The number attending this function exceeded that of any recent years' lunches or dinners and it was generally agreed that on this basis the committee should organise similar functions for future years in lieu of the Annual Dinner.

ARCHIVE MATERIAL FOLLOWS (3 pages)

OFFICERS, 1959-60

President:
H. BOLTON, M.I.Mech.E.

Past Presidents:
W. C. S. PHILLIPS, B.Sc., M.I.E.E., F.Inst.P. (1951-52)
E. I. BUCKTON, B.Sc., Wh.Ex., M.I.C.E., M.I.Mech.E., M.Cons.E. (1952-53)
J. BIBBY, D.Eng., M.Sc., M.I.Mech.E. (1953-54)
H. M. DOWSETT, M.I.E.E., F.Inst.P. (1954-55)
H. J. NOWLAN, I.S.O., M.I.C.E., M.I.Struct.E. (1955-56)
D. WATSON, M.Sc., Ph.D., A.C.G.I., D.I.C., Wh.Ex., M.I.Mech.E. (1956-57)
A. G. KEMSLEY, M.I.E.E. (1957-58)
W. FYFFE, M.I.C.E. (1958-59)

Vice-President:
H. COOCH, A.M.I.E.E.

Hon. Secretary:
L. L. RUDERMAN, B.Sc., A.C.G.I., M.I.E.E.,
Briars, Hayling Rise, High Salvington, Worthing.
(Tel.: Swandean 1936)

Hon. Treasurer:
N. FREER KELSEY, B.Sc., A.M.I.C.E.
33 Cissbury Gardens, Findon Valley, Worthing
Tel.: Findon 3356.

Hon. Auditor:
F. G. KEENE, A.M.I.Struct.E.

PROGRAMME, 1959-60

1959
Oct 2.—Annual General Meeting. President's Address, "Engineering Reminiscences."
Oct 21.—Visit to Esso Refinery at Fawley.
Nov. 17.—Annual Supper at Richmond Room, Worthing Worthing (Ladies invited).
Nov. 20.—Meeting. Guest Speaker, Mr. F. Cave, Editor, Worthing Herald. Talk on "Newspaper Production."
Dec. 16.—Visit to Pirelli-General Cable Works, Eastleigh.
1960
Jan. 15.—Meeting. Talk on "Education and Training for Industry," by Whyrill E. Park, B.Sc., A.R.C.Sc., Wh.Sch., M.I.Mech.E.
Feb. 17.—Visit to Highfield and Oaklands Dairies, Worthing.
Mar. 19.—Meeting. Talk on "Some Problems of a Municipal and Water Engineer."
Apl. 20.—Visit to R. Fry and Co. Ltd., Mineral Water Manufacturers, Portslade.
June Summer Outing (to be arranged). Ladies invited.

When possible, Meetings are held in the afternoon of the third Friday of the month and Visits on the third Wednesday. The Association accepts no responsibility for any injury, loss or inconvenience caused to members in consequence of any visit arranged on their behalf.

Morning Coffee

Members meet at Fullers, South Street, Worthing, on Mondays at 11.0 a.m. during the winter.

1969/70

President:
J. M. JOCKEL, C.G.I.A.(Hon.), F.I.Mech.E., F.I.E.E., F.Inst. Fuel

Founder:
H. COOCH, M.I.E.E.

Vice-President:
PHILIP HONEY, F.I.E.E.

Hon. Secretary:
S. PHILBRICK, M.I.Mech.E.
"Oakgates", 12a Offington Lane, Worthing
(Tel. Worthing 65586)

Hon. Assistant Secretary:
S. W. MESSENT, B.Sc., A.C.G.I., M.I.E.E.,
"Lippitts", East Drive, Ham Manor, Angmering
(Tel.: Rustington 3486)

Hon. Treasurer:
J. A. G. BOWEN,
M.I.Mech.E., A.M.Inst.T., M.I.Inst.E.
42 Amberley Drive, Goring-by-Sea (Tel. Worthing 45032)

Hon. Auditor:
J. G. MANNING, B.Sc.(Eng.), F.I.E.E.
(former A.F.R.Ae.S.)

