

WGCG

Hidden wonders in the
landscape of Warwickshire

Warwickshire Geological Conservation Group

AUTUMN NEWSLETTER



Figure 1: WGCG at the Packmores Community Centre

WGCG NEWSLETTER No. 52

WGCG does not accept any responsibility for views and opinions expressed by individual authors in this newsletter.

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FROM THE CHAIR



The long, hot summer was great for a feast of WGCG outdoor events which were all well attended and I am sure enjoyed by those who took part. Thank you to all who helped organise and lead these events and for the write-ups for this newsletter. We had a mix of field trips that ranged from day excursions, through Warwick Museum archive viewings to weekend stays and summer evening walks. Ray Pratt's Solihull Urban geology trail was once again fully subscribed – you can read about this fascinating town walk in this newsletter. It is wonderful to meet so many of you in the field, and if you haven't been to any of our field excursions before, I hope that the events reported here might entice you to participate next time. We are interested in hearing feedback on what you

think was good and what aspects of field events could be improved. Please do discuss any of your reflections on our field season with a trustee or member of the management committee next time you join us.

Many of our local excursions benefitted from the tremendous efforts of Jane Allum and the conservation volunteers – this was especially the case for the Kenilworth Sandstone outcrops and Woodloes Quarry which reveal much more geology when cleaned. We expect to have another round of geoconservation activities this coming spring. Please do watch out for announcements.

Our successful summer of activities have now drawn to a close, and I look forward to our winter programme of talks, which promises to be very entertaining. We started the talks with Bernard Besly of Keele University, who spoke on the Eturia Marl who revealed new insights on the Carboniferous geology of Warwickshire as well the complexities of brickmaking. There is a packed programme of talks, so I hope to see you in attendance.

Our membership now stands at 140 active members, 20 of whom are student members and 11 life members, the latter in recognition of their service to WGCG. We also have a record of 320 'friends' who have either participated on field events, enquired at our Ask a Geologist shows or registered for Zoom streaming. Welcome to you all! I'm especially pleased to see student member participation on our field trips, at lectures, Ask a Geologist shows or on conservation activities.

ARTICLES

RECONCILING GEOLOGICAL DISCOVERIES WITH RELIGIOUS BELIEFS IN VICTORIAN ENGLAND

Article and photos by Ray Pratt



Figure 2: Biddulph Grange, Staffordshire.

The gardens of Biddulph Grange, initially designed and constructed by James and Maria Bateman from 1844 to 1871, became a National Trust Property in 1984. Over time, with changing owners, the gardens became neglected. However, sufficient gardening had been done, and records kept, to enable the National Trust to set about returning the gardens to Bateman's original design.

The house does not belong to the National Trust. However, the gallery that the Batemans created to explain geological discoveries in a biblical sense was considered as part of the gardens when the National Trust took control and has been carefully restored. This is the primary attraction of Biddulph Grange for many geologists, with the beautiful tranquil gardens an added bonus.

** Bateman wanted people to understand how a belief in divine creation could be reconciled with new discoveries in Geology that reckoned the earth to be infinitely older than the Bible allowed. His geological gallery shows how geology explains that creation took place over extended epochs. The gallery opened in 1862. It was and is a long single storey room, down which visitor would progress past geological explanations for each of the six Biblical days of creation. This was followed by a visit to the garden, Batemans peaceful Eden, in which visitors could relax and witness international examples of botanic beauty.*

Chaos: *This was the time before God made life and is represented by igneous rocks which contain no fossils.*



Figure 3: View of the gallery from “the beginning of time” represented by the igneous rocks embedded in the wall in the foreground.

Day 1: The seas are created and the first fossils appear, such as trilobites and molluscs.

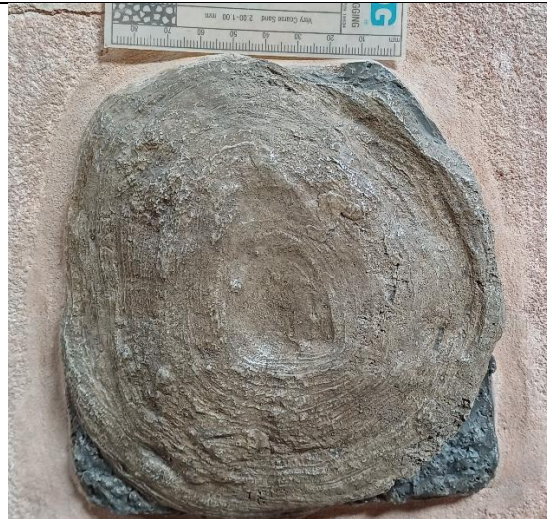


Figure 4: Stromatolite

Day 2: Fossil fish appear



Figure 5: Placoderm-armoured fish



Figure 6: Fish death bed assemblage

Day 3: Life begins on dry land, notably with fossils of Batemans beloved ferns.



Figure 7: Fossilised tree trunks – a subsequent addition to the gallery

Day 4: The first land animals appear, with footprints and a large and impressive amphibian, *Labyrinthodont*, on display.



Figure 8: Trace fossils: tracks and footprints

Day 5: Fine *Ichthyosaur* (early dolphin) and pterosaur fossils, now seen in the rock itself

Day 6: fossils of land mammals appear, including mammoths, wolves and bears.



Figure 9: The gallery foreground at “day 3” with the fishes of “day 2” in the mid-section.

Bateman's attempt at reconciling geological discoveries, which implied a history of the earth measured in millennia and not in the past few thousand years as proffered by religious doctrine, was set out in this unique gallery. Key to this was that a "biblical day" was not a 24-hour period. Bateman saw the six days of creation as a representation of the great epochs of geological history. Needless to say, this did not go down too well with a number of visitors.

