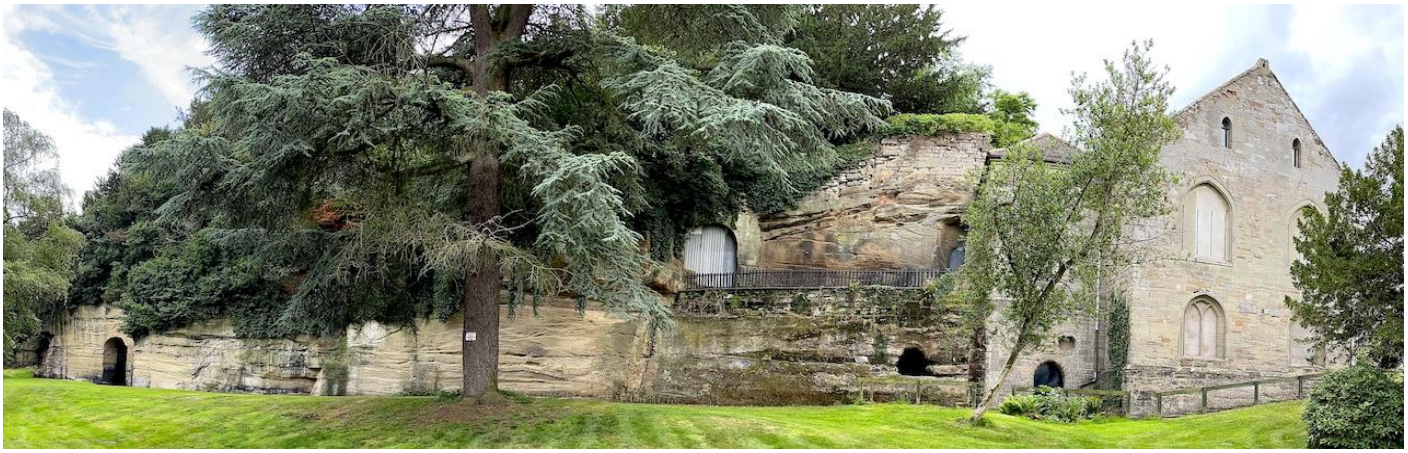
WGCG
Hidden wonders in the landscape of Warwickshire
Warwickshire Geological Conservation Group

Newsletter



The spectacular setting of Guys' Cliffe Warwick Sandstone Formation SSSI, location of our July summer evening walk

Autumn 2023
Issue Number 46

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Glorious view looking north across the Hinckley Basin from the Nuneaton Ridge at Hartshill, planned location of a summer 2024 field trip

WGCG Aims and objectives

WGCG is a charity operating under the rules of its constitution adopted 19th October 2011. It has two specific aims;

A. To advance the education of the public in the significance of geology for the understanding and aesthetic appreciation of landscapes, for human settlements and economic activity, for recreation and leisure and for ecology.

B. To conserve the geological heritage of Warwickshire through identification and active conservation of geological sites and through fostering an interest in and knowledge of the geology and landscapes of Warwickshire.

We achieve these objectives by;

- Holding educational meetings from September to April for members and non-members
- Holding field excursions of short, medium and long duration throughout April to September for the benefit of members and non-members.
- Monitor and maintain an LGS register and annually undertake geo-conservation of selected exposures within Warwickshire.
- Hold an annual educational workshop in February.
- Working with 3rd party organisations such as The Geology Trusts and participate in externally organised events e.g. "Ask a Geologist" quarterly event at Warwick Museum
- Installing and maintaining information panels at key geological exposures
- Producing information brochures of local geological walks and exposures
- Providing a point of contact for geological support in Warwickshire for other organisations such as schools, local planning, etc
- Through the funding of educational awards

The Trustees of WGCG have the responsibility of ensuring that the interests of the charity are put first at all times and that the organisation is financially soundly run. The Trustees are answerable to the Charities Commission and must follow its directives to avoid any potential repercussions. We are obliged to submit an annual report to the Charities Commission.

Since 2011 WGCG has spent a total of £229,119 pursuing its charitable objectives of which £100,815 has been given out as awards.

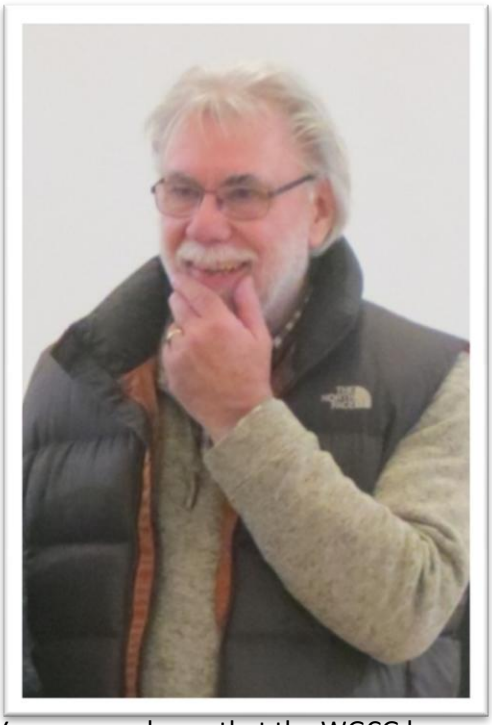
Editorial - Ray Pratt

As many of you will be aware, both Brian Ellis and Norman Dutton worked together for many years to produce a biannual newsletter on behalf of WGCG. As announced in the Newsletter 2023 Spring edition, both have now stepped down. WGCG is indebted to both for their many years of service.

The Newsletter is both a useful way of ensuring members and friends are updated on activities, and serves as a historical reference of these activities. This edition has been put together largely using content published on our website, with extracts circulated on our social media platforms and by soliciting contributions from other key members of WGCG.

If you would like to take on this important role then we would love to hear from you.

From the Chair - Stuart Burley



Welcome to the latest 'new – look' WGCG Newsletter.

This issue has been compiled in large part by Ray Pratt on our Dropbox web pages folder but has many contributors from the group – most of whom have penned their own articles and uploaded them to the Dropbox website. Another step for WGCG in embracing the digital world, which I heartily encourage.

You might think that running a small geoconservation society is easy, trivial stuff. You'd be wrong. As you browse the pages of this newsletter you will glimpse some of the many diverse activities in which we are engaged, the sub-committees that organised and manage these activities, and the members who participate in them. Your Management Committee and Trustees do their best to ensure that the group continues to deliver its objectives and be compliant with Charity Commission regulations. I'm especially delighted that WGCG has spent almost £230,000 in pursuing its charitable objectives since 2011, of which more than £100,000 has been given out as awards. This is no small achievement, and we should all thank the dedicated officers over the last 15 years who have freely given of their time to make this possible.

You can surely say that the WGCG has made a significant contribution in promoting the significance of geology to a wider public and has very effectively conserved the geological heritage of Warwickshire. As a member of WGCG you are already participating in that contribution.

So as you read through this newsletter, please do think how you could contribute to the group. You do not have to be a specialist in anything, but any experience and expertise you bring to the group will be much appreciated. We have a busy winter schedule ahead, and an even busier programme planned for the summer of 2024. I'm delighted that WGCG is alive and well with an engaged and motivated membership.

I take this opportunity to extend my particular gratitude to Kathrin, Gareth & Peter for their excellent work in SSSI monitoring and their financial donation on waiving their right to the fees for the SSSI surveys they undertook.

Officers Corner

Gareth Jenkins - External Representation

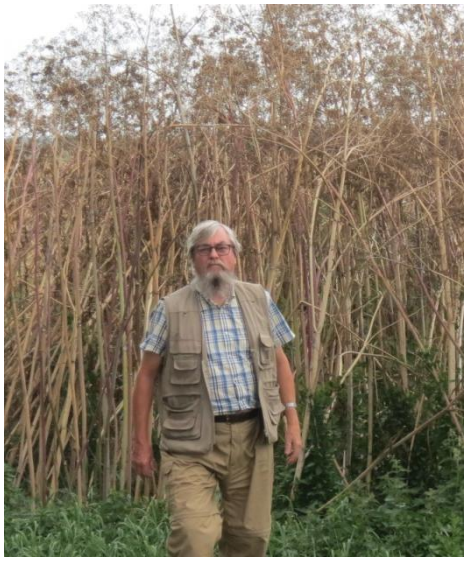
As I look at my first year as a Trustee, it is a pleasure to see the WGCG continue to offer a busy summer fieldwork and winter lecture programme. In addition to the successful Warwickshire Geology Workshop, 'Ask a Geologist' and the Urban Geology building stone tours shows the WGCG offers a range of popular and varied activities for all levels of fitness, knowledge and interest. Outreach to Shipston Primary School was described as 'the best lesson EVER' which is fantastic feedback from a Year 3 audience.

In addition to the winter lecture and summer fieldwork programme, the WGCG have been busy with events further afield. The trips to Flamborough, Suffolk and Cleeve Hill offered a chance to see exposures of geology further afield from the borders of Warwickshire. The trips were well attended and well received.

A big thank you to all those involved in organising, speaking and attending!

Looking towards the rest of the year I am looking forward to the continuing lecture programme. I hope that everyone reading this will get involved and attend either in person or via Zoom. The list of future events can be found on the WGCG website: Warwickshire Geological Conservation Group (WGCG)
I would also encourage everyone to take a look at any of the Local Geological Sites (LGS) in their local area. The list of LGS can be found here: Warwickshire Local Geological Sites (LGS) | Warwickshire Geological Conservation Group (WGCG). If your are passing and it is safe, please have a look and take some photos. I hope that together we can understand the current condition of some of our local sites so we can target future geo-conservation.
See you all soon! Gareth

Mike Allen - Education Committee Chair



As you can see from various articles in this newsletter, the Society organises an annual programme of field excursions and is keen for members to take advantage of the opportunity this provides for bringing geology to life "in the field". While the focus is often on local sites, we also aim to include places of interest further afield, with at least one residential excursion (usually over a weekend) each year. Field excursions are a brilliant way to meet other members of the society, and indeed other people with a shared interest as events are publicised far and wide. We also welcome input from anyone with suggestions or ideas for places to visit and with help to organise such activities. So, if you think you can contribute to a lively and successful programme, please get in touch with me **Mike Allen** (marocks@btinternet.com) or any member of the Education Committee.

Will Messenger - Planning Applications Co-ordinator

Early in 2023 I was asked by Ray Pratt, our secretary, to consider taking on a formal responsibility for co-ordinating our responses on planning applications. Ray reassured me that these consultations were very rare, maybe just one every year or so. Always happy to volunteer for jobs that barely exist, I agreed to do what I could.

It therefore came as something of a shock to receive, very quickly, two notifications of major planning applications. Hitherto, my only experience of planning matters had been dealing with relatively small-scale applications around my local area.

My expertise is in natural history and field biology. One of my enthusiasms is history in general and local history in particular. On two occasions I have been called to planning inquiries to give evidence, and so I have acquired some experience.

However, these first two applications were on an entirely different scale. I am not a geologist! My interest in geology has grown out of a teaching career where I ran biology field trips and became aware that the natural landscape and biota relate to, and are more-or-less determined by, the rocks and the geological processes. My enthusiasm has been a very amateur, even selfish, interest. Thus I felt rather out of my depth!

