



An Association for Retired Professional Engineers

NEWSLETTER August 2022

President's message

Hello everyone, and a warm welcome to the August Newsletter.

We are now a year in after lockdown and have had a full and varied programme of talks, everything from London Oddities to the Solar Orbiter and Electric Vehicles to Submarines.

The talks have been well attended with an average of 35 members at each one. During our last financial year there were also 4 visits, but unfortunately the attendance at these was a little less positive, asking the question, is this what the membership really wants? Perhaps let us know your thoughts at the upcoming AGM?

Talking of the AGM (on September 20th), the question of new committee members once again needs to be addressed. Are **YOU** that person who can bring new ideas to the table??

If you are interested in joining us, please talk to me or any committee member either now or at the AGM for more information.

The existing committee have worked very hard behind the scenes to produce a full programme of talks for the year 2022 / 2023, and details of these are in this newsletter and will also be on the website.

Once again there will be a Christmas Lunch at the Windsor Hotel, so keep your eyes peeled for details and come along and join in the fun.

Keep an eye on your emails as our Membership Officer, Mike, will be sending out details of things you need to know as they crop up.

I look forward to seeing you all at our first talk and AGM in September.

George Woollard

President
August 2022

PROGRAMME OF EVENTS September 2022 – February 2023

15th Sep	Thursday	Coffee – at Spotted Cow, Angmering
20th Sep	Tuesday	AGM and talk – Eastleigh locomotive works
29th Sep	Thursday	Coffee – with Partners at Swallow's Return
11th Oct	Tuesday	Talk – HS1, Crossrail and HS2 from a traction power perspective

20th Oct	Thursday	Coffee – at Spotted Cow, Angmering
27th Oct	Thursday	Coffee – with Partners at Swallow’s Return
8th Nov	Tuesday	Talk – Geology Engineering in SE England and abroad
17th Nov	Thursday	Coffee – at Spotted Cow, Angmering
24th Nov	Thursday	Coffee – with Partners at Swallow’s Return
8th Dec	Thursday	Christmas Lunch at Windsor hotel, Worthing.
13th Dec	Tuesday	Talk – The design challenges of building modern lifeboats for the RNLI
15th Dec	Thursday	Coffee – at Spotted Cow, Angmering
29th Dec	Thursday	Coffee – with Partners at Swallow’s Return
10th Jan	Tuesday	Talk – The TT races from an engineering perspective
19th Jan	Thursday	Coffee – at Spotted Cow, Angmering
26th Jan	Thursday	Coffee – with Partners at Swallow’s Return
14th Feb	Tuesday	Talk – Military Target acquisition
16th Feb	Thursday	Coffee – at Spotted Cow, Angmering
23rd Feb	Thursday	Coffee – with Partners at Swallow’s Return

All Talks and Meetings will commence at 2.30 pm and be held in the Pavilion, 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 am.

We do sometimes have to cancel/rearrange talks and visits, in which case we will inform our members of changes to our programme by email. Members can always look on our website for up-to-date details of events.

Subscriptions

Subscriptions are due on 1 October this year and should be renewed via Membermojo, which in early September will send you an email requesting you to renew your subscription.

This email will contain a link, and will invite you to click on this link to connect you to the correct page on the system.

You will then have three options to make a payment, either by Paypal (as a guest), by BACS transfer to RCEA, or by giving or sending me a cheque.

The details of these methods will be provided on the Membermojo email.

Our preference is the Paypal payment option.

When your sub is received the system will send you a confirmatory email.

In the unlikely event that you do not make payment in time, the system will: -

- Send you a reminder and again request payment.
- In early October the system will send you another reminder that you need to pay now to ensure continued membership.
- In the event that payment is still not made, the system will advise you that your membership has lapsed – BUT will tell you that your membership will remain on record for a short time to allow you to re-join without new entry fees.

As a reminder the subscription remains at £15 and we request life members to contribute £5 to ensure that we retain contact with everyone.

Subs for new members who joined towards the end of last financial year will carry the membership over to this year and they will not receive a renewal message until next year.

The system appeared to work well last year, so hopefully will do so this time. If anyone has significant problems, please email the Treasurer at tony.tomkins@bcs.org

Tony Tomkins Treasurer

Website of the RCEA

Our website, www.rceasussex.org.uk carries the very latest information on all of our events.

New Members and Speakers for Talks

The RCEA needs new members and speakers to ensure that we can continue as a thriving organisation. Please think of appropriate people you know and encourage them to come along to our talks and hopefully join the RCEA.