** In natural history, too, ideas were changing. In 1859, while Biddulph was still being made, Charles Darwin published his instantly controversial "On the Origin of the Species", which proposed that man was not made by God on the sixth day of Creation. Instead, mankind was the result of a more random evolutionary process, a development from simpler animals through the survival of the fittest individuals (that is, those individuals best able to survive and multiply in a changing environment.*

For the religiously devout James and Maria Bateman, the garden was a demonstration of the work of God.

** Extracts from the National Trust Biddulph Grange Garden Souvenir Guide.*

EVENTS

Solihull Building Stones walk - Trail 3.

Led by Ray Pratt and Mihaela Bokor

25th May 2026

Attendees 11

Report and photos by Ray Pratt.

Introduction by Kate Torrens

I joined this trail because I was curious about just how much geology there is hiding in our local towns and cities. I've always appreciated the shiny stone slabs that adorn banks, cafés, and shopping centres as embellishments, but they are easy to overlook. On closer inspection, they can contain a great amount of geological history. I'd much rather admire a beautiful piece of natural stone than another plastic façade or advertising board!

Touchwood's flooring revealed some true hidden wonders. Fossils, veins, different textures, and even evidence of ancient environments were all underfoot, largely unnoticed by the busy shoppers and coffee seekers passing over them. Seeing ammonites, belemnites, corals, and other features pointed out during the walk has encouraged me to pay more attention to what I'm walking on, and encourage others to take a look next time they're in Solihull.

We did attract a few funny looks from security and shop staff, but we also had some curious observers who enjoyed having the geology pointed out to them. It was a lovely reminder that you don't necessarily need to travel to dramatic landscapes or remote locations to find something interesting.

A big thank you to Ray, Gareth, and Mihaela for helping us investigate the stones up close using portable magnifying equipment, which helped us see identifiable features up close, and for answering the many questions from the group.

One of the things I particularly valued about this walk was how accessible it was for people with different access needs. We stayed on steady, level ground throughout and didn't need to climb or clamber to reach points of interest. There was nearby parking, and the walk was taken at a relaxed pace. There was no need for walking boots or poles, just a sun hat on the very warm day we had, or waterproofs should the weather turn.

For anyone who is interested in geology but finds more physically demanding field trips difficult, urban geology walks like this can offer a great alternative. I'd encourage anyone interested to get in touch with WGCG about upcoming, more accessible trips. You might be surprised by what you discover.

The Geology of Touchwood Shopping Centre

Touchwood Shopping Centre forms the entirety of trail 3 in the Urban geology of Solihull series, available from the WGCG website. Opened in September 2001, this very modern shopping centre features several European-sourced carbonate rock types and a few igneous examples from other parts

of the world. Our walk commenced from the NatWest bank located at point 11 on the map below, following the trail in reverse order to point 2.