The first application was for a proposed sand and gravel quarry at Wasperton (CV35 8EA - WDC/22CM008) from Smiths Concrete Limited, and the second a similar application for land at Lawford Heath from Cemex. These applications relate to the Warwickshire Minerals Plan, which is our county's contribution to UK-wide strategic planning, and are dealt with by Warwickshire County Council rather than the District Councils that manage the small-scale development proposals.

My experience of SSSIs and the like relates to biodiversity and the conservation of living organisms; there is therefore a tendency to see any development as a threat to be managed to minimise harm. But with geological conservation it is different; every development can be seen as an opportunity.

The third application that came my way was Roundberry Quarry at Warton in North Warwickshire. The landowner had been developing the old quarry as a wedding venue but was then required to apply for retrospective planning permission. Ray Pratt and myself visited the site and engaged with the landowner to ensure that our interests as geological conservationists align with those of the owner. The biologist in me was somewhat offended when Ray set to and stripped the vegetation away from some of the rocks, but my geological side now understands the different concept.

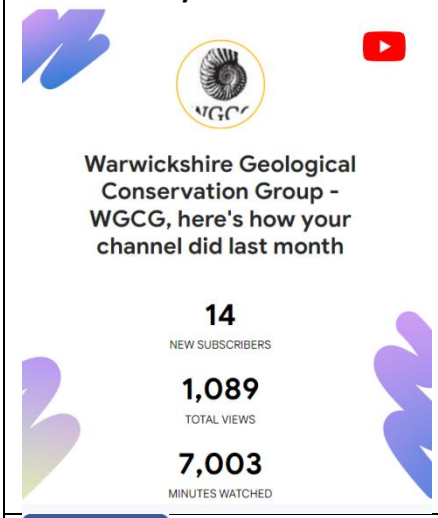
With the two gravel and sand quarry applications, we have made formal submissions appealing for every opportunity to be taken to maximise educational and conservation advantage when formations are exposed during industrial extraction. This might be the chance for WGCG to make visits to study the rocks while extraction is ongoing; the opportunity to erect interpretation boards; or the creation of permanent exposures accessible for study after the site has been restored. The goal is to create the possibility of scientific study to add to our knowledge base, or maybe the discovery of such things as mammoth remains or Mesolithic tools.

No matter our personal views on a development, WGCG cannot 'take sides' but we can seek to influence planners and developers to help conserve our geological heritage.

Will Messenger, Planning Lead for WGCG

Public Engagement - social media

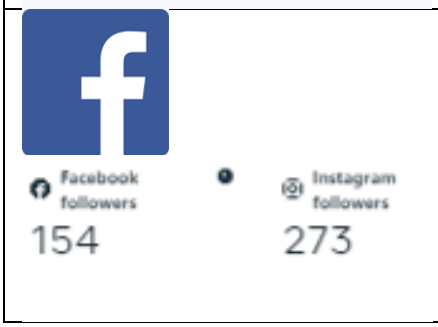
YouTube - Ray Pratt



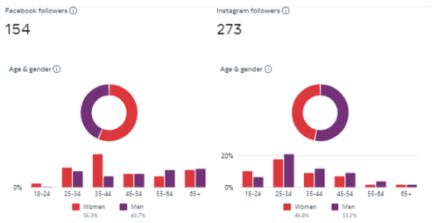
LinkedIn - Gareth Jenkins
This is aimed at professional geologists primarily in the engineering sector. 17 posts have been made over the course of 2023 regularly generating likes from up to 40 persons.
(Many of those who read a post do not ever click the like response).

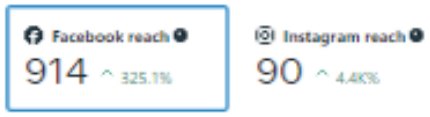
X (Twitter) Jon Radley
we tweeted 137 posts in September, and currently have a growing global following of 2223 accounts.

There's plenty of content out there and the Twittersphere is lapping it up, but finding time can be a challenge. This is a global audience.



Facebook & Instagram - Kathrin Schütrumpf





Events Past

October 14 & 15 WGCG Host Hertfordshire Geological Society Field trip to Warwickshire

Stuart Burley explains the depositional environment of the Arden Sandstone at Rowington. Photo by Ray Pratt

As many members will know, Haydon Bailey of the Hertfordshire Geological Society (HGS) has given several talks to WGCG over the years, so when he reached out to WGCG to assist in planning a weekend field trip to Warwickshire we were keen to assist. After discussing several options forwarded by WGCG, HGS decided that a trip to Blockley

brick pit to collect fossils from the Jurassic Charmouth Mudstone, led by WGCG geologist Jon Radley, would be ideal for Saturday and a day looking at the Triassic Arden sandstone, led by WGCG geologist Stuart Burley, would be good for Sunday. Thanks to Jon and Stuart for taking the time to plan their itineraries, undertake some site clearance prior to the visit of HGS, and lead the trips on the day.

Oct 14th Earth Science Week - Geo-conservation at Kenilworth Cutting - Ray Pratt

Photos by Ray Pratt & Kathrin Schütrumpf

From 10:00 to 13:00 six and a half volunteers set about clearing the Kenilworth Cutting exposure of encroaching faunal growth. This is a very popular route for walkers and cyclists, many of whom stopped to engage in friendly conversation interested in our activity, some even expressing a desire to get involved.

Before

After

Rose, Gill, Gareth, Ray, Ian & Kathrin

AFTER

Rose & Gareth

The transformation of the exposures is remarkable once the fast-growing ivy and bramble was removed. The overlying mudstones provide a ready soil source for the vegetation which inevitably means that this site will require frequent monitoring and periodic tidy ups. Now those interested will be able to read the information panel and be able to view the section previously covered by vegetation.

This exposure is now ready for planned activities in 2024, which will include a members evening tour and a GeoWeek event.

Thanks to Rose and Gareth Jenkins, Gill Chant, Kathrin Schütrumpf, Ian Fenwick, Ray Pratt and Christine Hodgson for giving up their Saturday Morning to undertake this task. Special thanks to Kenilworth resident, Christine, for looking after the information panel and removing the occasional moronic graffiti.

"On Saturday, we went to Kenilworth Cutting on an old railway line to do some voluntary work to clean Kenilworth sandstone.

What we did was grab some tools! A gardening fork, a trowel and garden clippers. First we needed to use the garden clippers so we could get out all the brambles so we could clean the rock.

I enjoyed getting to high places to clean it. I also learned that the sandstone we cleaned is the same material used to build the Kenilworth Castle. I enjoyed helping this charity to keep this rock ok for a while longer. I also liked cutting down the brambles with the big clippers and brushing off the dirt." **Rose**

Bedding plane contact between the underlying sandstone and the overlying mudstone.

Oct 13th Earth Science Week - Urban Geology of Warwick led by Jon Radley

Examining the Post Office building. ***Photo by Ray Pratt***

Despite a very gloomy weather forecast, a full party of 16 turned up at the museum for this public engagement event. We were very fortunate that the weather stayed dry for our building stones trip. This trip took a different and shorter tour than the tour in June, finishing with a guided tour of the museum geology exhibits. 11 of the group were non-members plus 3 new members. All participants were fully engaged throughout with lots of stimulating discussions evolving as we toured this historic city.

Jon explaining the exhibits in the Museum. ***Photo by Ray Pratt***

8th Oct 2023 - Horsts and Grabens: A fieldtrip to Cleeve Hill, Gloucester with Nick Cridlaw by Jane Allum

Most will have heard about Horsts and Grabens when studying their O level Geography, when it was all about the great African Rift Valley. But about 300 million years ago when the North Atlantic Ocean didn't exist, the continents started drifting apart and produced an active belt of rift basins between the Caribbean and the Arctic.

Towards the end of the Palaeozoic (c.290m years ago), the north south trending Severn Basin began to form between what is now the Malverns, the Birmingham area and the Gloucestershire/Oxfordshire border. Subsidence of the basin continued as sediments were deposited through the Triassic and early Jurassic. At that time the UK was at the same sort of latitude as Morocco is today, with a warm tropical sea depositional setting. It was not lost on the participants that the almost tropical weather experienced on this trip was very apt for examining rocks laid down as sediment in a warm tropical environment.

Location map.

After parking at the radio masts, we advanced up the stratigraphic column from the top of the Leckhampton Member overlying the Lias Group, up through the Lower Inferior Oolite (Birdlip Limestone Formation) and into the Middle Inferior Oolite (Aston Limestone Formation).

Image showing the cliffs of the Inferior Oolite (overlooking Cheltenham race course).

Specifically, what developed in the tropical seas were limestones containing ooids, peloids, intraclasts and oncoliths that were cemented by a lime water (Sparite) created as shells eroded, or a lime mud (Micrite) produced as calcareous green algae disintegrated

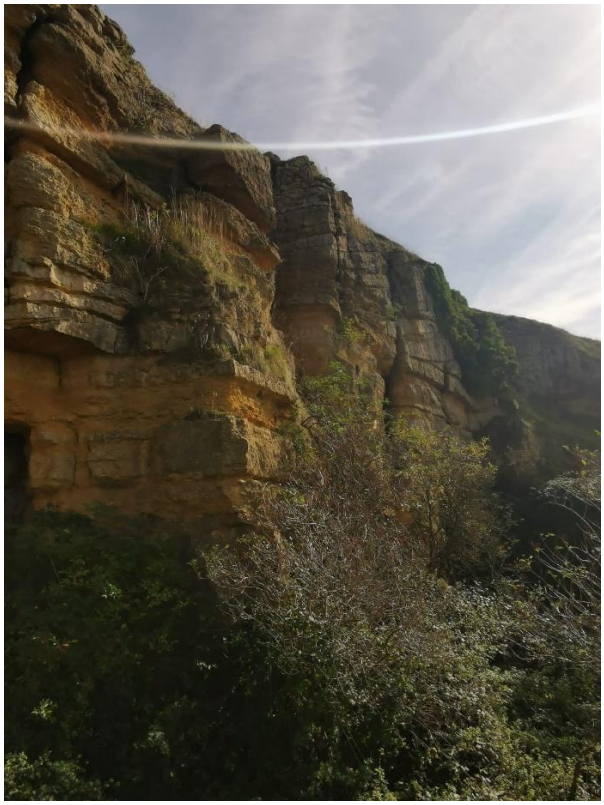


Photo by Kathrin Schütrumpf

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Photo by Kathrin Schütrumpf
Image showing various shells and other clasts cemented in the limestone

