



An Association for Retired Professional Engineers

NEWSLETTER July 2021

President's message

Hello, and a warm welcome to the 'July' Newsletter, a change of date from the norm and my first as your President. I would like to thank Derek for his leadership over the last 5 or so years, including steering us through all the issues with the pandemic.

The decision to produce a newsletter in July rather than August has been taken to reassure you that we are still active here and intend to restart a full program of meetings, visits etc as soon as we can. The meetings will begin with the AGM on September 21st and the first talk of the new season by a London tourist guide. This will be followed up by an interesting series of talks over the coming months.

Coffee mornings continue at the Spotted Cow and will shortly resume at the Swallows Return.

Remember there is a visit to the Lawn Mower Museum at Hassocks on 21st July as well. If you haven't already booked onto this visit, there are details in this newsletter.

As we have all been locked away for 18 months or so, these are now exciting times when life will slowly get back to some sort of normality and us meeting up again on a Tuesday afternoon will be something to be relished. I wish you all a pleasant summer, stay safe and look forward to being with you all soon.

George Woollard

President
July 2021

PROGRAMME OF EVENTS July 2021 – March 2022

15 th July	Thursday	Coffee – at Spotted Cow, Angmering
21 st July	Wednesday	Visit – Lawnmower Museum at Hassocks Garden Centre
29 th July	Thursday	Coffee – with Partners at Swallow's Return
19 th Aug	Thursday	Coffee – at Spotted Cow, Angmering
26 th Aug	Thursday	Coffee – with Partners at Swallow's Return
16 th Sep	Thursday	Coffee – at Spotted Cow, Angmering
21 st Sep	Tuesday	AGM and talk - London Curiosities and Oddities
30 st Sep	Thursday	Coffee – with Partners at Swallow's Return

12th Oct	Tuesday	Talk – Railway Rolling Stock – a generation of change
21st Oct	Thursday	Coffee – at Spotted Cow, Angmering
28th Oct	Thursday	Coffee – with Partners at Swallow’s Return
9th Nov	Tuesday	Talk – novaSAR – A new concept in earth observation satellites
18th Nov	Thursday	Coffee – at Spotted Cow, Angmering
25th Nov	Thursday	Coffee – with Partners at Swallow’s Return
9th Dec	Thursday	Christmas Lunch at Windsor hotel, Worthing.
14th Dec	Tuesday	Talk – Replacing the I C engine with Electric Traction
16th Dec	Thursday	Coffee – at Spotted Cow, Angmering
30th Dec	Thursday	Coffee – with Partners at Swallow’s Return

All Talks and Meetings will commence at 2.30 pm and be held in the **Pavilion** (not our usual 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 am.

We apologise for only being able to publish a very short list of our forthcoming events this time. This is due both to the difficulties we face in booking speakers far ahead, and the ongoing Covid pandemic restrictions. As you know we sometimes have to cancel/rearrange talks and visits, often at short notice. We do try and inform our members of late changes to our programme by email, but suggest that members should increasingly rely upon our website for up-to-date details of events.

Subscriptions

The Covid subscription holiday will end and subs become due again on 1 October this year. We ask members to send subs again via Membermojo. As it has been a while since we did this, a reminder of the process may be useful.

In early September this year the system 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:-

1. you can pay online via Paypal. NOTE: This does NOT require you to have your own Paypal account. You just connect as a guest to Paypal and pay with your debit or credit card of choice
2. you can pay via Bank transfer to RCEA (account details will be shown). If you take this option please put your name in the Reference box AND also email me to tell me you have done so.
3. as before you can send or give me a cheque

Our preference is payment option 1. When your sub is received the system will send you a confirmatory email.

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

- a) Send you a reminder and again request payment
- b) In early October the system will send you a notification that you need to pay now to ensure continued membership.
- c) In the event that payment is 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.

This system worked well last year and hopefully should not cause you any problems.

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

Tony Tomkins Secretary and 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. Speakers from outside organisations are increasingly harder to find and often seek payment for their services.

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 2021 – March 2022

Visit

Wednesday, 21st July 2021 - Lawnmower Museum

We have arranged a visit to the South Downs Heritage Centre, incorporating the Museum of Gardening, on Wednesday 21st July, starting from 10.15am. This is in the garden centre, about 400 yards south of Stonepound crossroads at Hassocks: South Downs Nurseries, Brighton Road, Hassocks, BN6 9LY

Please go through the garden centre, and find the lawnmower museum area, at the back of the restaurant. Our host, Clive Gravett (recently seen on Gardeners' World) has organised a room for us, and will give us a presentation on the history of lawnmowers before we go and look around the various lawnmowers and other exhibits. There should be tea, coffee and cold drinks available in the room.