We also need more speakers to give talks to us on Tuesday afternoons from September to March. We are aware that many members have the knowledge from their working careers to provide interesting talks. If you are willing to give a talk, please let us know.

New Members

Jeremy Hopkins

Rupert Harper, B Sc(Eng), C Eng

Andrew Pridell, FRICS

Worthing

Worthing

Hurstpierpoint

RCEA Insurance

Members need to be aware that the insurance policy that the Association holds is solely for the protection for the assets and liabilities for the Association as an entity. The policy does not provide cover for personal injury or loss to individual members. Members attend the Association's events at their own risk; although under some circumstances there may be some cover from the insurance arrangements of the venue owner.

Newsletter Entries

If you would like to provide an article for inclusion in a future newsletter it would be very welcome as we are always looking for new material in addition to reports on previous talks and visits/outings. From feedback from our members, we know that the newsletter is particularly appreciated by those who are no longer able to get to our meetings and visits, so if you are able to contribute in this way it would be much appreciated. Articles should preferably be Microsoft Word documents, although we can usually convert both text and pictures (even photographs) into a suitable format. Accompanying pictures are best supplied as separate files which will be embedded within the text during editing.

Brief Detail – Talks, Outings and other activities. September 2022 – February 2023

Talk

Tuesday, 20th September 2022 - Eastleigh locomotive works

Colin Boocock

The talk will cover the full 100+ years history of Eastleigh Locomotive Works in Hampshire including Colin's own experience there in the 1950s and 1960s, and brings the story up-to-date with the closure of the works in 2006 and its resurgence since then.

Talk

Tuesday, 11th October 2022 – HS1, Crossrail and HS2 from a traction power perspective

Louise Moore and Davor Vujatovic

Ms. Louise Moore and Dr. Davor Vujatovic will present on their experience in the design and delivery of brand-new AC railway projects in the UK over the last 20 years, in particular HS1, Crossrail and HS2. Initially an overview of each project will be presented, then the technical challenges associated with large and dynamic single-phase loads on three phase networks explored in more detail. Finally, they will consider some 'lessons learned' focusing on the testing, commissioning and energisation of these systems.

Talk

Tuesday, 8th November 2022 - Geology Engineering in SE England and abroad

Roger Smith

Roger is a Chartered Geologist with a specialism in Engineering Geology, contaminated land & remediation. He worked for Southern Testing in East Grinstead for many years, and has also spent some time in Hong Kong and other countries. He gave us our first Zoom talk last year on Geohazards, which was very well received.

This time he will be telling us more about his career, mainly in SE England, but also overseas.

The work included desk studies, using geological maps, historic Ordnance Survey maps and databases. There were a number of intrusive investigations, such as trial pits, shell & auger soft ground drilling, rotary core drilling and geotechnical analysis. They also did in-situ tests such as plate loading, and CBR (California Bearing tests), for road sub-base design, and laboratory testing

Christmas lunch

Thursday, 8th December 2022

We do not currently have a menu from the Windsor hotel, but as soon as we have, Mike will send it out along with a booking slip, so please put the date in your diary and join us for what is always a very pleasant occasion.

Talk

Tuesday, 13th December 2022 – The design challenges of building modern lifeboats for the RNLI

Iain Wallbridge BEng(Hons), CEng, MRINA, MSNAME, Senior Naval Architect, RNLI, West Quay Road, Poole, Dorset, BH15 1HZ

Modern lifeboats have to be capable of safely and reliably operating in the most extreme of natural environments.

In addition to these obvious challenges, RNLI Engineers have to consider social, legislative and organisational challenges when designing new RNLI equipment.

This presentation will describe some of the challenges faced by RNLI Engineers when designing lifeboats and their launching systems for operation around the coastlines of the UK and Republic of Ireland.

Iain will also discuss the recently announced life extension programme for the Severn Class lifeboat, which is the RNLI's largest craft.

Talk

Tuesday, 10th January 2023 - The TT races from an engineering perspective

Malcolm Hind - member

TT stands for Tourist Trophy and the TT races are held each year on the Isle of Man, or to give it its correct Manx name, Ellan Vannin.

In this talk, the speaker will look at the technical innovations that motorcycle manufacturers introduced to make their race bikes more competitive. Many of these developments eventually found their way onto the motorcycles that you can buy today.

Malcolm has a past career in the automotive industry and has always had an interest in two wheels which he has ridden all over Europe, has attended the TT and has worked at Honda's R&D centre in Japan.