Trail 3: Solihull - The 21st Century

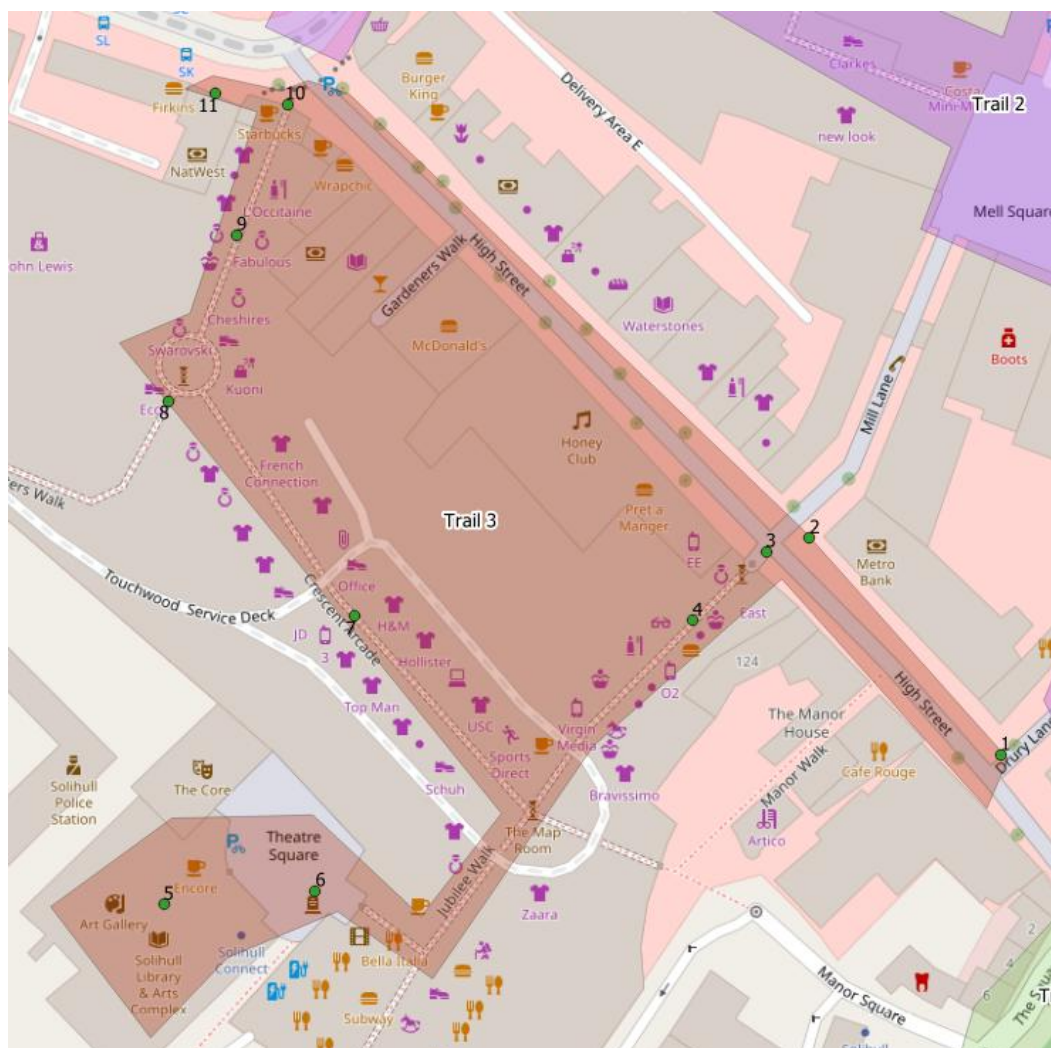


Figure 10: Map of Touchwood Shopping Centre, Solihull

Stop 1: NatWest Bank Façade:

This is probably covered by a Porkkala Granite from Rapakivi Finland. It is dominated by pink to reddish orthoclase feldspar phenocrysts. Also readily identifiable are the clear to white quartz minerals and flaky black biotite. There are also some darker xenolith inclusions. This granite is 1.64GA old, from the Mesoproterozoic era. Using a mineralogical classification diagram in association with the Bowens reaction series Mihaela Bokor explained how this pegmatitic granite formed.



Figure 11: Porkkala Granite, Rapakivi, Finland



Figure 12: Cheema Pink Granite, Rajasthan India

Stop 2: All the entrances of Touchwood shopping Centre are paved with a pink grey granite, believed to be Cheema Pink Granite from Rajasthan, India, aged 541 million to 1 billion years of the Neoproterozoic era. An alternative and similar rock could be **Rosa Beta granite**, (a quartz monzonite), from the Sardinia-Corsica Batholith in Italy, formed during the Late Pennsylvanian to Early Permian period (approximately 280-310 million years ago).

All granites are formed deep within the earth enabling recognisable mineral crystals to develop due to a slow cooling process. The minerals which develop are a function of the fractionation process.

Stop 3: Poplar Arcade Flooring



Figure 13: Poplar Arcade Flooring

Described in the WCGG Solihull Trail guide as “a German dolomite” this is best described as a bioclastic limestone. It is grey to brown, occasionally light brown, and contains lots of thin calcite veins which fill the fractures. These are near shore to beach bio clastic deposits, with common shell banks. The light brown deposits tend to be less fossiliferous. Subsequent lithification and tectonic stress have led to

the fracturing and associated calcite veining. The cross fractures and vein filling with vein offsets suggest multiple tectonic events. The brown colouration could be attributable to iron content within the rock. The rock is believed to come from the Jurassic, in Germany.

Stop 4 Crescent Arcade Flooring

This material, also seen as edging in Poplar Arcade, is incorrectly described as Travertine in the WGCG Solihull Building Stones trail pamphlet. It is, in fact, a marine limestone packed with fossils. Pale cream in colour almost porcelaneous, its most noticeable feature is the numerous vugs creating a vuggy porosity. These probably originate from a root system of marine vegetation. Fossils present include belemnites, sponge biostromes, tubiphyte worms, scleractina corals, tiny shells and rare ammonites.

The depositional environment was probably a near shore shallow marine setting. En echelon fractures indicate post depositional stress. The source of this rock is possibly the Cote d'Or in France, a late Jurassic Treuchtlingen Formation, c. 155-150 mybp. This is likely to be a near shore equivalent of the German Jura limestone which has been used for the flooring in Mill Lane Arcade



Figure 14: A Belemnite fossil amongst the marine vegetation root system

Stop 5 Library Courtyard



Figure 15: The Memorial

- a) **The Memorial:** In the courtyard outside of the Core Centre, a memorial has been installed commemorating the Queen's visit to the centre in 2002. It is made of dolerite, commonly referred to as micro gabbro, a black crystalline, intermediate-to-basic intrusive igneous rock. Such rocks are common in the UK; however this example, like most other polished stone, was probably imported from somewhere such as India.



Figure 16: The Core Exterior

- b) **The core Exterior:** Much of the interior and some of the exterior has been clad in travertine limestone. This is formed by a process of rapid precipitation of calcium carbonate, often at the mouth of a hot spring or in a limestone cave. Travertine often has a fibrous or concentric appearance and exists in white, tan, cream-colored, and even rusty varieties. The likely source of this rock would be Italy.

- c) **The Core Centre Interior.** Unfortunately, the core centre was closed on the day we visited so we were unable to see one of the most stunning stairwells in the West Midlands (included here for the benefit of the reader).



Figure 17: The stair well leading to the library within the Core Centre

Described in the WGCG pamphlet as Tufa, this could be travertine. *Tufa precipitates out of calcium rich waters over organic matter, e.g. over cave entrances and waterfalls. It is normally so porous as not to be suitable for cutting and polishing. Most ornamental forms are Travertine.* That said, it is very vuggy and looks very like Tufa. The brown colouration is attributable to iron compounds. The likely source of this cladding is Italy.