Photo by Kathrin Schütrumpf
Rounded Ooids in the limestone

Photo by Kathrin Schütrumpf

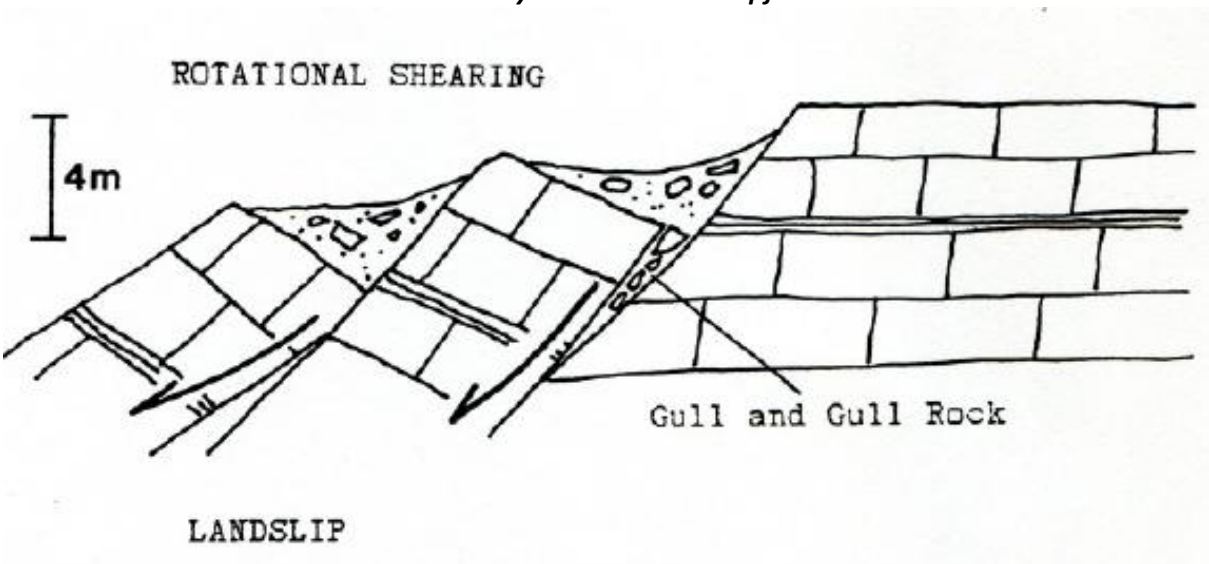
Cross bedding on a small and large scale was observed.

We saw various erosional and disturbed surfaces where the division between members was clear.

The image to the left was particularly interesting. Here we see what appears to be burrows in the rock, (not uncommon in soft sediments). Unusually, these were formed after the sediment had hardened. This is evident as the ooids are seen to be sliced through instead of being displaced as would occur in soft sediment burrowing.

In addition to everything else that makes Cleeve Hill a GeoPark we observed the geomorphology which gave the appearance of giant steps down into Valley. These have been formed by landslips caused by rotational slip of the bedrock. This commonly occurs when a competent permeable bed overlies an impermeable mudrock such as the underlying Whitby Mudstone Formation.

Photo by Kathrin Schütrumpf



One day is not enough to see everything in this fantastic park and many thanks to Nick who led the trip and a group of very knowledgeable professional and amateur geologists.
Cleeve Hill, Gloucestershire - Wikipedia

October WGCG host the October edition of the GA "Geology from your Sofa "

The GFYS monthly circulation was initiated by the Geologists Association (GA) during the Covid lockdown period when normal activities were suspended. This has proved very popular and highlights the large amount of diverse geoscience material available on the internet. With the return of field trips and meetings the GA decided to cease circulating the GFYS newsletter at the end of 2023. Acknowledging the efforts local affiliated societies have gone through to keep their members involved throughout the pandemic, local groups were invited to host the GFYS for 1 month in its final year. The video library WGCG had put together during this time was a key factor underlying the GAs early invitation to WGCG to participate.

Oct 1st & Sept 6th, SSSI Monitoring - Gareth Jenkins, Peter Hawksworth, Kathrin Schütrumpf & Anthony Allen

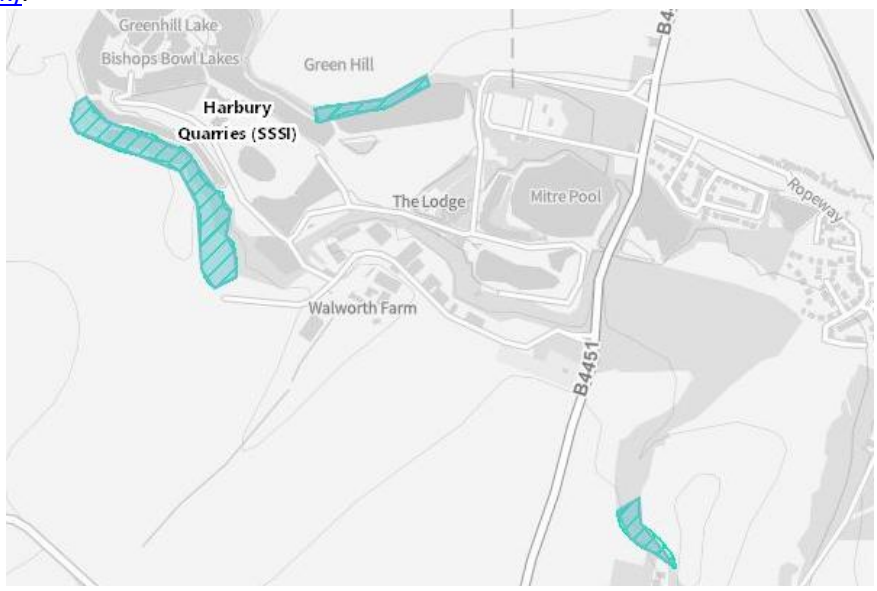
Condition surveys have been undertaken at Waverley Wood Farm SSSI and Harbury Quarries SSSI in partnership with The Geology Trusts. The purpose of the visits are to determine the current condition of selected SSSI for Natural England.

Waveley Wood Farm (naturalengland.org.uk) SSSI is located in Bubbenhall Wood and was visited on the 6th September by Kathrin Schuetrumpf, Peter Hawksworth, Anthony Allen and Gareth Jenkins.

The SSSI designation comprises interglacial sediments in contact with the paleo ground surface of the Mercia Mudstone. There are channels, organic sediments, pollen and fossils. However, the entire area is currently buried beneath the woodland! The former exposure was created by Waverly Quarry which has subsequently been land filled in the 1990s

Gareth talking boreholes in Bubbenhall Wood with Peter and Anthony

During a site visit on 30th September, more dramatic exposures were observed at the Harbury Quarry SSSI W/S/17 (naturalengland.org.uk).



Between Harbury And Bishops Itchington, the SSSI is located across three distinct areas

Kathrin Schuetrumpf, Peter Hawksworth and Gareth Jenkins observed the interbedded limestones and mudstones of the Rugby Limestone Member (part of the Jurassic, Blue Lias Formation) which former quarrying has created dramatic cliffs overlain by further glacial sequences

Kathrin making observations about the Rugby Limestone during a condition survey at Harbury Quarries SSSI

Caution is required near these exposures due to some slope instability and the extensive presence of lakes used by the local fishery. Specimens which were safely recovered indicated the mudstones were very thinly laminated shaley), with some shell debris on the bedding surfaces.

Peter 'opening' the shaley mudstone apart, as though it was a book

September 30th. Ask a Geologist at Warwick Museum by Ray Pratt & Kathrin Schütrumpf

On Saturday 30th September Kathrin Schütrumpf and Ray Pratt held a "Ask a Geologist" session at Warwick Museum from 10:30 to 12:30. This event, a suggestion from Julie Harrald, was months in the planning and well-advertised by the Museum. The museum set us up with a table on the ground floor where we laid out a number of WGCG sample and literature to sue in our discussions with interested public. From the moment we set out our table we were both kept busy until 12:45 (supposed to end 12:30).

All photos by Kathrin Schütrumpf with parental permission

One of several families who came to our WGCG "Ask a Geologist" session.

There were some individual adults who engaged with us, but most of those interested were families. A number of the children had brought along samples they had collected either on holiday or from near where they lived. We had some fun testing their specimens with our acid, bluetooth microscope and other tools brought along to aid identification. (Amazon may well get a boost in sales for bluetooth microscopes following this event, such was the interest). Interestingly, our visitors came from different parts of the county having heard about the event via the museum. It was a real pleasure to engage with those who came along and the enthusiasm of some of the children was uplifting. At the end of the session 9 families had signed up to be kept informed of WGCG activities.

The bluetooth microscope gave a 50 times magnification and was a big success with our visitors

Alphie brought along some magnificent ammonite samples from his trip to Charmouth, Dorset

The material used was mostly from the WGCG collection and put together with the aid of **Ian Fenwick**. It would have been very difficult to run this event successfully on one's own and having a colleague along was invaluable. WGCG would like to run this session at 2 or 3 monthly intervals. We invite anyone interested in participating either as lead or in a support role to get in touch via our email warwickshiregcg@gmail.com We would love to hear from you.

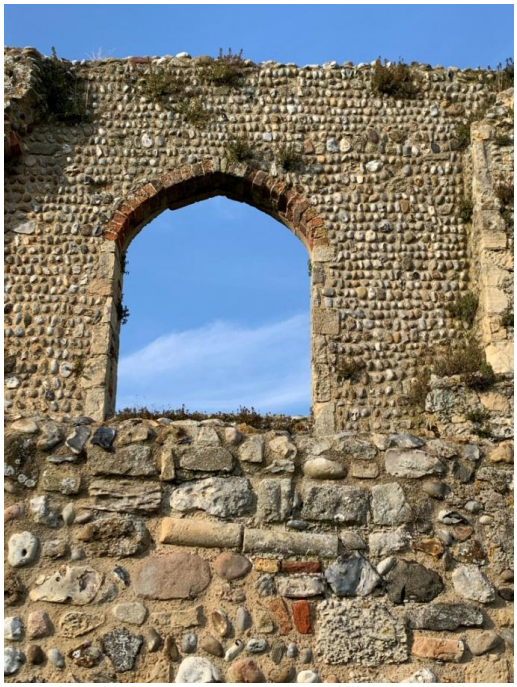
15-17th September 2023 WGCG Suffolk Field trip by Frances Morley

All Photos by Frances Morley

We assembled in Saxmundham Market Hall on Friday evening to meet our leader for the weekend, Tim Holt-Wilson. Despite problems with the projector, he delivered an interesting and informative talk about the geology of Suffolk, setting the scene for the field trip.

Saturday was a warm, sunny day perfect for being on a beach looking at cliffs. Here, flint tools showing the earliest recorded human activity in N.Europe were found a few years ago.

Whilst walking to the next location, we passed the impressive ruins of a 14th century church (St Andrew's today) and deviated to explore it and take photographs. We then enjoyed a well- deserved pub lunch in the sunshine!



Later we visited the old walls of Greyfriars Priory at Dunwich, which were constructed of a great variety of stones. There are local beach flints as well as Baltic flints which came to Suffolk as ballast on trading ships. Other stones include sandstone, chalk, dolerite and granite. It was most interesting to study these with a hand lens. Saturday finished with an excellent group dinner at a welcoming local pub.

Sunday was cloudy and therefore a little cooler than Saturday, but dry! At Bawdsey, beneath cliffs of clay and Red Crag, we all found pieces of fossil wood. One member of the group found a fossil shark tooth, but despite much searching by the rest of us, no more were found.

Shingle Street was an amazing shingle spit with ridges showing storm events. It is a really good example of the constantly changing coastline

Tim had booked a table for lunch in a pub in Orford, which was very pleasant. An added attraction for several people was the pub's proximity to a local specialist chocolate shop!

The last site of the field trip was reached by a long walk-through attractive woodland to a nature reserve. It was a beautiful location, set in heathland. We were able to climb the sandy cliffs and find small fossils.