He will cover developments from the very early days when the TT started in 1907, to the present day where lap speeds and machine reliability have advanced enormously, due to both the technology of the machines themselves and to the major course improvements introduced on the island over the last 100+ years.

Talk

Tuesday, 14th February 2023 – Military Target acquisition

Eddie Bridges, BSc(Hons) Environmental Management - member

Our speaker began his career instructing in the Royal Artillery as a Staff Officer, and has served in the UK, Germany, Sarawak and Oman. Later he became responsible for Environmental Protection within the MOD.

Fuller details to follow, but our speaker will be talking about his career in the Army where he became a commander of a Target Acquisition Battery in BAOR during 1990 – 92. He also held other posts including Chief Instructor for Artillery Meteorology at the Royal School of Artillery (RSA) – Larkhill

Reports

Visit

Thursday 12th May 2022 – Royal Navy Submarine Museum, Gosport

The visit proved interesting before we even got to the submarines. The picture on the right shows a 'submersible' on display as we walked from the car park. Apparently, it was converted for use as a rescue craft for any disabled submarine sitting on the sea bed.

Assuming the sub has a compatible hatch, it can connect to the submersible, and members of the submarine crew requiring urgent attention can be passed into the submersible.

It can also deliver food and other supplies.

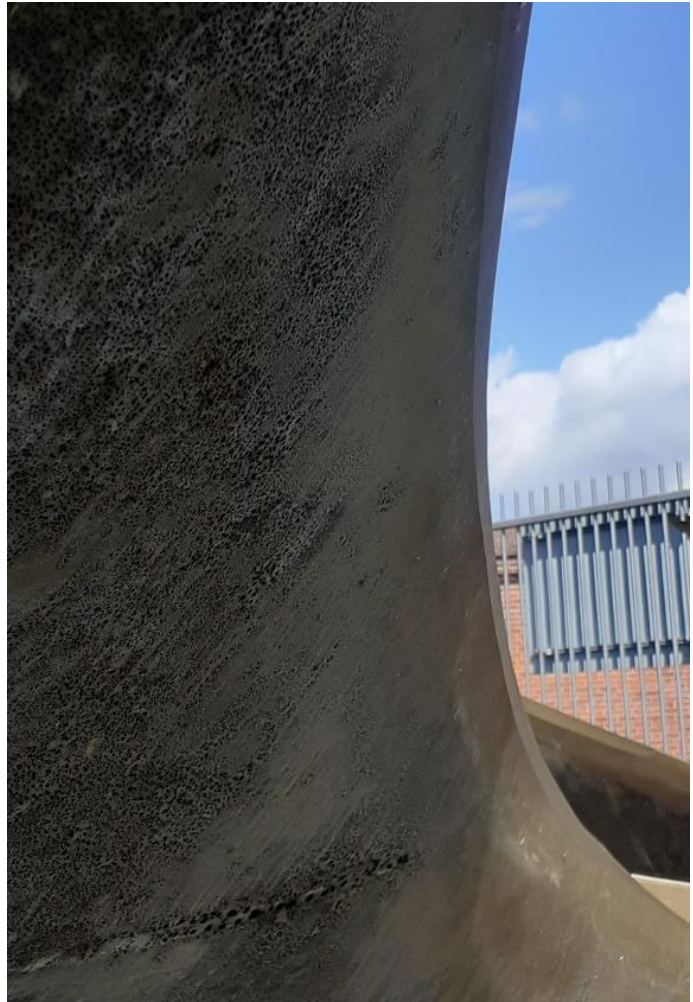


The picture on the left shows a propeller off a nuclear submarine. Its 7 blades and rather odd shape have been designed to minimise cavitation and hence noise, which is audible to an enemy tracking submarine. We were told that until 25 years ago some Russian subs could be heard 100 miles away. We subsequently asked one of the guides what the rather odd double cone thing was; he did not know, but assumed it was one of the measures to reduce said noise. He also told us that propellers on submarines are regularly changed for a new one with a slightly different noise 'signature' in order to confuse potential enemies. So, for all we know, this may be showing a propeller from a Polaris or Poseidon carrying sub.

The picture to the right shows cavitation pitting on the rear side of one of the propeller blades, so maybe it is only 'quiet' when revving slowly and hence not cavitating.