Committee:
W. ALLAN, M.I.Mech.E.
N. GREGORY, Major R.E., B.Eng., F.I.Struct.E., A.M.N.Z.I.E.
J. L. JEFFREE, F.I.C.E.
H. PHILP, B.Sc., M.I.Mech.E., M.I.E.E.
B. W. ROWE, M.I.C.E.
E. STRACEY CHEEL, M.C., B.Sc.(Eng.), F.I.E.E., M.I.Mech.E.

PROGRAMME FOR 1969-70

1969
Sept. 10th.—Half Day Outing to Uppark (Ladies Day)
Oct. 3rd.—Annual General Meeting. President's Address.
Oct. 15th.—Visit to Foxboro Yoxall & Co. Ltd., Redhill.
Nov. 14th.—Eighteenth Annual Dinner.
Nov. 13th.—Guest Speaker, Mr. W. Ward, Generalmd Engineer of London Transport will talk about "The Reconstruction of Lotts Road Generating Station."
Dec. 10th & 17th.—Visit to Creed & Co. Ltd., Brighton.
1970
Jan. 16th.—Mr. Philip Honey. Talk on Electric Traction."
Feb. 18th.—Visit to Brighton College of Technology.
Mar. 20th.—Mr. W. P. Muckle. Talk on Engineering Insurance."
Apr. 15th.—Visit to C.E.G.B. Fawley Power Station.
May 13th.—Visit to G.L.C. Crossness S.T. Works.
June 2nd.—Whole Day Summer Outing (Ladies' Day) to Chartwell.

When possible, Meetings are held in the afternoon of the third Friday of the month and Visits on the third Wednesday. The Association accepts no responsibility for any injury, loss or inconvenience caused to members in consequence of any visit arranged on their behalf.

MORNING COFFEE.—Members meet at F. W. Mitchell's Arcade Cafe, Montague Street, Worthing, on Mondays, at 11.0 a.m. during the winter commencing on October 6th, 1969.

Members meet at Clark's Cornerhouse, 161 North Street, Brighton at 11 a.m. on the first Wednesday in each month.

RETIRED CHARTERED ENGINEERS ASSOCIATION, 1979-80

President:
H. H. LUSTY, M.I.E.E.

Vice-President:
H. L. HAMMOND, M.I.C.E., M.I.Mech.E.

Immediate Past President:
C. W. NEWBERRY, B.Sc.(Eng.), M.I.Mech.E.

Hon. Secretary:
D. W. BEEKEN, F.I.Mar.E.
26 Guardian Court, Rogate Road, Worthing. BN13 2EE.
(W. 67482)

Hon. Assistant Secretary:
D. R. FIFE, M.I.E.E.

Hon. Treasurer:
H. L. FIELDER, B.Sc., Former A.M.Gas.E.
30 Downside Avenue, Findon Valley,
Worthing. BN14 0EX.
(Findon 3484)

Hon. Auditor:
L. G. HILL, B.Sc., D.F.H., A.M.I.E.E.

Committee:
C. S. GIBSON, M.I.Mech.E.
R. J. GURNEY, M.B.E., T.D., M.I.Mun.E.
W. E. HARWOOD, B.Sc.(Eng.) F.I.E.E.
E. L. HIGGINS, F.R.T.P.I., M.I.Mun.E.
E. L. JONES, M.I.Mech.E.
T. F. W. SMITH, B.Sc.(Eng.) M.I.Mech.E.

PROGRAMME FOR 1979-80

1979
Fri., 21st Sept. — A.G.M., 1979
Thurs., 4th Oct. — Annual Dinner—Chatsworth Hotel, 6.30 for 7 p.m.
Tues., 23rd Oct. — Works Visit "Seaboard" Control Centre, Dorking.
Fri., 16th Nov. —Cooch Memorial Lecture "Microelectronics and its Application". W. R. Betts, Design Manager, G.E.C. Semiconductors Ltd.
Tues., 4th Dec. — Visit to American Express Headquarters, Brighton.
Tues., 11th Dec. — Visit to Parker Pen Co., Newhaven (Party limited to 12).