On returning to our cars, we parted company and made our ways home. Thanks to Mike Allen for organising this very enjoyable and informative weekend!

The Suffolk Geology and a snail with a twist – Jon Radley

WGCG's Suffolk weekend in September was blessed with warm sunny weather (until Sunday, anyway): perfect for walks on the coast's magnificent beaches, under rapidly eroding cliffs of mainly unconsolidated sediments, mainly dating back just a few million years. The upshot was that I had a palaeontological tattoo on show (left calf), given the perfect 'shorts-weather'. Our leader, Tim Holt-Wilson was the first to comment. 'Is that a *Neptunea contraria*?', he politely asked, on Saturday afternoon. My face must have lit up as I answered 'yes', and a conversation ensued.

To cut a long story short, *Neptunea contraria* (or *Neptunea angulata* as it is now known) is a Pliocene – Recent marine gastropod (sea-snail) of the whelk family, well-known from the Upper Pliocene Red Crag deposits (shelly sands) of the Suffolk coast and adjacent parts of north Essex. Most gastropod species, whether marine, freshwater or terrestrial display a dextral coil – that means that with their apex pointing upward, the aperture will open to the right. *Neptunea contraria* is something of a peculiarity in that it boasts a sinistral coil, that is, with the aperture on the left. This is a rare condition and is poorly understood. It isn't clear if this has any significant adaptive advantage for life in shallow seas, where gastropods are involved in a constant evolutionary arms-race with crustaceans and other predators. This species is also an interesting climatic indicator for the Red Crag deposits, indicating warmer waters, at least for a while. Whelks, modern and ancient, are of general conchological interest within the British context, representing an advanced state of adaptation for their carnivorous/scavenging lifestyles in coastal waters. As well as fossil *Neptunea* in East Anglia, our British coasts are often strewn with the shells of the broadly similar but dextrally coiled common whelk, *Buccinum undatum*.

So why my affinity with *Neptunea angulata* and the infamous tattoo? It's quite simple – I'm also sinistral – left-handed, in other words. And I did spend several years dabbling in marine gastropod palaeobiology and evolutionary ecology, many years ago. Back to that conversation on a sunny beach in Suffolk - Tim informed me that we might see an example or two of *Neptunea*, the following day. He was referring to the well-known section at Bawdsey Beach, where a couple of metres of Red Crag with a richly fossiliferous shelly lag overlie the Paleogene London Clay, in low cliffs.

That following day (Sunday) we assembled at Bawdsey Beach (heavily fortified at one end by Scandinavian hard-rock sea defences) under Tim's guidance, as he explained the geology and palaeontology of this popular beachcombing site which is under constant attack from North Sea tides and storms. The rusty sands of the basal Red Crag proved to be remarkably fossiliferous here, with broken iron-stained bivalve shells from the slumping cliffs mixing on the shore with modern shells, including the common whelk. And Tim came up with the goods – generously presenting me with a beautifully preserved *Neptunea contraria* that had tumbled out of the crumbling outcrop behind us. Thank you, Tim! And as I told him at the time, he absolutely made my day with this Pliocene treasure. I collect very little these days (at least in a personal capacity), but that shell is a definite keeper.

Bawdsey Beach was the gift that kept on giving, despite the grey cloud and light rain. Pyritised driftwood and a shark tooth from the London Clay, derived Miocene sandstone cobbles and worm-bored phosphatic pebbles at the base of the Red Crag, *Neptunea* and thick-shelled dog cockles weathering out of the basal Crag, those modern whelk shells on the shore, a worked flint or two, and worn lumps of larvikite from the nearby sea defences. I should mention again the extraordinary preservation of the Red Crag shells here, preserving their original calcitic (aragonite) mineralogy, despite their age and preservation within eminently porous iron-stained sands. After about an hour we reluctantly moved on from this Suffolk coastal gem, one of many that we visited on our geodiverse trip away. Thanks again to Tim Holt-Wilson for his expert guidance throughout the weekend.

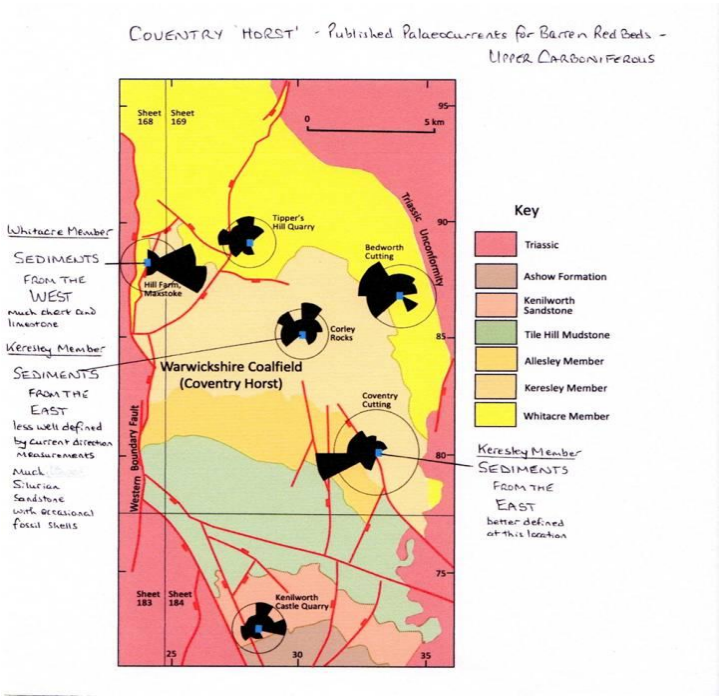
Neptunea angulata from the Red Crag and a modern *Buccinum undatum*, both from Bawdsey Beach, Suffolk.
Photo by Jon Radley

19/8/23 WGCG Field Trip: Hill Farm, Maxstoke & Corley Rocks by Mike Allen

All photos by Mike Allen

This excursion examines two sites offering perhaps the best exposures of the late Carboniferous Red-Beds of the "Warwickshire Group" currently available in the north of the county. They are located on opposite sides of the Warwickshire Coalfield (an uplifted area known as the Coventry Horst) and both display outcrops of current-bedded sandstone delivered by large rivers flowing from a mountain chain, raised up to the south during the Variscan Orogeny, flowing towards the Pennine Coal Basin. Careful inspection reveals contrasting sediment sources much argued and debated for over a century without any final consensus emerging yet!

Maxstoke quarry



Geological sketch map showing both locations

This site at Hill Farm is located very close to the Western Boundary Fault of the coalfield, and shows the Arley conglomerate bed in the foreground (peeping through the grass!) dipping towards and under the sandstone face of an old quarry in the background. The constituent pebbles of this conglomerate include pieces of chert derived from Carboniferous Limestone and are generally thought to derive from a western source, also suggested by the predominant current direction seen in the cross-bedded sandstones in the quarry.

Panoramic view to the west from Maxstoke

Nearby, one can stand at the top of a low, but prominent, escarpment formed by erosion along the boundary fault. The views westwards across the younger Triassic beds of the Knowle Basin extend to the West Midland conurbation, with the hills of Lickey, Rowley and Dudley all featured, as well as the more obvious skyline of Birmingham city centre.

These more impressive outcrops at Corley Rocks consist of slightly younger sandstones with pebble beds, mudstone layers and various types of cross-bedding. A few of the pebbles contain fossil shells which point to a Silurian origin, and current directions suggest a contrasting eastern source (see sketch map above).
This location lies towards the eastern boundary of the coalfield block and views nearby take in former colliery sites working the productive Coal Measures which underlie the unproductive Red- Beds. On the horizon is the Nuneaton Ridge formed by steeply upturned rocks of much greater, Pre-Cambrian to Ordovician, age.

Corley Rocks

July 20th Guys Cliffe, Warwick. Evening field excursion - Stuart Burley

Photo by Ray Pratt

An evening's field trip was recently run to examine the spectacular exposures of the Helsby Sandstone (aka Warwick Sandstone) at Guys Cliffe in Warwick. Stuart Burley led this very educational and oversubscribed trip. A recording of this excursion is now available on our YouTube channel. **Download handouts.**

July 7th to 9th Flamborough Head Weekend Field Trip - Paul Hildreth

Photo by Ray Pratt

In July a three-day long weekend field trip, organised by Mike Allen, took WGCG to the Flamborough Head area of Yorkshire. Paul Hildreth of the Yorkshire Geological Society and the GA led this trip. Participants were treated to some excellent geology and learned how to correlate the beds between locations in the absences of fossils. The weather was very good and the scenery superb. We started off with a group of 10 but each day we seemed to attract local interest and end up with a couple more. We all stayed in a nice family run hotel in Bridlington where we enjoyed some fine cooking by the man of the place, (who we never actually met). A detailed field report by Mike Allen is given at the end of this newsletter.

June 15 Roundberry Quarry, Polesworth. Evening field Excursion - Ray Pratt

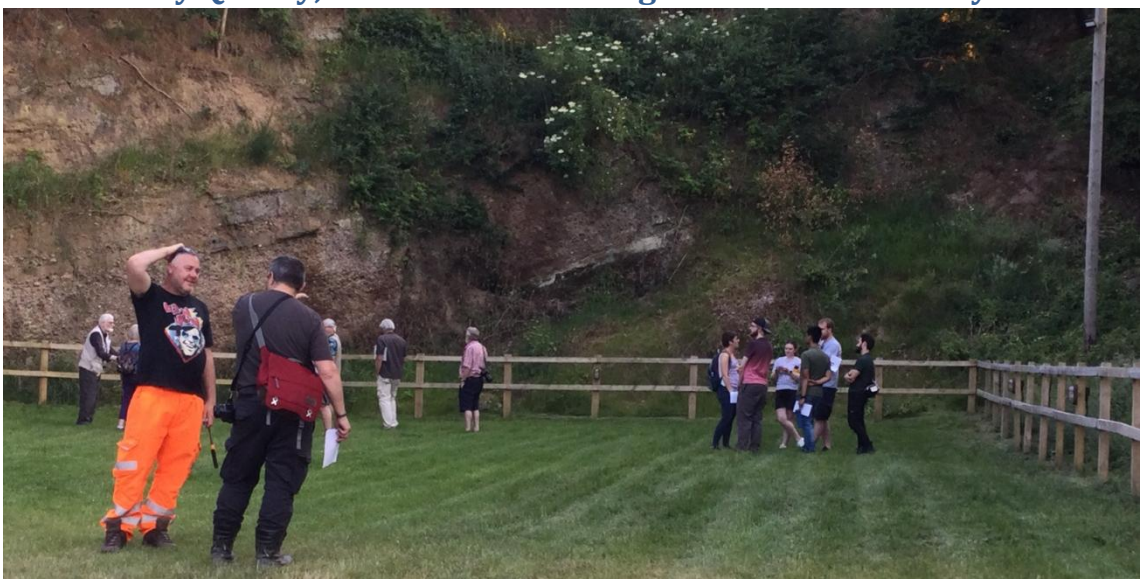


Photo by Ray Pratt

A trip to Roundberry Quarry one beautiful evening in mid June was led by Ray Pratt, with 25 participants plus 5 children. This is a private location that the owners maintain to a high level, with the best exposures of the Chester Formation, (aka Bunter Pebble Beds), in Warwickshire.