Stop 6. Mill Lane Arcade Flooring

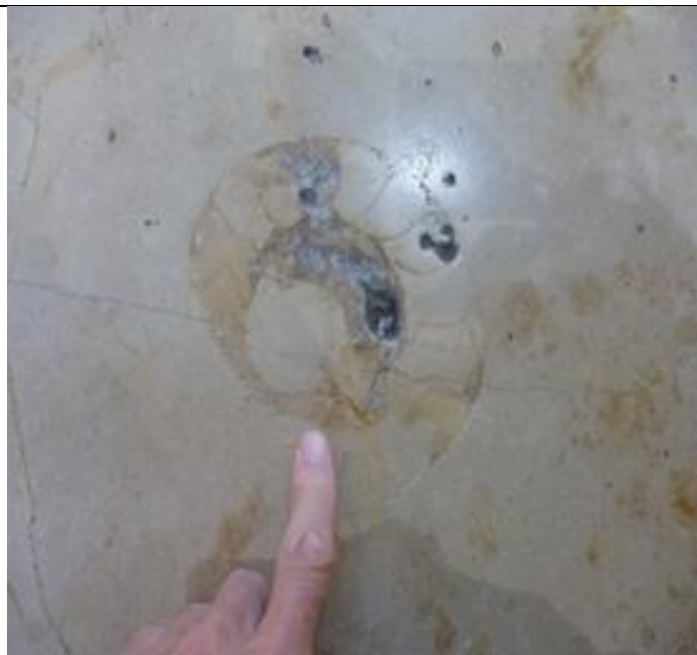


Figure 18: Mill Lane Arcade Flooring

A cream to beige coloured limestone containing many free-swimming ammonites and belemnites. There are also sponge biostromes, tubiphyte worms and scleractina corals. These sediments were deposited in a tropical open marine shelf setting of c. 50-200m water depth.

These rocks contain many of the same fossils as those forming the floor of Crescent Arcade and are likely to be simply a deeper water depositional extension of the same sea.

These rocks are classic "Jura Marbles" from the Jura mountains of Germany, deposited in the late Jurassic c. 155-150 Ma.

This was the final official stop for this tour. For those with a little more time to spare we ventured into Mell Square (trail 2), to take a quick look at the Westmorland Slate (a volcanic ash), above Boots. The beautiful Costa Granite outside Costa coffee. A rare example of Dunite, with its chromium crystals, outside of The Edinburgh Woollen Mill, and the local Hornton Stone outside the now-closed post office. Mell square is scheduled for redevelopment, so the many excellent polished stone examples may not be available to view beyond 2026.

Guys Cliffe Field Trip

Led by Stuart Burley

27th May 2026

Report by Ray Pratt. Photos by K. Torrens, G. Jenkins and R. Pratt



Figure 19: The group congregate

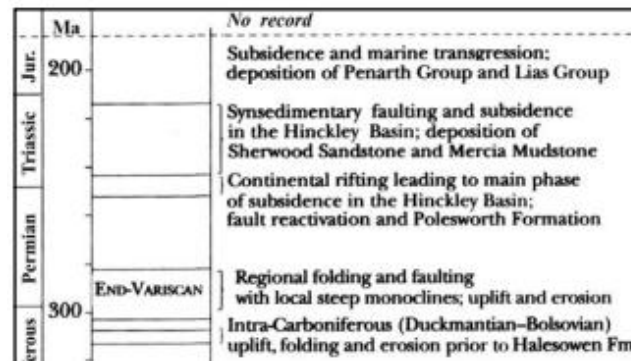
Following registration in the car park the 22 participants walked down through the courtyard and buildings of Guys Cliffe House down to the river cliff exposure, where we congregated around the recently installed WCGC information panel.



Figure 20: With the aid of a geological map Stuart elaborated on the geological setting

Structural History

By the end of the Carboniferous, the Variscan orogeny had created the east west trending Mid Pangea Mountain range to the south, in the area Northern France and Cornwall today. Following north-south trending continental rifting in the late Permian, associated with early Atlantic opening, rivers flowed northwards carrying sediment from this southern mountain range. The Triassic strata were deposited mainly in the resulting fault-bound basins. The Western Boundary Fault of the Knowle basin and Coventry Horst were active in Upper Carboniferous times as indicated by facies and thickness variations within coal seams, marine bands and sand bodies close to this fault, (Fulton & Williams, 1988; Bridge et al., 1998).



Nomenclature

In recent times the British Geological Survey introduced the term '**Helsby** Sandstone Formation' to incorporate the **Bromsgrove** and **Warwick** Sandstones, and a number of other sandstone formations of similar age. The Warwick sandstone has traditionally been attributed to the Middle Triassic (Anisian) Bromsgrove Sandstone Formation, which is a widespread stratigraphical unit within the English midlands. These beds were also formally referred to as **Keuper** Sandstones.

Regional Distribution

It is not possible to demonstrate mapping continuity of this unit across all the intervening basins, even though there clearly was a large river system draining more or less northwards at this time.

The Warwick sandstone has a maximum thickness of around 35 m on the flanks of the Coventry Horst and in the Warwick area. It is thin relative to the type-succession at Bromsgrove in the Worcester Basin, roughly 35 km to the west, where it can be up to 500m in thickness. Some 25m of this sequence is exposed at Guys Cliffe.

There is clearly dramatic, fault-controlled thickening of the Bromsgrove Sandstone Formation in the Worcester Graben. Despite thinning onto the eastern margins of the rift bedform size and geometry appear very similar to those developed in the Bromsgrove area.

Sediment supply is an important element of grain size within deposits. The Worcester graben and associated Knowle and Hinckley basins were syn-tectonic, with periodic faulting impacting the sediment supply and local accommodation space. Immediately to the west of Warwick, the thickening of the sandstone towards the Worcester Basin indicates that this southerly extension of the coalfield's Western Boundary Fault was intermittently active in Middle Triassic times.

In and around Warwick, the succession is quite consistent. It is dominated by buff-coloured fine to medium-grained sandstone with a high mica and feldspar content, and cemented by calcite or feldspar. Interspersed among the sandstones there are occasional mudstone laminae and lenses which are silty and often reddened, and thin lenses of sandstone containing chips of mudstone and siltstone. The upper part of the formation in particular reveals upward fining cycles, consisting of sandstone passing up into mudstone. Locally, the basal sandstones include small but far-travelled pebbles of quartz, as well as metamorphic and volcanic rock types.