The two pictures below show the RCEA group (about 10 of us) assembling outside the main exhibit, HMS Alliance. Said sub was commissioned in 1947, had a crew of 65, and a range of 10,500 miles. But in 1958 she was extensively altered to be more streamlined and less noisy in order to take on the role of 'Hunter-Killer'. She was later converted to a training 'class-room' in 1973 and subsequently converted to her current museum role in 1981.

We entered the specially cut doorway in her side, as a group, and whilst we did not have a dedicated guide as such, we had a comprehensive introduction from an ex sub-mariner before we dispersed and wandered along the length of the sub. At the rear we met a second ex sub-mariner guide who answered all our many remaining questions (except the one about the double cone).





The picture on the left and the two following ones below were taken as we walked from hatch to hatch, down the central gangway. They don't show the tiny galley that served 65 crew, the various nooks and crannies between pipe valves, switch gear, torpedoes etc where 'overflow' food was stored, nor the 16mm cine projector that could be placed on the 'dining' table to entertain a subset of crew members, nor the 3½ " lathe (complete with treadle wheel, but no treadle), presumably for turning emergency parts, nor a Mk VIII, 21" torpedo (as used to sink the Belgrano). Some of us had not realised that the Mk VIII was powered by a radial diesel engine, that drove a pair of contra rotating propellers. The torpedo was ejected by compressed air at 260 bar, and it was only when a lever protruding from near the rear of the torpedo hit a catch pin fixed to the inside of the launch tube, that the engine fired up! The torpedo then followed a curved path of up to 135 degrees, and had a range of up to 5 miles.

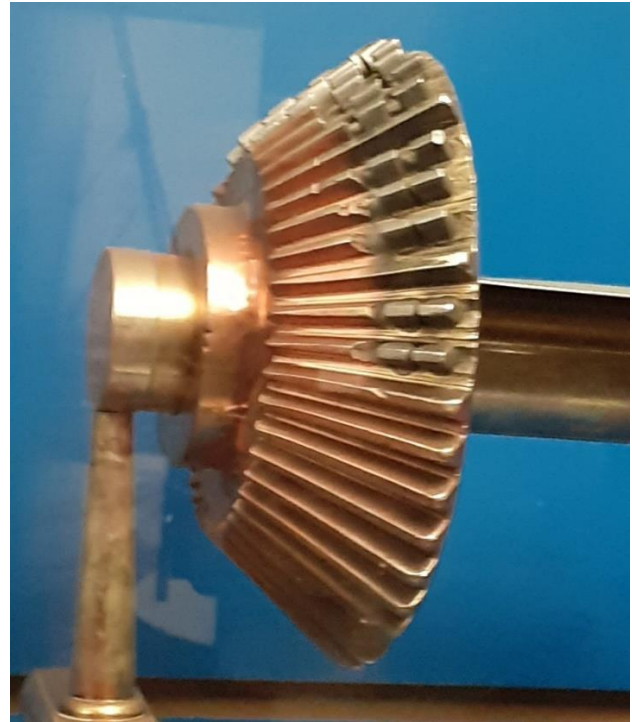
We also saw two more submarines in the museum building – 'Holland 1' being the first RN submarine dating back 120 years, and 'X24' being a midget WW2 submarine carrying a 4-man crew. There were loads of other exhibits in the main building.



The picture on the right shows a bronze water pump bevel gear dating from 1923 which had to be repaired with bits of steel decking, and in a rough sea. It took 16 hours and demonstrates how resourceful (and in my opinion, pretty skilful) an Artificer crew member could be.

In addition to the historical exhibits, there were various demonstration pieces aimed at children. I particularly remember the 'water resistance' one, which had 3 solid cylinders with different shaped ends. Each was mounted in a Perspex tube filled with water, and the viewer was invited to turn the whole assembly upside down and watch the different rates at which the cylinders fell through their respective water tubes.

There was a café where, inter alia, one could sit next to a Polaris missile. It looked like the real thing, but presumably with internal war heads etc removed!



As our entry tickets (£17) also included access to the Explosion Museum, a few miles up the harbour, several of us took the opportunity to also visit said museum. It too has a cafe, with a fine view across the harbour, pictured on the left. The museum is partly housed in the now-decommissioned gunpowder magazine, where up to six thousand barrels of gunpowder could be stored for naval use. Shells were also assembled there, and ordnance repaired.

The museum seemed to have one of every type of gun, missile, depth charge, torpedo, or rifle that the Navy has ever used. The picture on the right shows a 15" shell (=weight of a small car) next to the breech mechanism of a 15" gun.