View the video of Ray Pratt explaining the geology that led to the deposition of the Chester Formation at Polesworth

June 2nd Geo Week - Urban geology walk around Warwick. - Jon Radley

Photo by Max Down

On Friday 2/6 WGCG held its last GeoWeek event, with a geotour of the centre of Warwick. The event was fully subscribed and was led by Dr Jonathan Radley, assisted by Ray Pratt & Max Downs. Starting at the Museum in the Market Place a distance of 1.5 miles was walked taking in some of the key historical buildings and appreciating their stonework. Due to a high level of engagement with the participants the tour took 2 hours, 1/2 an hour more than planned. Participants expressed their appreciation for this very enlightening and entertaining walk. WGCG plan a repeat of this walk Friday October 13th.

Download a photo report of the Warwick urban geology tour

View a video of Jon Radley talking about the exposure of the Helsby Sandstone in the grounds of Warwick Castle

May 29th Geo Week - Deep Time Travel through Kenilworth. - Ray Pratt

Photo by Kathrin Schütrumpf

On Monday 29 June Ray Pratt, assisted by Kathrin Schütrumpf, led a group of the public around Kenilworth old town. The event was organised and promoted by Kenilworth Council as part of their Nature Week festival, which coincided with GeoWeek. Being a town geotour, the number of participants was limited to 16. (52 expressed interest). It was only possible to agree to this late request from the council because WGCG had a trail guide for Kenilworth thanks to the work undertaken by Ian Fenwick, several years previously. This 1.5 hrs geotour was a big success which we hope to repeat at some future date.

May 2nd Geo Week - Public Engagement stall, Kenilworth - Gareth Jenkins, Kathrin Schütrumpf & Ray Pratt

Management Committee members, Gareth Jenkins, Kathrin Schütrumpf and Ray Pratt, assisted by Paris, engaged with the public on this bright sunny day. The purpose of this event was to promote WGCG to the public, and to this aim we succeeded. There was quite a lot of interest in our stall and quite a number of people signed up to receive more information about our organisation. We hope to welcome some of them to our upcoming meetings.

Photo by Kathrin Schütrumpf

March 14th WGCG delivers a successful Outreach event to Shipston Primary School - Deborah Parke

At the beginning of January WGCG received a request for help from a teacher at Shipston Primary School. Deborah Parke, a WGCG member and local to the area, was approached and kindly agreed to assist the school in their year 3 lesson on volcano's. Here is a summary of the experience written by Deborah.

Cyrus Read Geophysicist USGS, Alaska Volc Observatory cread@usgs.gov – https://www.usgs.gov/atom/15347 Public Domain

" Having met the teacher and agreed a date and time for me to deliver a 45 minute talk on volcanoes, I let Ray Pratt know what was going to happen. From then on, the support and encouragement I received from WGCG colleagues was great. As soon as I'd agreed to do the talk, I was sent links to teaching resources, offered rock samples from personal collections to take into school and loaned hand lenses and magnifying glasses. Ian Fenwick was especially helpful, allowing me to put together a selection of beautiful igneous rocks from the WCGC collection to show the children.

Between initial discussions at the school and the talk happening, some changes occurred – meaning that my 45 minute talk became a 90 minute talk! I followed the class plan I'd been given by the teacher fairly closely, outlining the different kinds of eruption, different types of lava/shapes of volcano, anatomy of a volcano and the general definition of active, dormant and extinct volcanoes. Throughout the session, there were rock samples illustrating what I was talking about. I also had photos from my 2018 trip to Hawaii at the time of the Kilauea eruption to show real lava fountains and lava fields, and a CGI video of an eruption and pyroclastic flow. At the end of the talk, there was time for the children to handle the rocks, ask me to help identify their own rock samples and look at olivine sand from Ascension Island under a magnifying glass to identify lava grains and olivine grains.

This was an amazing opportunity for me to spend 1.5 hours talking to an enthusiastic and appreciative audience about one of my favourite things – volcanoes. The feedback and questions from the children (and some of the adults) were inspiring, with comments like "best lesson EVER". I have been asked to go back and deliver the talk to next year's Year 3."

February 19th - A day with the rangers at Burton Dassett - Ray Pratt

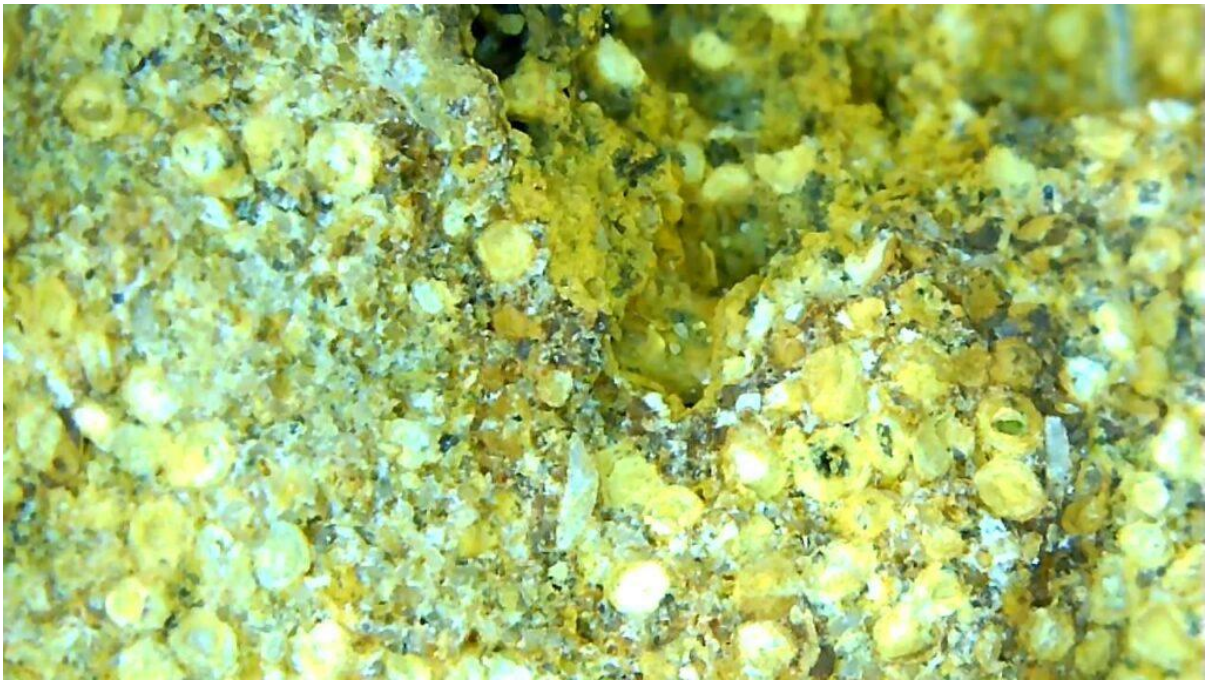
All photos by Ray Pratt

Simon and Phil, Warwickshire Countryside rangers, Harts Hill, Burton Dassett

On a blustery Friday mid-February, Ray Pratt met up Warwickshire countryside rangers, Simon and Phil for a walk around Burton Dassett. If you haven't been to Burton Dassett recently then you may be unaware that the curtain of fencing that surrounded the beacon for the past 6 years, has finally been removed. Now it is possible to get up close and examine the building stones and see the plethora of fossils and sedimentary structures on display. In addition to this, a number of trenches have been dug to prevent motor vehicles driving over the grassland. The road widening that took place near the toilet block has enabled examination of the Whitby Mudstone, which is not otherwise exposed.

The rangers had been in touch with WGCG to explore ways in which we could collaborate. Warwickshire county council have set up an education group in order to engage with the public on the "great outdoors" that is on their doorstep. Following a walk around exploring the geology, botany, ecology and history of the area ideas were discussed on what we could do regarding public engagement. Watch this space for further news.

Reed beds mark the spring emerging from the contact of the permeable Dyrham Formation and the underlying impermeable Charmouth Mudstone.



Ooliths are common within the Northampton Formation of Harts Hill. The dark blue grey grains are berthierine, (iron bearing silicate).

•

Field Trip to Flamborough: July 7th - 9th 2024 - Field Report and photos by Mike Allen

Nine participants assembled at Flamborough North Landing car park on a bright but breezy day, where they were introduced to our leader for the weekend, Paul Hildreth, erstwhile president of the Yorkshire Geological Society. Having had a long association with this part of the world, Paul was the ideal person to make the geology of Yorkshire's Chalk Coast intelligible to us all. After some general comments about the nature of the Chalk, and variations across the country, we were given a valuable introduction into the modern 'northern' stratigraphy (i.e. that applying to the Yorkshire coast) and how to navigate oneself around within the broader stratigraphic framework. This can be achieved by particular reference to the nature and distribution of flints within the Chalk, as well as marl bands and a few useful fossil 'marker bands'.

Basic 'Northern Province' Stratigraphy (with approximate reference to other nomenclature):

Upper Chalk	Maastrichtian Campanian (part)	**Rowe Formation**	**flinty, white chalk**
	Campanian (part) Santonian (part)	**Flamborough Formation**	**soft white, flintless chalk with many marl bands**
	Santonian (part) Coniacian	**Burnham Formation**	**harder white chalk with paramoudra, tabular and careous flint & marl bands**
Middle Chalk	Turonian	**Welton Formation**	**white chalk with isolated, rounded and burrow flint & distinctive marl bands**
Lower Chalk	Cenomanian	**Ferriby Formation**	**soft, grey, flintless chalk**
U. Greensand	Albian	**Hunstanton Formation**	**red / pinkish chalk**

Within this simplified framework, many flint and marl bands have individual names and can be separately traced over sufficiently wide areas to correlate across the Flamborough headland, and sometimes inland and further afield. Armed with a detailed handout, we were set to work to identify where we were, stratigraphically speaking, at North Landing.

1 "Potstone" (approx. 30cm diameter), North Landing (note tabular flint just above)

At the foot of the slipway providing access to the beach, one stand-out feature was suggestive of the Burnham Chalk. This was described as a "potstone", a large rounded flint similar to a paramoudra (1).

2 Ulceby Marl Bedding Surface, North Landing

Examination of the cliffs on either side of the bay revealed many tabular flint bands and one very distinctive marl horizon (the Ulceby Marl) which was marked by a strongly developed bedding surface (2).