Only the very lowest beds of the Warwick sandstone include significant numbers of pebbles, some of which must be recycled from older strata. This reduction in overall stream and river energy appears to correlate with a general stabilization of climate following the 'extreme' greenhouse conditions of the first few million years of the Triassic, in the aftermath of the end Permian mass extinction.

Guys Cliffe Geological Observations

Following the opening discussion Stuart explained how to interpret the depositional setting of the Guys Cliffe exposure, a summary of which is listed below.



Figure 21: Stuart explains how to interpret the depositional setting

- The sands represent flood events that were deposited in short periods of time measured in days. The cemented hard grounds and rare silts and clays represent subaerial periods possibly lasting thousands of years.
- The cross-bedded units in the lower part of the cliff are c. 0.5m in thickness, indicating a minimum water depth of 0.5m. Thicker units indicate greater minimum water depth. There appears to be an increase in the thickness of the units going up the cliff section.
- The top and base of the cross-bedded units observed at the base of the cliff, are marked with numerous rhizocretions. These marked periods of subaerial conditions and the development of soils. Rhizocretions are commonly called calcretes.



The concretions are associated with vegetation roots. These nodules develop slowly with time e.g. 1000 years, which indicates long dry periods in-between the sand deposits. Some of these nodules are found lying on the sand foresets and can be considered as rip-up clasts. These would have been dislodged during flooding and redeposited in their current position.

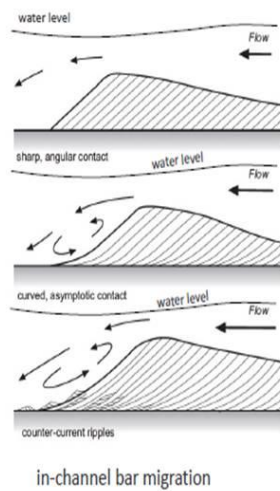
- The “rip up clasts” show the new channels were cutting into consolidated beds.
- Generally, we observe that each flood event starts with erosion of the underlying layer before deposition of the new bed. Much of the soil and or aeolian deposits would be reworked during the flooding.
- The lack of silt and clay deposits indicates that this was not a high sinuosity meandering river system. The high sand content of the rocks in this river cliff (c. 95% plus), tells us that this is a low sinuosity, sandy braided river system.

	Cross-bedding, indicating the flow direction of the river, when viewed in three directions. Commonly, on a rock face we see only two dimensions, which gives us the apparent flow direction.
Possibly some of the soft sediment deformation within the sandstones (seen at Guys Cliffe) is due to seismic activity, though sediment loading and dewatering was likely to have been the primary cause.	
Where we see cross-bedding without rip-up clasts, this suggests that the beds were unconsolidated, indicating short intervals between floods with an almost constant supply of sediment.	

- Stacked, multi-story in-channel bar sandstones indicate restricted migration of the river channels over time.
- Overall, the sedimentological features at Guys Cliffe provide evidence for a large, high energy, low sinuosity braided river. This river underwent fluctuations in discharge and water depth allowing for the colonisation of intra-channel dunes by vegetation between successive flood events.

The Helsby Formation – sandy braided rivers modern analogue, western Canada

Season fluvial discharge in confined sandy rivers – bars migrate during flood, are exposed during falling stage and dry periods



These sandy rivers only appear 'braided' during falling or low stage of flow – they are better called 'low-sinuosity'

The photo above highlights the various directions of the flow of a braided river. The dominant flow is from top to bottom, with many sections flowing left and others flowing right. The constant changing of the channels over time as the riverbed subsides and new sediment is laid down above will result in stacked channels indicating flow in several directions.

- An anastomosing river is a specific type of multi-channel river network where a single stream divides into multiple, interconnected channels that look like a web. These individual channels weave around large, stable, vegetated islands or flood basins and are a prominent feature of fluvial geomorphology.
- Fluctuations in energy of the fluvial system are also evident with periods of low energy marked by bone and clast filled lag deposits.



Figure 22: Lag deposit at Guys Cliffe

Geomorphology

- The local landscape around what is now Warwick would have been quite subdued in Middle Triassic times, dominated by sparsely vegetated plains and sluggish rivers. The terrain was varied by low hilly ranges made up largely of Late Carboniferous and Permian strata of the Warwickshire Coalfield

block, as well as loftier hills of Lower Palaeozoic and Precambrian rocks, such as the Malvern ridge in the west.

- Guys Cliffe probably represents deposition on a broad fluvial braid plain some distance from a coarser grained piedmont zone, a long way to the south.
- A **piedmont zone** (from the Italian *piè di monte*, meaning "at the foot of the mountain") is a transitional geographic region situated between the steep foothills of a mountain range and a flat coastal plain or lowland. It is characterized by gently rolling hills, fertile soils, and deposited sediments.
- Alluvial fans develop at the end of a mountainous river valley. Fast-flowing rivers from the mountains slow down and deposit large boulders and pebbles as fans at the end of the valleys as they exit the mountain range.
- Away from the fans at the foot of the mountains, a broad flat valley can develop running at 90 degrees to the mountains. The landscape gradually decreases in elevation as it transitions from rugged, high-altitude terrain to completely flat plains. The Po valley in Northwest Italy is probably the type area for deposits of this type. The Jaca basin of Northern Spain is another example. Here, sand deposition can dominate over these very broad flood plains. During dry spells a braided river develops within the valley, which becomes a very broad river during flood events.