There is a big cafe/ restaurant, which you are welcome to try, but Clive has arranged that we can order food to be delivered to our meeting room at the end of his talk. He will give us a shortened version of the menu (e.g. sandwiches, toasties, baked potatoes) - please pay on the day.

This will ease pressure on the kitchen, and you can sit and chat.

The cost is £5 per person for the talk and museum tour.

Capacity of the room is about 25, but this might be affected by Covid lockdown rules, which are still changing.

In any case, we suggest you bring a mask and hand sanitiser, and respect social distancing, as appropriate on the day.

There is no need to post a reply slip or cheque in advance. If you would like to come, please can you send an email to Chris Coates, by Monday 19 July so that Chris can check numbers. Email: chris2coates@yahoo.com (Tel: 07971 208968 if I don't acknowledge your email). See next page for essential information for booking.

When booking please provide:

Name:	
Email:	
Contact number:	
Name of guest, if you want to bring one	

(Members will be given priority if we reach capacity, but this will also depend on any Covid rule changes. If we cannot accommodate guests for the talk, they can still go round the museum at no cost, and the garden centre has a lot to look at)

Talk

Tuesday 21st September – London Curiosities and Oddities

Our speaker, Sally Botwright, has been a London Blue Badge guide for 20 years, showing people around our wonderful capital city. The talk she is going to give us is called London Curiosities and Oddities and we are going to take a look at some of the more unusual things in London. They might be odd, they might be curious, they might be amusing or perhaps just overlooked.

Talk

Tuesday 12th October – Railway Rolling Stock – a generation of change

Jeffrey Ward BSc, CEng, MIET.

Railway rolling stock has changed dramatically over the past generation with big changes in traction equipment, control systems, signalling and to the passenger environment. A comparison between the Class 373 Eurostar trains which entered service in 1994 and the new Class 374 Eurostar trains which entered service from 2015 illustrates well the significance of some of the changes both in technology and in the wider procurement process.

Our speaker, Jeff Ward, started in the Research and Development Division of British Rail in 1980 but soon moved into Rolling Stock Engineering and spent most of his railway career working for Eurostar.

Most of the presentation will be based around Jeff's Eurostar experience but there should also be chance to look back at one or two novel traction proposals from the early '80s and consider where they might be now.

Talk

Tuesday 9th November – NovaSAR – A new concept in earth observation satellites

Martin Cohen – Airbus Ltd

Novasar is a low-cost UK space radar developed for Earth Observation. Our speaker will present his subject in a way that will give those unfamiliar with spacecraft design a picture of what can be achieved.

He will initially introduce his subject by describing the orbit of this satellite and the reasons why it was chosen. The launch campaign for the satellite that took place in September 2018, culminating in a successful launch, will then be described.

Sample imagery from the mission will be shown illustrating the unique capabilities of Synthetic Aperture Radar, the flexibility of the operating modes of NovaSAR, and a taste of the types of applications that are enabled by the mission.

Our speaker is a popular lecturer on this subject and is willing to present a further talk on this topic where he will be able to go into much greater technical detail, subject to demand. We can discuss this during question time.

Christmas Lunch

Thursday 9th December 2021 - Windsor Hotel, Windsor Road, Worthing BN11 2LX.

Currently we are unable to provide a menu nor price as the Windsor hotel has only just opened up again. As soon as we have further information to hand, we will email it out to members with a booking form.

Talk

Tuesday 14th December 2021 – Replacing the I C engine with Electric Traction

Gerard Sauer

Our speaker has extensive experience in this subject and is a popular presenter. A more detailed synopsis of his talk will be provided nearer the time.

Reports

Talk (via Zoom)

Tuesday 27th April 2021 – Geological and Geotechnical hazards in SE England

Roger Smith, an Engineering Geologist

Roger started his talk by listing the main topics that he would be covering: -

Chalk: Solution Features, Deneholes & Chalk Wells,

Mining: Ironstone, Folkestone Beds & Upper Greensand

Cambering

Landslips & Cliff Falls

Swelling & Shrinkage

Clay Pits & Quarries

Earthquakes Radon & Bombs (UXO)

The article that follows is a very much abbreviated version of the talk and the large number of illustrations that Roger provided in his presentation. As some of the terms used are perhaps unfamiliar to the audience, Roger promised to explain them as he proceeded, beginning with Chalk.