3 Paramoudra Flint, North Landing (biro 15cm)

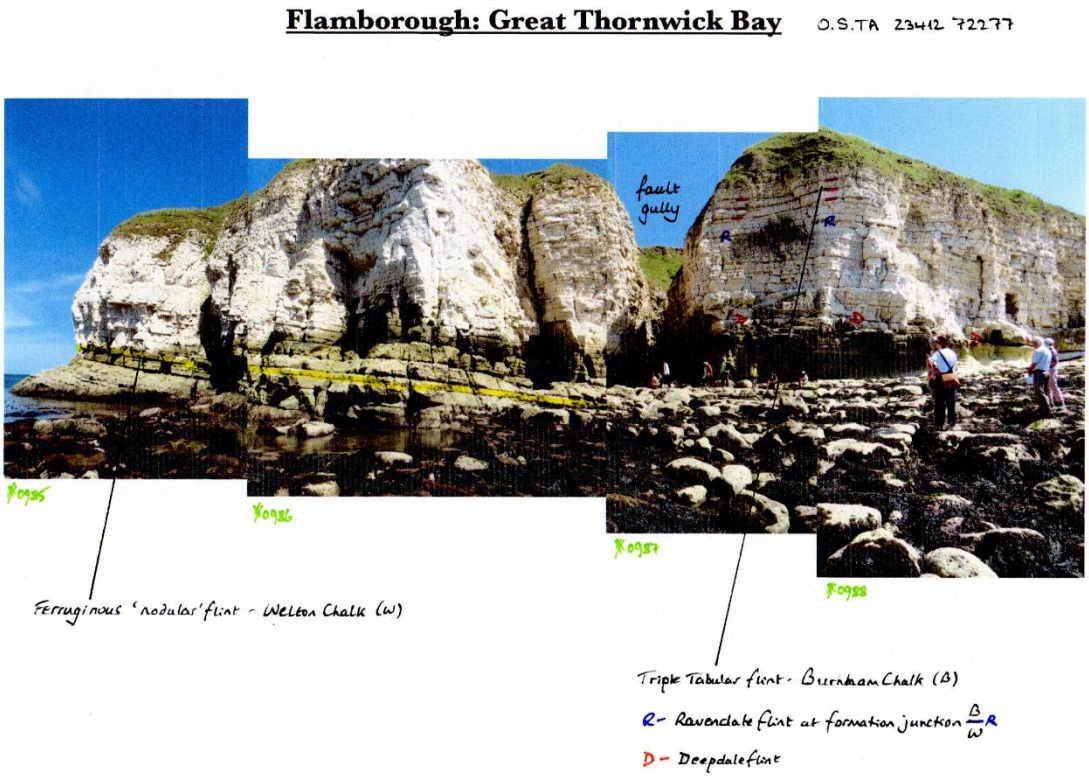
Picking our way carefully across large boulders around the south side of the bay, another paramoudra presented itself in cross-section in a loose block (3).

4 Ravendale Flint (at Paul's shoulder height), base of Burnham Chalk, North Landing

Approaching a natural arch nearby, the transition from Burnham to Welton Chalk low down in the cliff was pointed out with reference to the "Triple Tabular Flint" and underlying semi-tabular "Ravendale Flint" at the base of the Burnham Chalk (4). This was sufficient to convince us all of the utility of this method.

A similar exercise was conducted in Great Thornwick Bay, a walk of about a kilometre around the coast to the west, with fine views in both directions, noting variations in the thickness of the glacial tills covering the chalk cliffs. We had noted that the Chalk dipped gently to the south-east at North Landing, so it was likely that Thornwick Bay should be at a **lower** stratigraphic horizon.

5 Great Thornwick Bay - eastern side



With this in mind, the "Triple Tabular Flint" was recognised high in the cliff on the eastern side of the bay (5) and it was then an easy task to identify several further features in the cliffs below this level, namely the "Ravendale semi-tabular Flint", "Deepdale Marls" (both upper and lower), the nodular "Deepdale Flint" (conspicuous towards the foot of the cliff), two further less clear marl horizons and finally another conspicuous brown-stained flint across the wave cut platform: the nodular "Ferruginous Flint" (6). The appearance of nodular flints confirmed that we were now dealing with the Welton Chalk.

6 Brown stained "Ferruginous Flint", Thornwick Bay

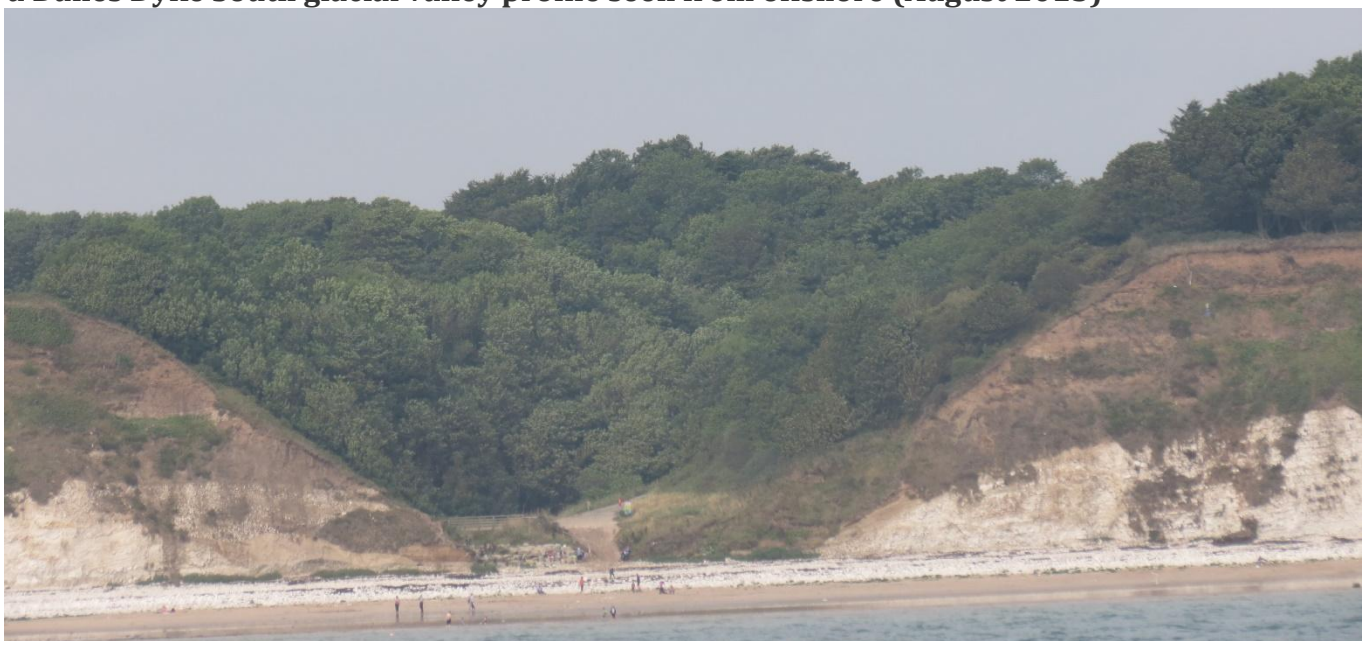
This concluded the afternoon's activity, everyone then making their own way to Bridlington to check in at the Sefton Hotel, a comfortable family run establishment where accommodation had been arranged for the weekend. Paul presented an introductory briefing in the hotel bar over drinks before going out for an impromptu group meal in town in the evening.

Saturday morning promised another fine day, with a walk planned from Danes Dyke South to Sewerby along the shoreline on a falling tide, returning along the cliff top path. The group duly assembled in the car park before emerging on to the beach at Dykes End after a short descent through the wooded valley that is Danes' Dyke. This ancient man-made feature is a ditch and bank earthwork of uncertain, but post-Roman, age that runs 4km across the Flamborough headland, following a line of structural weakness in the Chalk associated with the Flamborough Head fault complex (of which more anon).

7 Lacustrine and Glacial Deposits, Dykes End (Danes' Dyke South)

The cliffs immediately east and west of this point are composed of an infill of glacial Skipsea till overlying a layer of laminated lacustrine silts and sands, in turn covering a bed of cryoturbated Chalk (7), which suggests that this end of the dyke also followed the course of a pre-Devensian river channel.

7a Danes Dyke South glacial valley profile seen from offshore (August 2015)



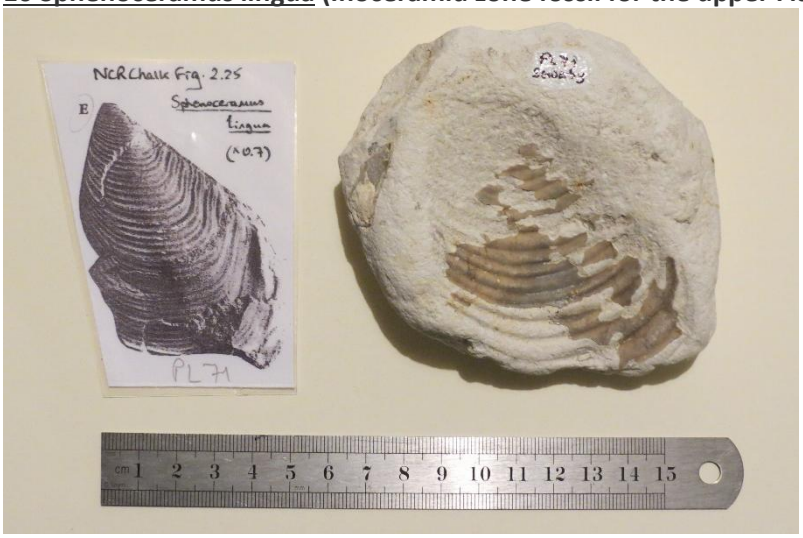
Progress west along the foot of the cliffs was at times an uncomfortable 'stumble' over chalk boulders or a slippery seaweed-strewn rock platform, with an easier strip of shingle in between (8). Once again, we were invited to determine our stratigraphic horizon from what we had learned the previous day: the lack of any flint bands within the softish, pristine white chalk suggesting we were dealing with the Flamborough Chalk.

8 View west towards Sewerby with calcrete blocks

9 Marsupites testudinarius (Crinoid calyx)

Once we 'got our eyes in', we found plenty of fossil remains, mostly fragmental, but with occasional in-situ sea-urchins preserved in outline. Occasional calyx plates of the free-floating crinoid *Marsupites testudinarius* (9) were identified, indicative of the Danes Dyke Member of the Flamborough Chalk.

10 Sphenoceramus lingua (Inoceramid zone fossil for the upper Flamborough Chalk)



Further on, calcite prisms derived from the valves of *Inoceramid* bivalves were pointed out to us. These shells are seldom preserved intact, but when they are, and can be identified, they offer a valuable means of correlation. One such fossil is *Sphenoceramus lingua* (10) which is the zone fossil for the overlying Sewerby Member of the Flamborough Chalk. At some point a biozone boundary had been crossed.

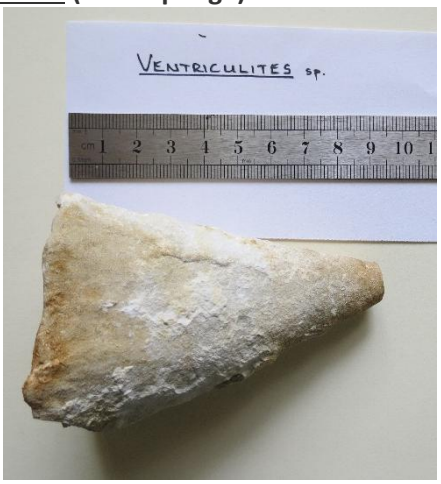
(Those of you who are "on the ball" will have noticed that while heading west, we have here passed **higher up** the stratigraphy, in contrast to our experience yesterday: the beds here dipping very gently westwards. I will leave it to you to ponder this structural conundrum, if you so wish)!