References

Warwick sandstone: a window onto Middle Triassic life and landscapes. Jonathan D. Radley & Robert A. Coram. *Geology Today*, Vol. 34, No. 6, November–December 2018

Palaeoecology and Depositional Environments of the Middle Triassic Bromsgrove Sandstone Formation in Warwickshire. Oliver Woolcott, 2023. University of Birmingham

Ask a Geologist

Herbert Museum and Art Gallery

30th May 2026, Geoweeek2026

Report by Gareth Jenkins



Figure 23: WGCG volunteers at Ask a Geologist

Geoweeek 2026 is a week-long celebration of GeoScience across the UK. In Warwickshire, WGCG chose to provide field trips to Solihull and Warwick. The end of the week was celebrated with Ask a Geologist at the Herbert Museum and Art Gallery in Coventry.

If you're interested in volunteering for future Ask a Geologist events please contact WarwickshireGCG@gmail.com. You do not need to be a geologist to support this.

Ask a Geologist allows the public to discuss geology in our everyday lives, geological careers, and geological science in general. We always have rocks, minerals and fossils on hand which the public can view and discuss. Additionally, a number of posters, geological references and free brochures of nearby geology trails are made available. A wifi microscope allowed the specimens to be viewed on a tablet screen.

The event was organised to coincide with the museum's new Palaeoverse exhibition, '[Unearth the Palaeoverse: Dig Into the Dawn of Time - The Herbert Art Gallery & Museum](#)'

A steady stream of interested youngsters and carers took interest in the specimens and posters on display. Discussions about long tusked elephants and paleo-climates were common – along with wondering about how different minerals and rocks appear under the microscope.

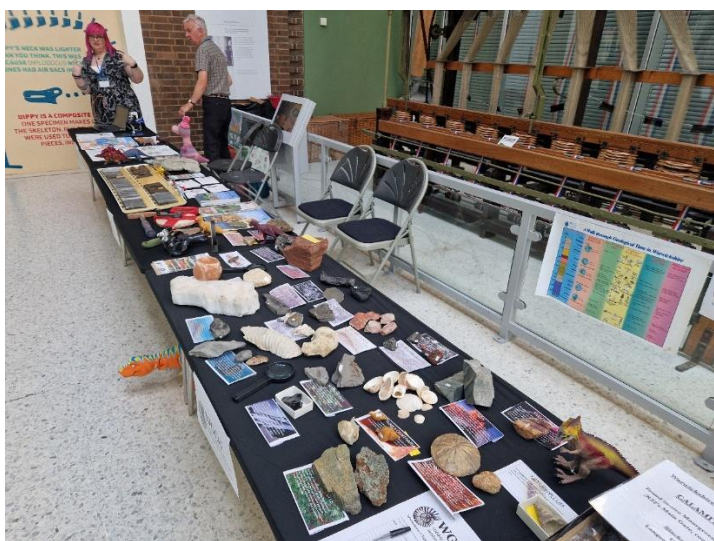
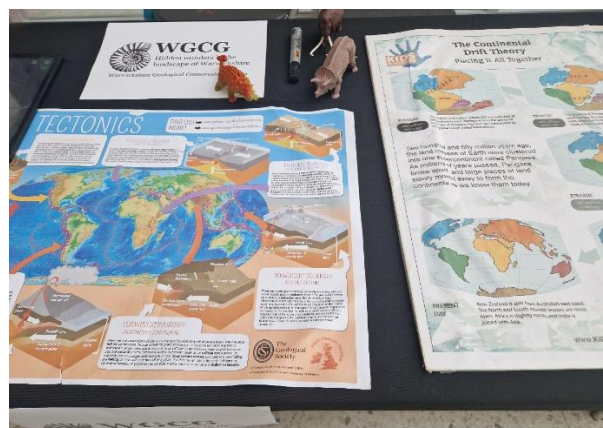
WGCGs North Sea rock core was on display which also generated much discussion.

It was a great pleasure to be part of a wonderful day with the museum. Everyone enjoyed themselves and the museum have invited WGCG back in October 2026.



Figure 24: The event takes place under 'Dippy' the dinosaur

Remember, if you're interested in volunteering for exciting events like this and others then please get in touch at WarwickshireGCG@gmail.com and keep an eye on our website and mailing list.



Community Spirit Thrives at the Packmores Centre

15th and 16th June 2026

Report by Brenda Watts & Gareth Jenkins



Figure 25: Students at the Packmores Community Centre

The Packmores Community Centre continues to demonstrate the important role that community spaces play in bringing people together and supporting local residents. Through a wide range of activities, events and initiatives, the centre provides opportunities for people of all ages to connect, learn new skills and build lasting friendships.

Recent activities have highlighted the enthusiasm and dedication of both volunteers and participants, creating a welcoming environment where everyone can feel included. Whether attending regular groups, taking part in special events or simply dropping in for a chat, visitors consistently benefit from the sense of community that the centre fosters.

The success of the centre is made possible by the hard work of staff, volunteers and local supporters who give their time and energy to help others. Their efforts continue to strengthen community ties and ensure that the centre remains a valuable resource for local people.

As the Packmores Centre looks ahead, residents are encouraged to keep an eye on upcoming events and opportunities to get involved. By working together, the community can continue to create a vibrant, supportive and welcoming place for everyone.



Brenda and Gareth joined the lively Dinner Club on 16th & 17th June 2026 to enthuse the regulars with tales of dinosaurs, volcanoes and coprolites.

A big thank you to Brenda, Suzette, Gary and Sophie for inviting us and to Kate for helping with logistics.

For the latest news and updates, follow the [Packmores Centre](#) on social media and visit the centre's community channels.

Mows Hill Dingle LGS 54 Reconnaissance

Saturday 27th June 2026

Report by Jane Allum and Stuart Burley. Attendance 3

On Saturday 27th June following liaison with the landowner, Rob Summers, Stuart Burley (WGCG), Jane Allum (WGCG) and Sam Macvie (Bryologist) met to explore the renowned exposure of the Arden Sandstone in Mows Hill Dingle, Warwickshire's only natural waterfall.