1980
Fri., 18th Jan. — Talk "Research at London Transport". John Richards.
Tues., 12th Feb. — Lec Refrigeration, Bognor. Party limited to 10. Second Party could be arranged.
Fri., 21st Mar. — Talk. "Some Engineering aspects of Paper Making". E. L. Jones.
Tue., 22nd April — Visit to APV Crawley.
Fri., 16th May — Talk. "Lloyds of London". Subject to confirmation.
Tues., 3rd June — Outing — Plumpton Agricultural College.
Sept. — Outing to be arranged
Fri., 19th or 26th A.G.M., 1980

1979/80

MEETINGS AND VISITS

When possible, Meetings are held in the afternoon of the third Friday of the month and Visits on the third Tuesday. The Association accepts no responsibility for any injury, loss or inconvenience caused to members in consequence of any visit arranged on their behalf.

MORNING COFFEE

Members meet at F. W. Mitchell's Arcade Cafe, Montague Street, Worthing, on Mondays at 10.45 a.m. for most of the year.

Members meet at "Fillings", Church Road, Opp. Town Hall, Hove, at 10.30 a.m., on the first Wednesday of each month.

Members from west of Worthing meet at The Capricorn Restaurant, Angmering-on-Sea, at 10.45 a.m. on the third Thursday in each month.

Members and their ladies meet informally on the last Thursday of each month at the Beach Hotel at 11.0 a.m. for coffee

RETIRED CHARTERED ENGINEERS' ASSOCIATION, 1989/90

Founded in 1951

President:
H. B. CALVERLEY, B.Sc.(Eng.), F.I.Mech.E., F.I.E.E.

Vice-Presidents:
J. I. FOWLER, M.I.Mech.E., M.Weld.I., M.A.S.Q.C.

Immediate Past President:
F. MARKWELL, M.I.E.E.

Hon. Secretary:
E. W. AYLING, B.Sc.(Eng.), M.I.Mech.E., M.I.E.E.
10 Oldfield Crescent, Southwick, Brighton, BN42 4FZ
(Brighton 593477)

Hon. Assistant Secretary:
H. BROWN, M.I.Gas.E., F.Inst.Energy, F.I.PlantE.

Hon. Treasurer:
H. A. CAREY, M.I.E.E.

Hon. Assistant Treasurer:
D. H. LEAR, B.Sc., M.I.E.E.

Hon Auditor:
S.G. HUBERT, M.Sc., A.R.C.S., D.I.C.

Committee:
A. T. ADAM, M.I.E.E.
G. S. HALL, M.I.Mech.E., M.I.Mar.E.
E. F. LAIRD, M.I.Mech.E.
K. H. LAMBERT, B.Sc.(Edin), F.I.C.S.
E. W. ROUBAUD, M.B.E., M.I.E.E.

Hon. Membership Secretary:
C. S. GIBSON, M.I.Mech.E.
8 Hapedene Court, Wordsworth Road, Worthing
(Worthing 201008)

RULES (PART)

1. The name shall be "RETIRED CHARTERED ENGINEERS ASSOCIATION."

2. The objects of the Association shall be:
   (a) To bring together retired Chartered Engineers, and, by lectures and visits to local engineering works, maintain links with development in engineering technology.
   (b) To promote good fellowship for the members and their ladies by social gatherings and outings.

3. The Association is based in Worthing. Membership is open to retired engineers living in the vicinity of Worthing, the surrounding area, and who at the time of retirement were corporate members of a chartered engineering institution. Any who are of normal retiring age but who are still employed on a part-time basis are accepted as retired.

Members of the Association who move away from the area may retain their membership.

4. There shall be an entrance fee of £1.00. Subscriptions for each year become due on October 1st. The subscription for each year shall be determined at the Committee Meeting of the Association held in the previous May.

Members whose membership has been continuous for 21 years shall be appointed to honorary life membership and shall not be required to pay further annual subscriptions.