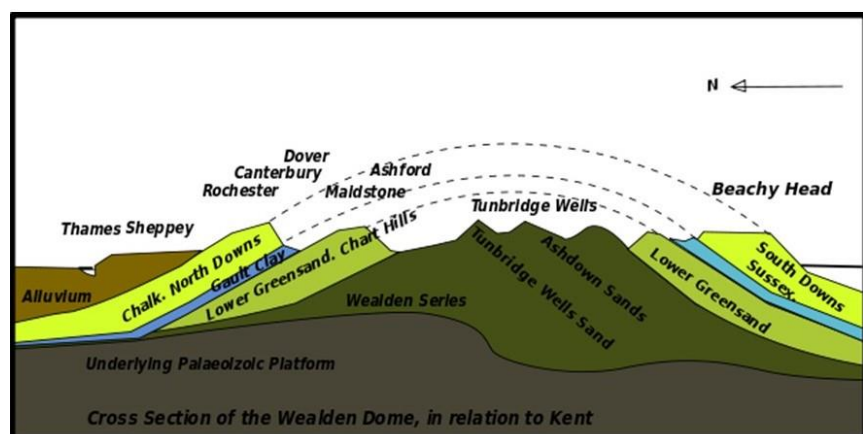
Chalk: Solution Features

Chalk (calcium carbonate) covers much of the Wealden Anticline as shown opposite.

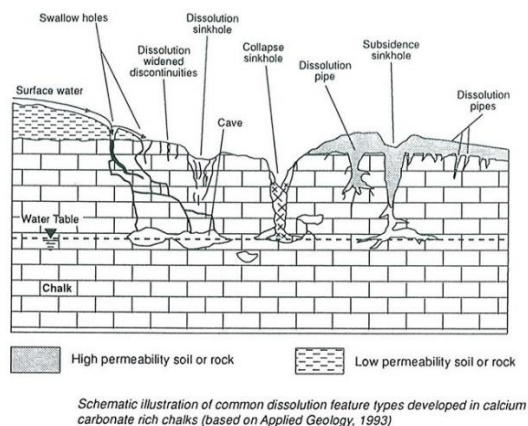
Solution features (or dissolution features) occur where surface water runoff, which is slightly acidic, has discharged into and dissolved the underlying chalk. Following this the dissolved zone becomes infilled with loose soils which, if inundated, will subside.

Dissolution is greatest where runoff into the chalk is concentrated e.g., where a cover of clay pinches out or where natural fissures are closer together.

Structure Of Wealden Anticline



The following two pictures (overpage) show some further detail of Solution features and the effect they have on the above ground appearance.

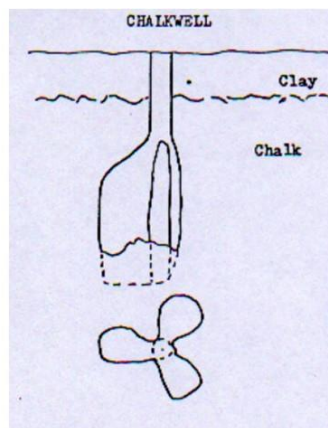
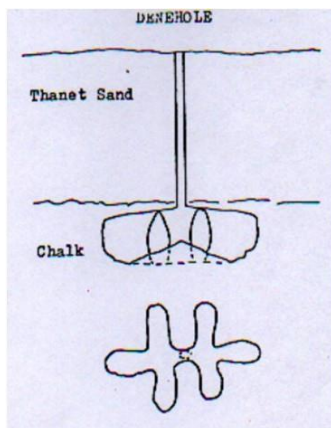


LARGE FEATURES IN DORSET



Chalk: Deneholes and Chalkwells

The name "dene" meant a sandy tract and a denehole was therefore a hole in a sandy area. It usually consists of a narrow (1 metre diameter) shaft through Thanet Sand or brickearth, which is provided with footholds for access, and which terminates in an underground chamber, which is classically of a double trefoil shape (see sketch, but there are variations). These excavations were carried out most actively in the 13th century, although Roman records indicate that the Ancient Britons excavated chalk to great depths (30m or more). The art may have been lost in the 15th/16th centuries and "chalk wells" were excavated from about the 17th century to the end of the 19th century. Chalk wells were provided with a wider access shaft (1.5 - 3m diameter) and were less carefully constructed in a more irregular shape. The pictures overpage show a cross section of a denehole and chalk well and a chalk mine.



The pictures below show above ground chalk mine problems in Reading and Norwich, and a sinkhole in Greenwich.