About 400m further along the shore we came across four large blocks of calcrete fallen from the post-glacial gravel deposits at top of the cliff. We also identified a disturbed zone where the Longwood Marl band was seen to be

displaced by small faults. A little further along we began to recognise sponge fossils appearing in some abundance, marking the horizon of the celebrated "Flamborough Sponge Bed" which extends low in the cliffs all along the Sewerby Rocks stretch of the coast. This bed, difficult to actually pin down, is several metres thick and yielded a fine example of both *Verruculina?* (11) and *Ventriculites* (12).

11 (?)Verruculina (fossil sponge)

12 Ventriculites (fossil sponge)



The party continued a short distance beyond Sewerby Steps to inspect the "Sewerby Buried Cliff". This is where the line of the pre-glacial Chalk cliff turns inland while also being traceable seaward across the wave-cut platform. Banked up against the cryoturbated margin of the Chalk are, from beach level upwards, a bed of rolled pebbles, a small area of rockfall smothered by a bed of loess-like blown sand deposited during the Ipswichian interglacial period, a wider spread of chalk-flint rubble interpreted as an early Devensian solifluction deposit, all covered by the same Skipsea (Devensian) Till seen at Danes Dyke. Most of these units stand out in photo (13), with the addition of a capping of late-Devensian fluvio-glacial Sewerby Gravels and the modern soil horizon.

13 Sewerby Buried Cliff

By this time lunch (and a comfort stop!) were well overdue, so a convenient nearby hostelry was accessed via the

Sewerby Steps, followed by a return along the cliff top path reviewing some of the features on the beach below as we went. In keeping with tradition, a formal group dinner, provided by our hosts at the Sefton Hotel, was enjoyed by all later in the evening.

Fair weather greeted us again on the Sunday morning for a return to the north side of the headland, assembling in the busy RSPB car park at Bempton Cliffs. A handout produced by the Yorkshire Geological Society for distribution at the Seabird Centre was provided, giving a description of the geology along these high cliffs so popular with the bird-watching fraternity. At Bartlett Nab we took in the views across Filey Bay to Filey Brigg, a promontory visited on a previous WGCG field trip. This is composed of resistant Corallian (upper Jurassic) gritty calcareous sandstones celebrated for their network of large thalassinoid burrows and beyond to the headland of Scarborough's Castle Hill likewise surmounted by the same hard Corallian beds overlying Middle Jurassic rocks.

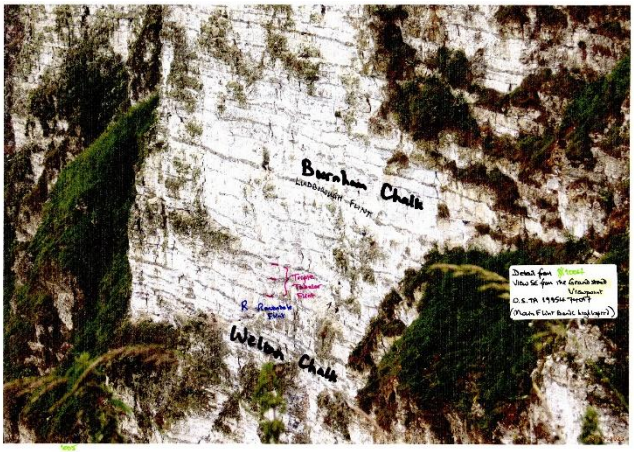
14 Coastal Erosion along the Bempton Coast

Making our way eastwards, at Mosey Downgate we peered down into the cleft probably produced by the collapse of an earlier blow-hole. This reminded me of an old photograph taken of a similar "geo" further along the coast where the impact of coastal erosion was made rather forcibly by the undercutting of a somewhat pointless fence (14)

At the Grandstand viewpoint we could see how the geology influenced the development of ledges in the cliff profile which provide precarious nesting sites for the abundant avian population, the ledges either cut along softer marl layers or formed by hard, protruding flint bands (15). A careful inspection also enabled identification of the "Triple Tabular Flint" and associated horizons (16).

15 Avian population clinging on to their nesting sites, Bempton Cliffs

16 View from the Grandstand, Cliffs just west of Staple Neuk / Scale Nab



Further along, the small promontory of Scale Nab (also known as Staple Neuk) is a natural sea-arch which, from certain angles, gives the appearance of an elephant at drink. Nearby is the most spectacular feature of these cliffs, the so-called "Crumple Zone", a belt of tectonic disturbance which can be traced far inland. Both of the last two

features are seen in photo (17), taken from the “wrong” side of the protective railings along this part of the clifftop.

17 Scale Nab ("the Elephant”) and the “Crumple Zone”, Bempton Cliffs

Close by, quite by chance (!?), some boulders of a very different rock type were pointed out to us. These were of dolerite, derived from the Cleveland Dyke and deposited nearby from a retreating ice sheet. This dyke runs right across the country from a Palaeogene volcanic centre, associated with the opening of the North Atlantic, on the Isle of Mull.

18 Blowhole, Selwicks Bay (and cliffs beyond, looking north: Note prominent joint-controlled zig-zag cliff line and slumped glacial till overlying the Chalk)

Our final destination was Selwicks Bay at Flamborough Head itself, which was approached from a cliff path passing the site of a more complete blow-hole (18) in a broad hollow formed by collapse of the overlying glacial till where the underlying Chalk had been eroded away.

19 Sea-stack "Adam", Selwicks Bay

Selwicks Bay, in the broadest sense, is a confused series of inlets and caves carved out of highly tectonised Chalk. In one sea stack nicknamed "Adam" (whose partner "Eve" has long since collapsed and been eroded away) the "High Stacks Flint", the highest tabular flint in the stratigraphy, marks the boundary between the Burnham and Flamborough Chalk, just below the high-tide mark or colour change in the photo (19).

The chalk hereabouts is riddled with fault planes, irregular joints, small scale folding and brecciated bands (20) collectively forming another belt of deformation which can be traced far inland. The timing of this destruction is thought to range from the late Maastrichtian (end Cretaceous c.70 Ma) through to post-Alpine age (early Miocene c.20 Ma) with four periods of structural deformation recognised. By contrast, there was also a small example of contemporary sedimentary deformation (slumping) to be seen.

I would like to end by expressing our collective thanks to Paul Hildreth for a splendid weekend of geology far more varied than "just looking at the Chalk" would seem to imply.

Mike Allen.

Events to Come

WGCG Winter Talks Programme

2023

• November 16th	Paul Hildreth	***The birds and rocks of Flamborough Head - Paul Hildreth.***
• December 14th	Christmas Social	New quiz to be devised Brian Ellis talks on economic geology - Kathrin Schütrumpf -*WGCG* field excursion slide show

2024

• January 18th	Dougal Jerram	La Palma Eruption
• February 15th	Paul Smith	title: 'Geology & Caves of N / NE Greenland - physical records of cryptic geological intervals'
• February 17th	**WGCG Workshop**	Identification of geological specimens
• March 21st	Frankie Dunn	subject: Charnwood (Ediacaran) fossils
• April 18th	Phil Gibbard / Seb Gibson	subject: Wolstonian Glaciation / HS2

WGCG "Ask a Geologist"

• December 16th	Warwick Museum	Gareth Jenkins & Joe Mazgajczyk
• March 16th	Warwick Museum	Deborah Parke ? & ? to be confirmed
• June 15th	Warwick Museum	TBD
• September 14	Warwick Museum	TBD
• December 14	Warwick Museum	TBD

2024 Field Excursions in the planning / consideration phase (to be confirmed)

- Residential weekend - Peak District - Martin Whiteley (early summer)
- Residential Weekend - Charnwood - Mike Howe (Aug-Sept 2024).

Day visits

- Kenilworth Cutting (*Saturday mornings in April)*
- Cemex Rugby Cement - (early May)
- Moorwood -Nuneaton. (June)
- Leek Wootton golf course or Saltwell, West Midlands (Jul - Aug)
- Tardebigge reservoir circular (Aug-Sept)

Events will also be arranged for **GeoWeek** (25th May to 2nd June 2024)

WGCG Geo conservation

- Moorwood (March 2024)

Other Society Events

Geologists Association

https://geologistsassociation.org.uk/lectures/

GA Lectures commence on a Friday at 6:00 pm and are held at Burlington House London and **online via Zoom**

December 1st *Hybrid Meeting* The extinction of a giant apex predator: implications on a food web structure by Amy Shipley

Leicester Literary Philosophical Society

https://www.charnia.org.uk/

Presentations are held in theatre at the Leicester University campus at 7:30 pm, from whence they will be broadcast **on-line via Zoom.** Zoom links will be emailed to WGCG members a few days before each talk.

2023

Wednesday 8th November:	Emily Swaby (The Open University) Mesozoic Insects
Wednesday 13th December:	? Charnwood Forest Geopark

2024

Wednesday 10th January	tbn
Wednesday 14th February	? Lincolnshire Limestone
Wednesday 13th March	tbn
Monday 25th March	Dr Phil Bird TBC (joint meeting with Lit & Phil Parent Body)
Wednesday 27th March	Annual Meeting of Section C

Malvern U3A Geology Group

http://malvernu3a.org.uk/geology3/.

The Geology Group meets on the 3rd Friday every month from 10 a.m. – 12 noon at the Malvern Cube Community Centre.

Teme Valley Geological Society (TVGS)

https://geo-village.eu/

TVGS now has an initial schedule of talks for 2023-2024. TVGS talks are held at Martley Memorial Hall at 7.30PM. Free to members, Non-members £3.

Monday 27 November: '	Geological perspectives on climate change: from our local rocks to the IPCC'. Speaker: Prof. Stuart Robinson, University of Oxford.	
Monday 22 January 2024	"The earliest Humans in the British Isles - the geological context" Prof James Rose, Royal Holloway University	
Monday 26 February 2024	TBA	
Monday 25 March 2024	TBA	
Monday 22 April 2024	Chris Darmon, Down-to-Earth editor (TBA)	Zoom

The Woolhope Club Meetings

www.woolhopeclub.org.uk. All meetings are held at Hereford Town Hall. Friday evening meetings start at 6 pm, Saturday afternoon meetings at 2 pm. There is a £2 charge for all non-members.

The Black Country Geological Society (BCGS) Programme

http://bcgs.info.

Black Country Geological Society's indoor meetings held on a Monday evening at the Abbey Room at the Dudley Archives, Tipton Road, Dudley, DY1 4SQ**.** Meetings will normally open at 7.30pm and lectures commence at 8.00pm.

10.00 – 1.30,	11 November	Geo conservation Day - Portway Hill, Rowley
Mon 8:00 pm	20 November	Origins of Starfish and their relatives
10.00 – 1.30	9 December	Geo conservation - Saltwells NNR
7.00 pm	11 December	Members Christmas meeting.
10.00 – 1.30	13 January	Geo conservation - Portway Hill, Rowley
Mon 8:00 pm	15 January	'A Recipe for Disaster'. Speaker: Dr. Ekbal Hussein (Remote Sensing Geoscientist at the British Geological Survey).

Mon 8:00	19 February	'A very British summer in the late Triassic: the Arden Sandstone Formation of the English West Midlands and the dawn of the dinosaurs'. Speaker Prof. Stuart Burley.
Mon 8:00	18 March	AGM and talk tbc.
Mon 8:00	15 April	'Geology of the Chiltern Hills; new data & new interpretations'. Speaker: Dr. Haydon Bailey (Geological Adviser, The Chiltern Society).