Figure 26: Studying the location

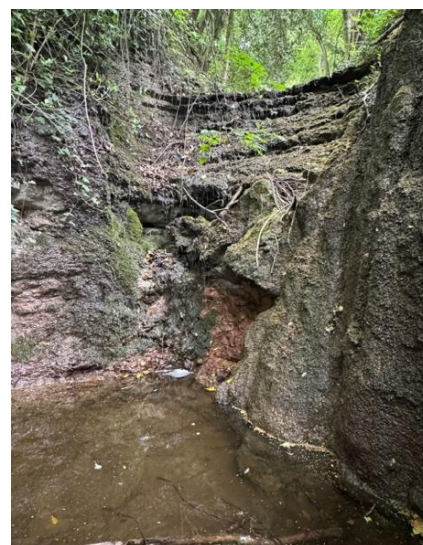


Figure 27: dingle

Taking a break on a hot humid day after a challenging walk to the waterfall. Photo illustrates the scale of clearance required to expose the rock surfaces. Right hand image shows the waterfall with tufa covering the exposure on the right the waterfall.

A 'dingle' is a medieval term for a steep sided, wooded valley or glade. This is entirely fitting for Mows Hill Dingle, which is a 15m deep, wooded gorge, formed as a glacial meltwater valley, cutting down into

the Sidmouth Formation as the present-day river flows across the Arden Sandstone. The waterfall is formed by the hard scarp of the Arden Sandstone.

We were able to access the upper section of the dingle with relative ease via a stile (NGR SP13475 69687), followed by a wooden bridge over the dingle stream. A gentle walk southwards in the stream, on Arden Sandstone bedding planes, took us to the top of the approximately 3 m-high waterfall, where descent is not possible without ropes.

To access the lower section of the waterfall requires a steep descent into the dingle and a 30 minute walk north back towards the waterfall through dense undergrowth and fallen trees. A closer access was subsequently found at approx. NGR SP13474 6955 via a cutting formed by a stream. This is a scramble and still not an easy access point.



Figure 28: The vegetated nature of the dingle with steep slopes making access and progress from the dingle lower section difficult. In wet weather the stream flow is much stronger and more difficult to navigate.

The geology map in the area around the dingle shows two streams cutting through the gently dipping, almost horizontal Arden Sandstone Formation which forms the steep topographic slopes and dingle valleys. The overlying Branscombe Mudstone Formation caps the Arden Sandstone whilst the Sidmouth Mudstone Formation occupies the River Alne valley bottom. The streams cutting through the deep gorges were formed by glacial meltwater flowing from the ice sheets to the north where the present-day watershed is located.

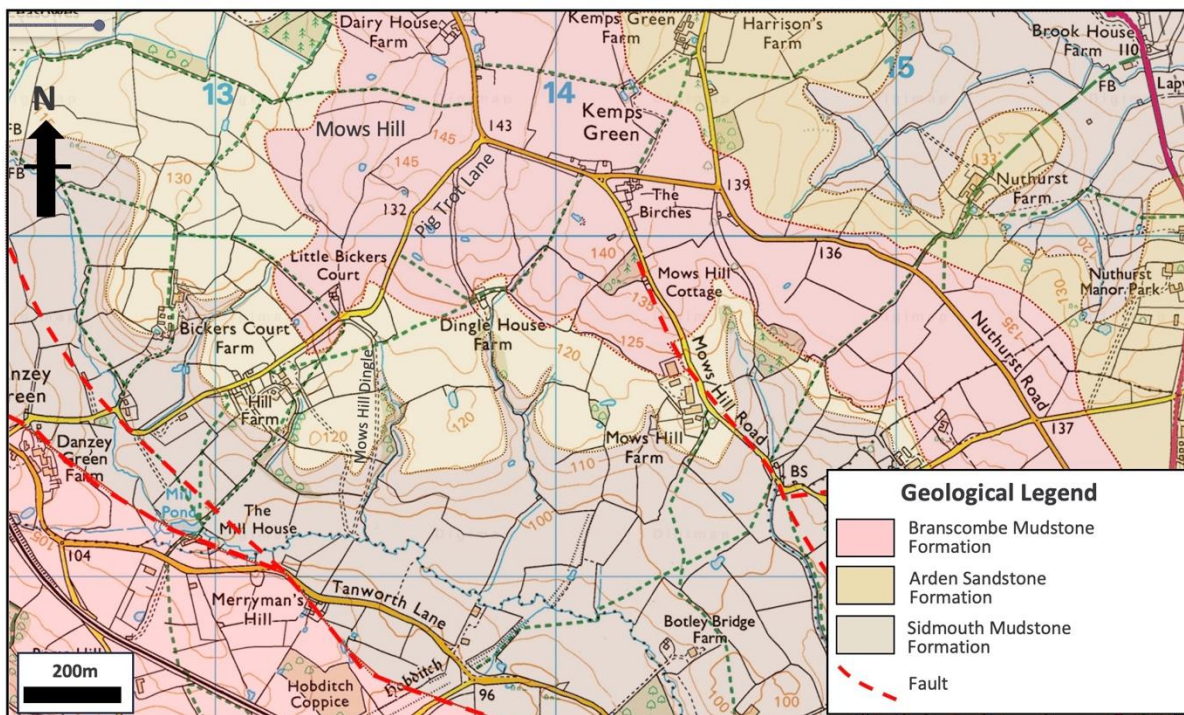


Figure 29: Geological map of the area around Mows Hill Dingle showing the Mercia Mudstone Group stratigraphy and the distribution of the Arden Sandstone Formation on the steep slopes of Mows Hill.