CHALK MINE PROBLEMS IN READING & NORWICH

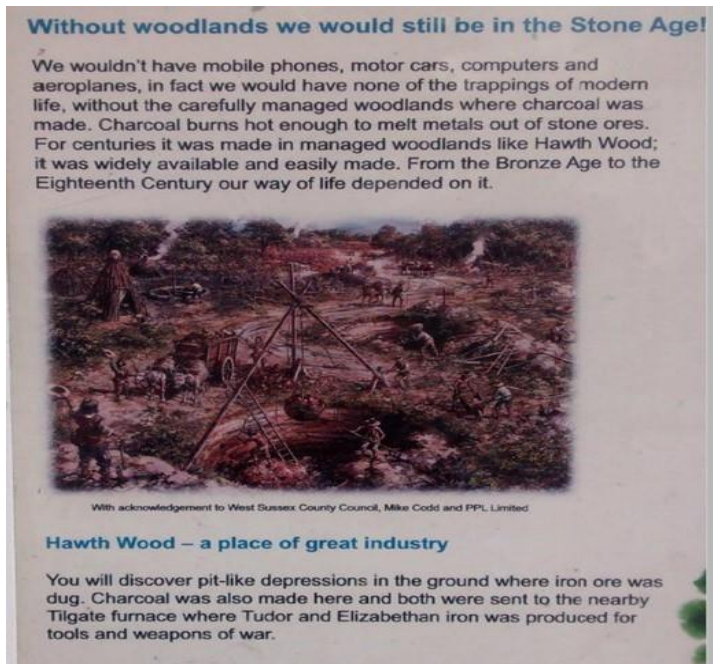


Southern Testing
Environmental & Geotechnical



SINKHOLE: GREENWICH

Mining: Ironstone

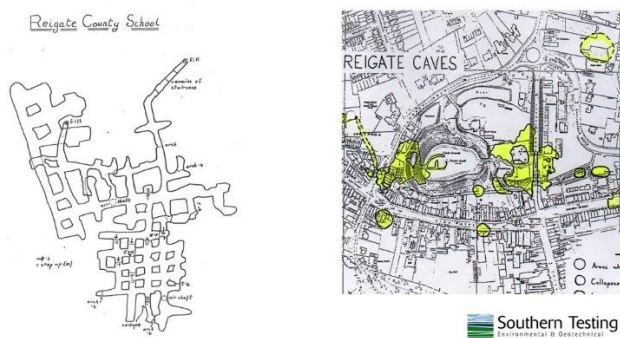


As members will remember from a previous talk given to us in February last year, Sussex was a valuable source of iron from about 1490 to 1813. The mines were not always marked up on maps and do sometimes cause depressions in the ground as mentioned in the article opposite about Hawth Wood near Crawley.

Mining: Folkestone beds and Upper Greensand

Sand was also mined extensively in this area, leaving behind many signs of previous activity, including large underground cavities as show in the following illustrations.