The Lapworth Museum of Geology

https://www.birmingham.ac.uk/facilities/lapworth-museum/events/activities.aspx

The Lapworth Museum runs a range of exciting family activities, from educational talks to tours and arts and crafts activities.

The West Midlands Regional Group of the Geological Society

https://www.geolsoc.org.uk/wmrg

WMRG hold their meetings on the second Tuesday of each month in Central Birmingham **and via Zoom**. Meetings commence at 6:30 pm

Tuesday	14 November:	'Jurassic Railway - Engineering Geology of HS2 in the South Midlands'. Speaker: Simon Butler (Chief Engineering Geologist, Atkins & Senior Project Engineer, HS2).

Shropshire Geological Society

http://www.shropshiregeology.org.uk/SGS/SGSEvents.htm

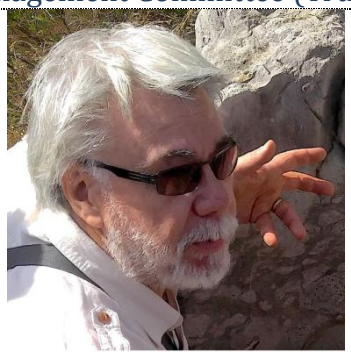
Meetings commence at 7.15pm for 7.30pm.

Lectures are now being held in hybrid form, in person at the University Centre, Shrewsbury, **as well as by Zoom**.

Wednesday 8 November 2023:	The Lie of the Land (guest speaker: Martin Whiteley, Bedfordshire Geology Group)
Wednesday 13 December 2023:	Critical Raw Materials for the Energy Transition: Lithium (guest speaker: Kathryn Goodenough, BGS)
Wednesday 10 January 2024:	Shrinking glaciers, dynamic proglacial response: glaciofluvial landscapes in a time of glacier retreat (guest speaker: Philip Marren, University of Chester)
Wednesday 14 February 2024:	Darwin Lecture: Darwin and the Ice Age in Shrewsbury (guest speaker: Mike Streetly)
Wednesday 12 March 2024:	Geothermal Energy (guest speaker: Ian Stimpson, Keele University)
Wednesday 10 April 2024:	AGM
Wednesday 8 May 2024:	The Wondrous variety that are Mudstones (guest speaker: Kevin Taylor, University of Manchester)

WGCG Organisation

Management Committee (Trustees)



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Deputy Chair Dr Philip Henser

Hon Treasurer Kathrin Schütrumpf

Hon Secretary Ray Pratt

Compliance Peter Hawksworth

External Groups Rep Gareth Jenkins

Education Sub Committee

Chair Mike Allen

Ian Fenwick

Christine Hodgson

Helen Jones

Other Roles

Public Engagement

X (Twitter)	Dr Jon Radley (volunteer required)
Facebook	Kathrin Schütrumpf
Instagram	Kathrin Schütrumpf
LinkedIn	Gareth Jenkins
YouTube	Ray Pratt
Online conferencing (Zoom)	Ray Pratt, Gareth Jenkins & Kathrin Schütrumpf

Web master	Vacant Ray Pratt (acting)
Newsletter editor	Vacant Ray Pratt (acting)
Student awards co-ordinator	Brian Ellis & Anne Morton
Local Geological Sites officer	Dr Philip Henser / Dr Andrew Sanderson
Geo-conservation co-ordinator	Tom Collins
Planning applications co-ordinator	Will Messenger
Office - Cataloguing	Ian Fenwick
Electronic Data Management	Ray Pratt

Group Admin Assistant Julie Harrald

WARWICKSHIRE GEOLOGICAL CONSERVATION GROUP

MEMBERSHIP FORM FOR JOINING OR RENEWING

WGCG
Hidden wonders in the landscape of Warwickshire
Warwickshire Geological Conservation Group

We need some data so we can keep in touch. The information you provide will be carefully protected. Only officers of WGCG will have access and then only to communicate with members. Very importantly, no information will be made available to any outside organisations.

We rely heavily on email to communicate with members as it is fast, efficient and cost effective. We hope you will allow us to communicate with you in this way.

Please confirm:

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That we may communicate with you by e-mail YES/NO

Please print in block capitals:

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Tel no.	Mob no.
Email:	Year of birth
Geoscience Education: Please indicate your level of geological knowledge	
Profession: Please indicate your current or previous professional background and or experience	

- -

HOW TO PAY: Subscriptions are from 1st January to 31st December and are **£15.00 per year**, but free for students in full time education. **Please tick box** which applies and return the completed form by email to; WGCG@JEGH.me.uk with heading **Annual Subscription**, advising of date of payment.

☐ BACS Transfer to **Warwickshire Geological Conservation Group** at branch sort code **40-27-06** to account **51411101** and when asked for a **reference** please enter **Name**

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☐ **Post a cheque with your form** to: Julie Harrald (WGCG), 70 Blackbrook Road, Loughborough, Leicestershire, LE11 4PZ

☐ **Hand your form and payment in person** to Frances Morley at the next WGCG meeting

☐ If you are a **full time student**, membership is free.

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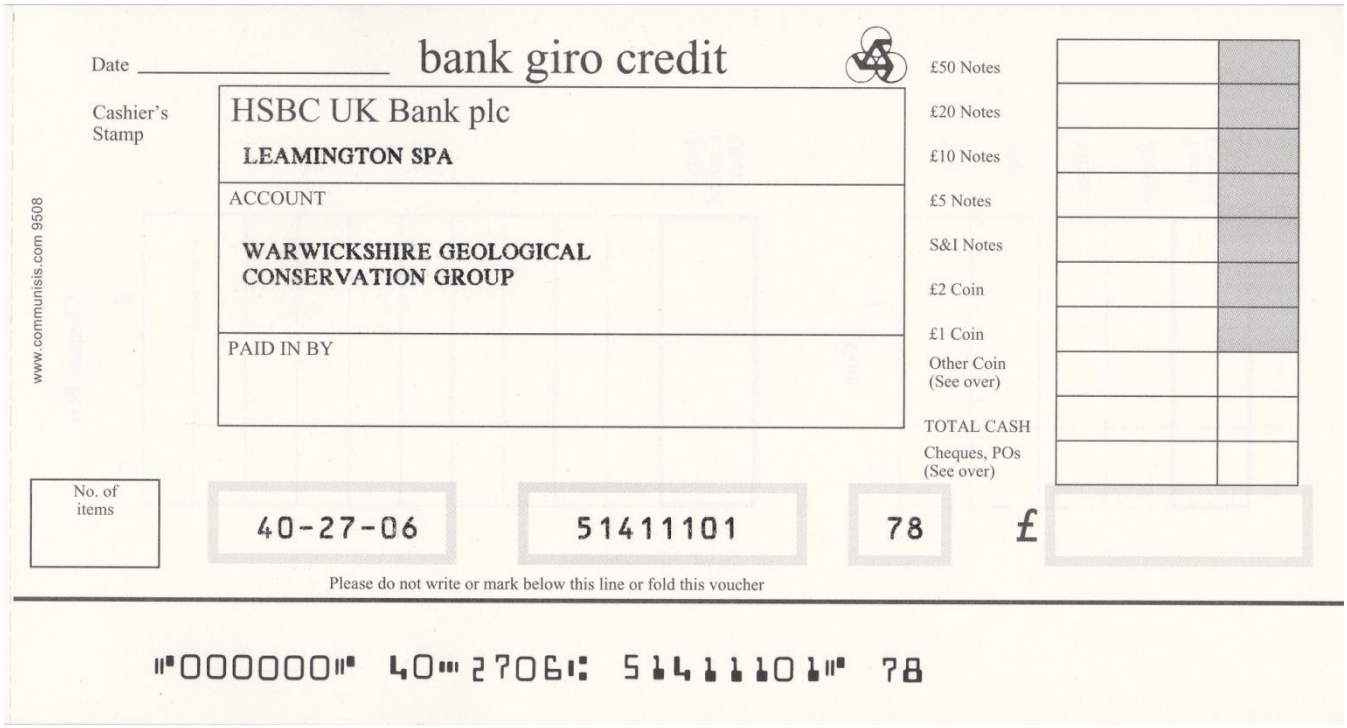
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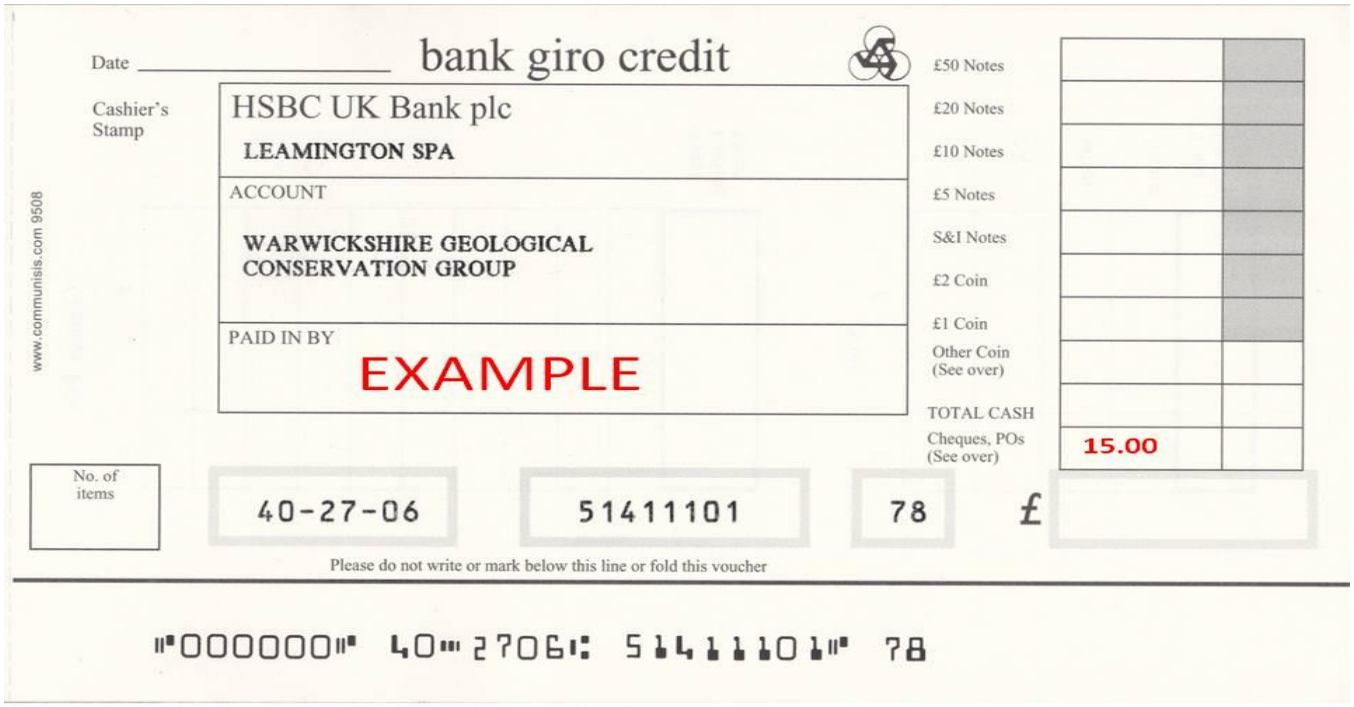
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