5. The Officers shall consist of President, Vice-President, Hon. Secretary, Hon. Assistant Secretary, Hon. Treasurer, and Hon. Assistant Treasurer. The Officers shall be elected annually at the Annual General Meeting, and may offer themselves for re-election. Nominations for President shall reach the Hon. Secretary by the 31st August each year.

PROGRAMME OF EVENTS 1989/90

1989
Wed. 20th Sept. — **Annual General Meeting.**
Thur. 12th Oct. — **Annual Dinner.** Chatsworth Hotel, Worthing.
Wed. 18th Oct. — **Talk:** "Computers in Commerce, Trade and Industry" by E. C. Wright (member).
Tues. 14th Nov. — **Visit:** British Rail Maintenance Ltd., Eastleigh.
Fri. 24th Nov. — **Gooch Memorial Lecture:** "North Sea Developments," by J. B. Cook, O.B.E., M.A.(Oxon), F.Eng., F.I.Mech.E. At Lecture Theatre, Worthing Central Library 2.30 p.m.
Wed. 13th Dec. — **Talk:** "Experiences in Consulting Engineering" by G. Hoey (member).
1990
Wed. 10th Jan. — **Discussion Meeting.**
Tues. 6th Feb. — **Visit:** "The British Engineerium, Hove.
Wed. 14th Feb. — **Talk:** "Telecommunications" by R. Bayfield (member).
Wed. 14th Mar. — **Short Talks:** "Your Plant—My Environment" by P. E. Dean (member). "An Up and Down Business" by J. O. Trundle (member).
Tues. 17th April — **Visit:** Brighton Polytechnic.
Wed. 23rd May — **Outing with Ladies:** Polesden Lacey, Dorking.
Wed. 18th July — **Outing with Ladies:** Mechanical Music and Doll Collection, Chichester, and Denmans Gardens, Fontwell.
Wed. 12th Sept. — **Outing with Ladies:** Arundel Castle.

HOLIDAY DATES

Good Friday	13th April 1990
Easter Monday	16th April 1990
May Day	7th May 1990
Spring Bank Holiday	28th May 1990
Late Summer Holiday	27th August 1990

MEETINGS AND VISITS:

Meetings will be held in the afternoon on a Wednesday. The Association accepts no responsibility for any injury, loss or inconvenience caused to members in consequence of any visit arranged on their behalf.

MORNING COFFEE:

Members meet at Lang's Arcade Cafe, Montague Street, Worthing, on Mondays at 10.30 a.m.

Members meet at Nutmegs, Church Road, opposite Town Hall, Hove, at 10.30 a.m. on the first Wednesday of each month.

Members from west of Worthing meet at The Three Crowns, Angmering-on-Sea, at 10.45 a.m. on the third Thursday in each month.

Members and their ladies meet informally on the last Thursday of each month at the Beach Hotel, Worthing, at 11.0 a.m. for coffee.

REPLY SLIP 1:

To: Richard Norton, 106, Wallace Avenue, Worthing BN11 5QA
Tel 01903 242204

I/we wish to join the list for the proposed visit to **Pyroban Ltd. Shoreham-by-Sea, Wednesday 28th February 2.30 pm**

Full Name…….Phone No……
Address…….
…….
…….
Applications please by 27th January 2007.

REPLY SLIP 2:

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

I wish to participate in the **Spring Lunch. Northbrook College, Worthing Thursday 22nd March (Date to be confirmed), 12.00 for 12.30pm in the Arundel Room Training Restaurant.**

Full Name ..... Phone No.....
Address .....
…….
.....

Applications at the latest by 1st March 2007.
Waiting List will apply for over subscribed applications.
Cheques will NOT be cashed until date is confirmed.

My partner will be.....

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

INTENTIONALLY

BLANK

REPLY SLIP 3:

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 18th April 2007**

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, room hire, etc.) payable to R.C.E.A.

NAME .....(Block capitals) Phone No.....
ADDRESS……
……..
……
……..

Applications by 21st March 2007

(Separate cheque please)