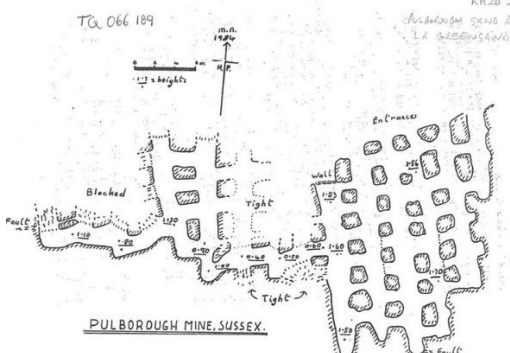
SANDSTONE MINES: FOLKESTONE BEDS



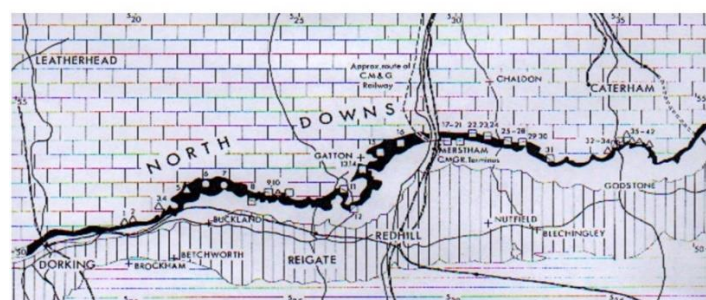
GODSTONE MINES



PULBOROUGH, WEST SUSSEX



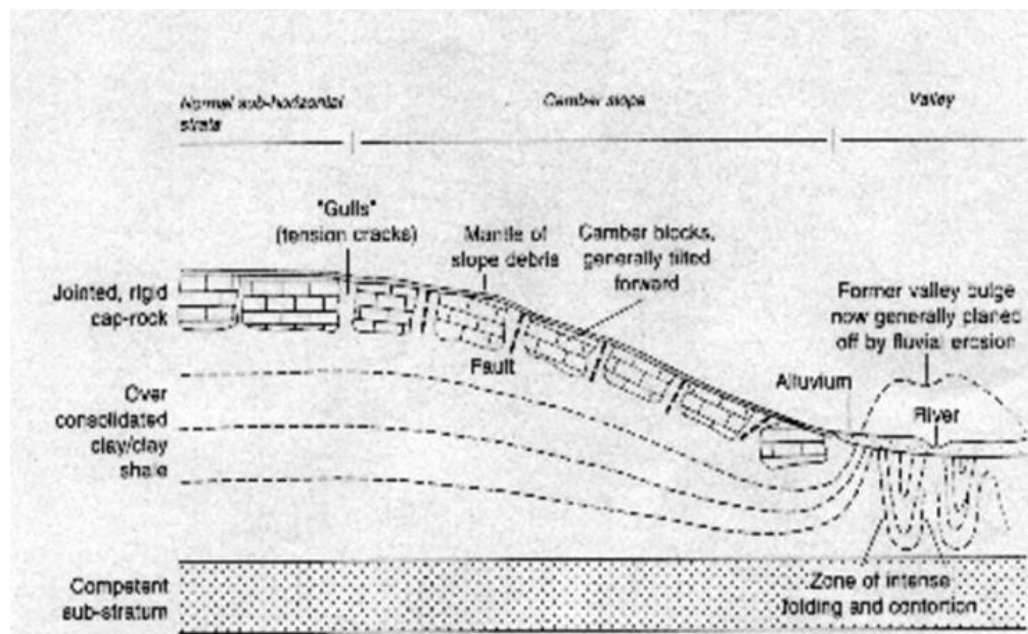
UPPER GREENSAND MINES: SURREY



Cambering

Cambering occurs when clay creeps towards a river valley and is eroded by the river. Thickly bedded strata above the clay slump backwards causing fissures to open up. See opposite for a detailed explanation of this problem.

Also see overpage for the typical problems so caused in Maidstone.



Landslips and Cliff falls

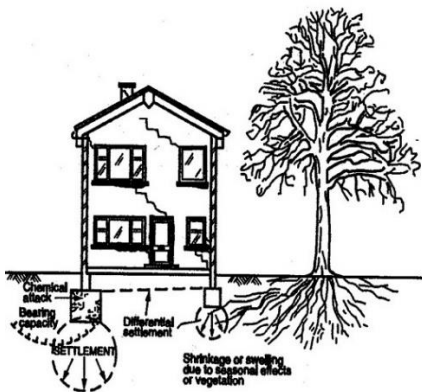
Landslips and cliff falls are a common hazard in this area as illustrated in the following pictures. The landslips occurred at Franklands village near Haywards Heath, and the two cliff falls shown overpage were at Dover and on the Isle of Sheppey, where some homes are now just a few feet away from the cliff edge.

FRANKLANDS VILLAGE LANDSLIP





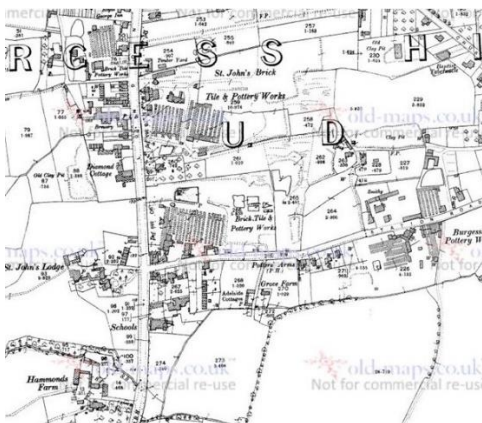
Swelling & Shrinkage



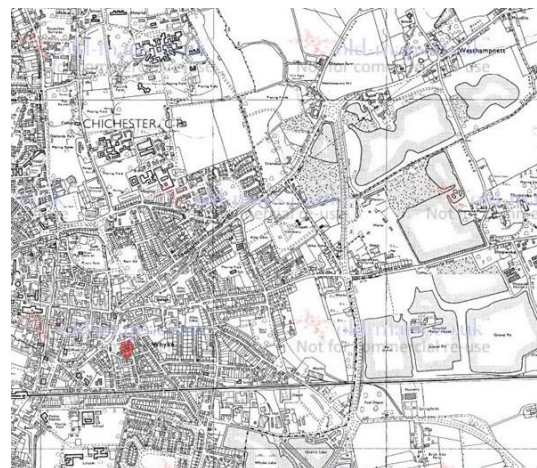
Trees cause clay soil to dry during Summer which causes soil to shrink and foundations may subside.



Clay Pits & Quarries

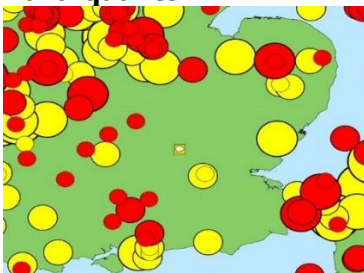


Backfilled clay & gravel pits can cause foundation problems. On the left is an old map showing brick clay pits at Burgess Hill, and on the right gravel pits in Chichester.