The picture on the left shows a Sting Ray torpedo. In the background is a German Neger torpedo which had a second tubular vessel attached on top, which obviously accommodated a seated person who could steer the combination – see small perspex dome near the front.

Also on show was a WE177 nuclear bomb – an unfamiliar name to most of us, because until recently (or maybe still current?) it was extensively deployed on British aircraft (Buccaneer, Jaguar, Tornado etc).

There were videos of all these aircraft dropping said bombs; the bombs had decelerating parachutes in order to give enough time to allow the delivery aircraft to escape the blast.

The two museums were worth visiting and well worth taking the family to, if looking for something to occupy grandchildren.

Mike Wooldridge

Visit Monday 6th June 2022 – Planetarium, Chichester

A party of 17 of us visited the Chichester planetarium. It has changed since the last RCEA visit 8 years ago in that it now has a new hall with seats for over 100 people. Once seated, we were given a welcome speech by a very knowledgeable and competent volunteer guide.

In fact, there were 3 or 4 volunteers in attendance for our visit (impressive since we were the sole audience), plus Dr. John Mason who took us through the main show in the dome itself.

Our guide explained how the Planetarium came to be in Chichester, including the people who were behind the project, how long it took and how it now operates as a planetarium and science centre.





The building is on the site of an old farm building within the grounds of the Chichester High School and shown in the picture on the left. The "projector" (shown in the picture below) came from a planetarium in Northern Ireland and the seats from a British Airways Jumbo Jet. The Planetarium has also managed to pick up many spares over the years and these are frequently used in order to replace faulty components, notably PCBs. One of the supporters of the project was Sir Patrick Moore, who lived locally. There is a very life-like wax statue of him (we were told ex Madam Tussauds) as you enter the building.

Most mornings in term time are reserved for school groups. We were also told that the Royal Navy and all EU navies send their officers to the Planetarium for instruction on Astro Navigation. Interestingly we were also told that the RAF do not send their navigators here, for such instruction – albeit for use as back up. Presumably they use Inertial Navigation as back up to GPS, but it seems odd that they appear not to use Astro as further back up. Maybe they do, and they use a different method to deliver such instruction?

After the talk we moved into the Planetarium's auditorium where Dr. Mason, who is the principal lecturer at the Planetarium, gave us a very full briefing and 'show'.

He told us more about the projector which is analogue (using pinholes in foil) and not digital, and why what we were about to see is so different to what we are used to seeing when we look at the sky.

He also told us in some detail about how the dome was constructed and the need for air-conditioned air to enter from the top down, via a myriad of tiny holes in the white surface. This stops the surface from getting dirty.

The show started with us looking at the sky over Chichester and showed how little we can see because of light (and atmospheric) pollution. We then moved to north of the South Downs and saw how many more stars were visible to the naked eye.



The constellations were shown with their outlines mapped onto their respective stars. As someone rightly pointed out, arguably the only one that really looks like its namesake (in part at least), is the tail of Scorpio in the Southern hemisphere.

In addition to the stars, Dr. Mason also showed us various videos of rocket launches etc, using the dome as a screen. At the end, he also kindly allowed the writer (and 2 helpers) to do a couple of brief experiments using laser torches and an old 35mm projector lens.



We all had a very enjoyable visit and would recommend it for the whole family to learn a little more about our planetary system.

Mike Wooldridge.

Outing

Tuesday 12th July 2022 – Water Lily festival, Sheffield Park

On a very hot summer's day, 11 members and guests attended the festival, to be greeted by our very knowledgeable and enthusiastic guide, Malcolm, from the National Trust.

Although the main focus of the outing was to see the water lilies, Malcolm, a biologist, was equally at home amongst the trees and plants at Sheffield Park and took us through parts of the park away from the usual footpaths to learn about the specimen trees and the history of the large manor house, which is unfortunately not open to the public.

Malcolm turned out to be a fountain of knowledge armed with books and illustrations that he had brought with him.

Here we see Malcolm, our guide (seated) telling us about all the famous cricketers who have played on the Sheffield Park cricket ground that we did not visit.





The lilies bloomed on cue for us on this gloriously hot, sunny day, and all of the group ventured out into the lake on the floating pontoon to take more photographs under the watchful eye of our guide.



In addition to the natural lilies, a number of artificial lilies had been anchored in the main lake illustrating the progressive opening of the lilies each day.

Following our garden tour, the group re-assembled in the adjoining café for lunch at which we met up with Derek and Ann Webb and were able to celebrate Ann's birthday with them.



Malcolm Hind

End of Newsletter