Earthquakes, Radon & Bombs (UXO)

Earthquakes



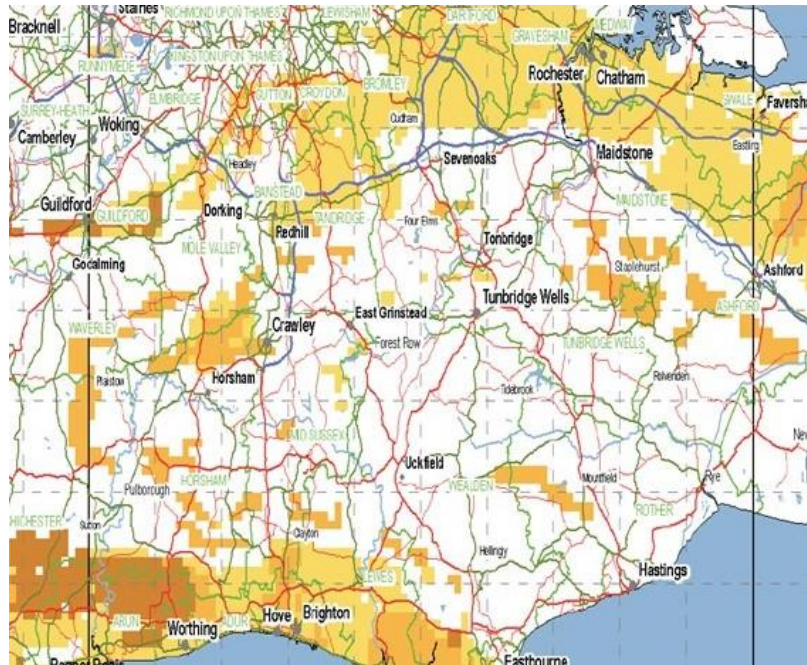
Earthquakes do occur in the UK more frequently than people think, mostly minor and probably not noticed by many. The map opposite shows the location of earthquakes within the Southeast of UK. Of the most recent earthquakes to occur in the UK the largest hit South Wales on Saturday 17th February 2018 with a magnitude of 4.4. The epicentre of the earthquake, which happened at 2.31pm, was in the village of Cwmlllynfell in Neath Port Talbot. It was the biggest earthquake in over 10 years in the UK. Events as large as this happen every three to five years, the British Geological Survey said, with around 3,000 events of this size happening in the world every year.

The largest earthquake to hit the UK happened in 1931 in the Dogger Bank area and had a magnitude of 6.1. Fortunately, it was 60 miles offshore but was still powerful enough to cause minor damage to buildings on the east coast of England, with Filey being worst hit. It was felt as far away as London where, bizarrely, it caused the head of the waxwork of notorious killer Dr Crippen at Madame Tussauds to fall off.

Other significant earthquakes to hit UK were a 4.7 scale earthquake in Carlisle in 1979, one in Market Rasen, Lincolnshire in 2008 with a magnitude of 5.2, in Dudley, West Midlands in 2002 a 4.7 magnitude quake, in Bishop's Castle, Shropshire in 1990 a 5.1 magnitude quake and in Llyn, Wales, in 1984 with a magnitude of 5.4 which resulted in hundreds of aftershocks. The most destructive was the Colchester 'Great English Earthquake' of 1884 which had a magnitude of 4.6. Over 1200 buildings were damaged and at least three people were killed.

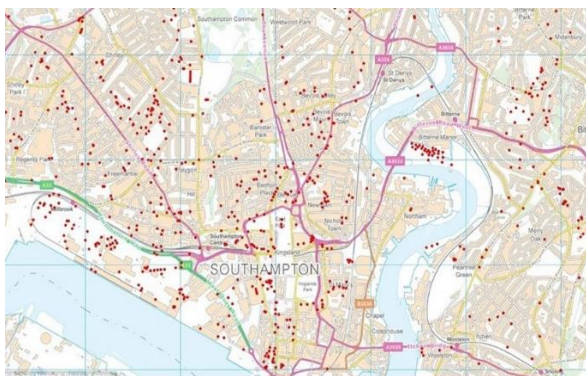
Radon

Radon is a colourless, odourless radioactive gas. It is formed by the radioactive decay of small amounts of uranium that occur naturally in all rocks and soils. The main danger from high radon exposure is the increased risk of lung cancer. For most people, radon is the single largest source of radiation exposure whether they are at home or at work. The map opposite shows Radon concentrations within the South East.

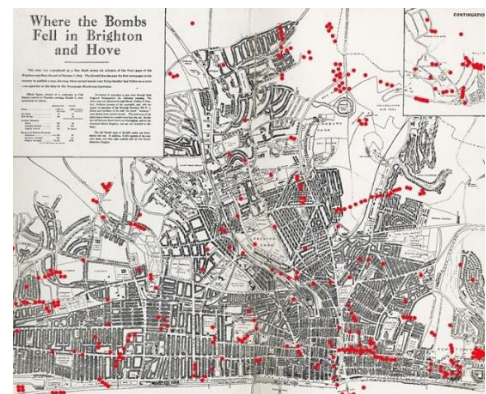


Bombs (UXO)

During the last war large numbers of bombs were dropped on 'strategic' targets in the South East, particularly London during the Blitz, and Southampton which had considerable numbers of military targets. Elsewhere bombing was lighter. Some bombs failed to explode (Unexploded Ordnance) and still pose a risk today,



Bomb maps can be found on the web for most areas of the UK. The map on the left shows the bomb risk in Southampton, on the right Brighton.



This was a fascinating talk on a slightly different subject to our usual offerings, and was thoroughly enjoyed by those members 'dialling in' on Zoom.

Our thanks to our very knowledgeable speaker, Roger Smith.

Talk (via Zoom)

Tuesday 18th May 2021 – Operation Deadstick

Dudley Hooley, Chairman, Tangmere Military Aviation Museum

Members will recall that Dudley has addressed us on a number of previous occasions and it was a great pleasure to welcome Dudley back, albeit over a Zoom link. His talk this time was on the subject of Operation Deadstick, otherwise known as Coup de Main Assault on Pegasus Bridge.

The mission was vital to the success of the main beach landings on D Day, 6th June, 1944. Failure to capture the bridges intact, or to prevent their demolition by the Germans, would leave the 6th Airborne Division cut off from the rest of the Allied armies with their backs to the two waterways. If the Germans retained control over the bridges, they could be used by their armoured divisions to attack the landing beaches of Normandy.

Responsibility for the operation fell to the men of 'D' Company, 2nd (Airborne) Battalion, Oxfordshire and Buckinghamshire Light Infantry, part of the 6th Airborne Division under the command of Major Howard. The assault group comprised a reinforced company of six infantry platoons and an attached platoon of Royal Engineers.

They flew from the south of England to Normandy in six Airspeed Horsa gliders.

The Airspeed AS.51 Horsa was a British troop-carrying glider used during the Second World War. It was developed and manufactured by Airspeed Limited, alongside various subcontractors. The type was named after Horsa, the legendary 5th-century conqueror of southern Britain.

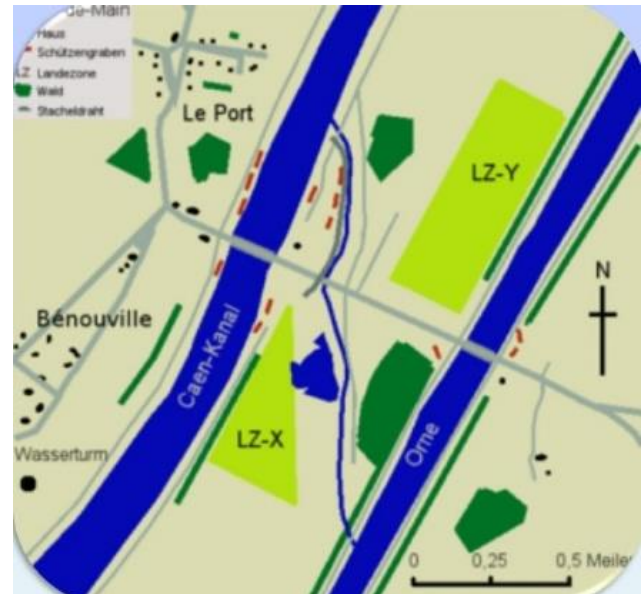
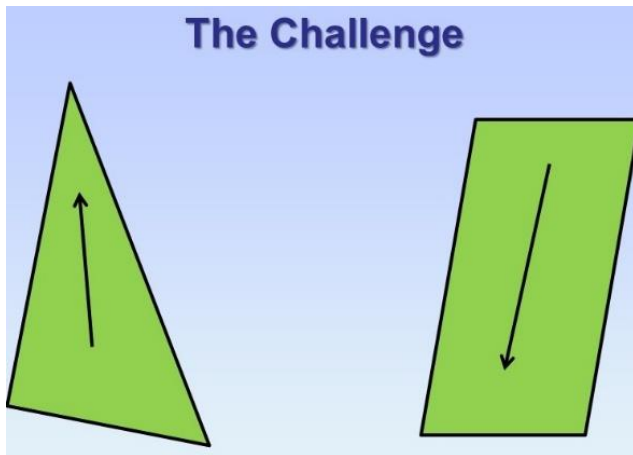
It had a top speed of 242 km/h, could carry 25 fully equipped troops and was just 20 m long. It was designed by R. J. Mitchell and over 3,600 were built.



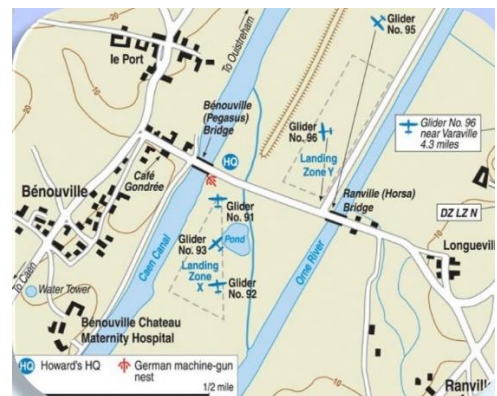
Not everyone in the RAF felt that such a mission could succeed. Even 'Bomber' Harris (picture left) was stirred to make the comment:

"The idea that semi-skilled, unpicked personnel (infantry corporals have, I believe, even been suggested) could, with a maximum of training, be entrusted with the piloting of these troop carriers is fantastic. Their operation is equivalent to forced landing the largest sized aircraft without engine aid – a feat for which there is no higher test of piloting skill".

Shapes identical to the landing areas by the bridges were set out on the ground at Tarrant Rushton to test whether the Army pilots could accurately land their Horsa gliders within the selected landing zones (see left). The actual landing areas between the Caen and Orne bridges is shown right.



After very intensive training, six gliders, each containing 30 troops (and overweight), took off at 22:56 hrs on 5/6/1944 towed by Halifax bombers on one of the most difficult, yet essential missions of the war – to land in darkness on an 800yd strip of grass, to seize the bridges and hold them until relieved. As these were gliders, the pilots only had one shot at landing irrespective of whether there was a cross or tail wind. The pictures below show the view from one of the gliders as it came into land (although the picture is very dark, as it was on the night, you can clearly see Pegasus bridge). The other picture shows the disposition of each glider after landing.



Not all the gliders landed within the target zones, and although the landing of the three gliders on LZ-X was hailed as "one of the most outstanding flying achievements of the war", the landing was extremely rough.

The severity with which No.1 Platoon's glider came to a halt catapulted both pilots through the cockpit screen and left all of the passengers unconscious for a few seconds.

The picture opposite shows one of the gliders after landing.



Major Howard had his seatbelt break on landing and the impact threw him about the glider. He had hit his head on the roof and this forced his helmet down over his eyes. When he regained his senses, Howard's first impression was that he was either dead or at least blind, but he quickly discovered the problem and was relieved to discover that he could see again.

One of the gliders landed very close to the pond shown on the site map and one of the troops, Fred Greenhaigh was thrown out of the glider by the impact of landing and drowned in the pond, becoming the first casualty of the mission.

As No.1 Platoon went into action, Howard, with his wireless operator, Corporal Tappenden, set up a command post inside a trench near the perimeter wire. Howard watched No.1 Platoon as they went into action, and as the following gliders landed and reported to him, he directed them to their planned objectives, an alteration only being needed if something had gone wrong with the assault. Whilst he was standing here, Howard and Tappenden were fired on by a German rifleman, but all of his shots went astray.

The first news that came to Howard was that Lieutenant Brotheridge had been hit. Howard remarked, "It really shook me, because it was Den and how much of a friend he was, and because my leading platoon was now without an officer. At the top of my mind was the fact that I knew Margaret, his wife, was expecting a baby almost any time." The bad news continued because all three of the platoon commanders at Bénouville Bridge had been hurt, and Brotheridge would die of his injuries.

Howard concerned about this fact, but also because Corporal Tappenden had heard nothing from Ranville Bridge. However, just as he received visual confirmation that Bénouville Bridge had been successfully taken, Tappenden tugged Howard's smock and passed on the news that Ranville Bridge had also fallen.

Both bridges were successfully defended against tank, gun boat and infantry counter-attacks until relief arrived shortly after noon on D-Day itself.

The two pictures below show the now famous Pegasus Bridge (renamed Pegasus in 1944 in honour of this operation, but originally called the Bénouville Bridge) spanning the Caen canal with the equally famous Café Gondrée in the far-left background, and a picture showing three of the bridge defenders from the film "The Longest Day" with Major Howard (centre) played by Richard Todd.



The original Pegasus bridge was replaced in 1994 by a modern bascule bridge, but the original bridge is now the centre point of the Pegasus Museum close by.

Similarly, the second bridge captured, which spanned the river Orne, originally known as the Ranville bridge, has subsequently been renamed the Horsa bridge after the Horsa gliders.

In this short article we have only been able to illustrate a small part of Dudley's talk, but any interested reader will find plenty of articles about Operation Deadstick on the web, and of course may consider making a visit to this part of France which is rich in the history of D-Day.

End of Newsletter

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