The waterfall provides a 4m section through the Arden Sandstone Formation which was logged in the summer of 2025. This reveals a 5m section of Arden Sandstone with a typical shoreface depositional environment, very similar to the section exposed along the Grand Union Canal at Shrewley.

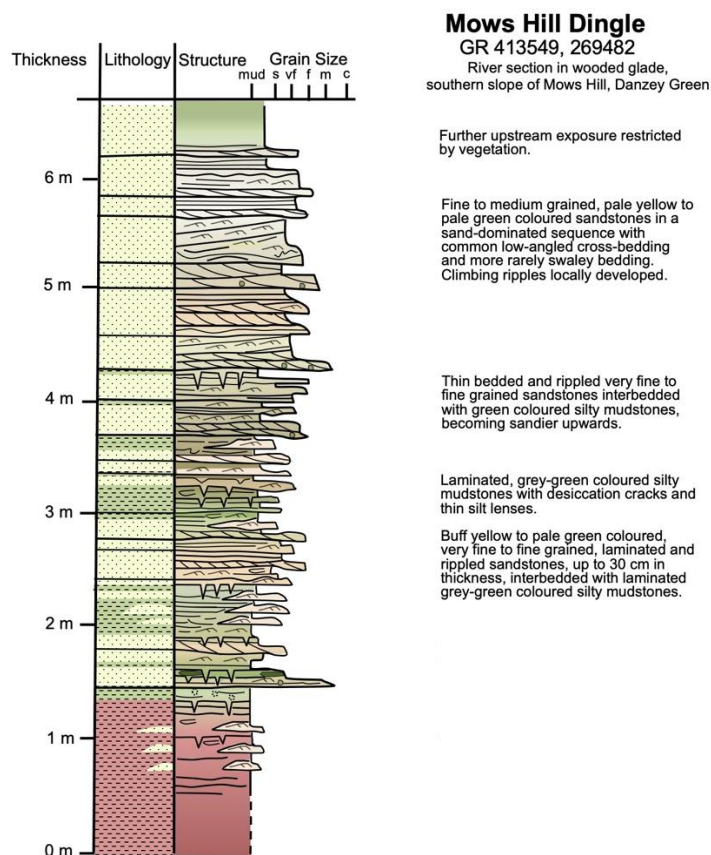


Figure 30: The graphic sedimentary log of the Arden Sandstone in Mows Hill Dingle illustrates the similarity of the section to the canal cutting at Shrewley, already a SSSI.

The dingle still contained flowing water despite the early-summer drought, but the fallen trees and rotting vegetation in the bottom of the dingle along the lower access route and with the steep slopes make the walk up to the waterfall very difficult. This is a spectacular, beautiful location worthy of conservation and observation by WGCG, but the scale of the exposure and difficult access will make any geoconservation work challenging as well as time-consuming. The unique waterfall and unspoilt wooded glade environment might make this a candidate location for a combined geological-biological SSSI – we will discuss this with the Warwickshire Wildlife Trust to gauge their interest. Sam Mcvie will report back to us on the bryophyte population of the dingle, and the landowner is keen to see the dingle preserved, and potentially access made easier. Sam will advise what geoconservation would be acceptable here with regards to the mosses and lichens. We will continue to monitor and discuss with the landowner how access to the lower section could be improved.

Field Trip (joint with BCGS) to Burton Dassett Country Park

Sunday 5th July 2026

Led by Ray Pratt

Report by Ray Pratt and edited by Rosemary Hyde

Background

Located in the south of Warwickshire, Burton Dassett Country Park (SP 395 522) is a northerly extension of the Cotswold hills, and a listed Local Geological Site. It is composed of Liassic rocks (early Jurassic), which stretch from the Dorset coast in the south to the North Yorkshire coast in the north-east. These deposits are of economic importance for farming, brickmaking, cement production and as a source of iron ore.

The geological map of England and Wales (Figure 31) shows that the rocks of Southern Warwickshire and North Oxfordshire are in a zone (shaded blue) which stretches from Dorset through the Cotswolds to North Yorkshire. These rocks were formed during the Jurassic Period, roughly between 135 and 195 Ma (million years) ago. The rock layers are tilted very gently towards the south-east and disappear below younger Cretaceous rocks (green).



Figure 31: Geology map of England & Wales

The country park is owned by Warwickshire County Council and is a popular upland leisure area for walkers and picknickers with good parking and toilet facilities. The park was created in 1972 from what was a complex of quarries and intervening disturbed ground, mostly overgrown but with some good exposures of Liassic Marlstone Rock Formation chiefly about 200m south west of Windmill Hill. This large site incorporates several stratigraphic units and lithologies ranging from the Lower Jurassic Dyrham Formation to the Middle Jurassic Northampton Sand. (see geology sketch map, Fig.34)

Our Trip

Our field trip commenced from the high point of Beacon Hill where we had a good view of Edge Hill, south-west, and to the lowland areas in the west and north. Ray explained that these lowland areas were underlain by Charmouth Mudstone, a soft formation, good for agriculture. During the Pleistocene glaciations the Anglian glaciers, (450,000-350,000 BP), would have wound their way through the area. However, the high land link between Edge Hill and Burton Dassett is believed to have remained intact sufficiently enough to enable the development of Lake Bosworth (also known as Lake Harrison), to have formed during the Wolstonian glacial period, (350,000-130,000 BP). It is thought that the lake breached the rocks between Edge Hill and Burton Dassett creating the large valley we see today.

We then turned our attention to the landmark beacon beside us, which was constructed of local blocks of Marlstone in the late 15th century, but for what purpose remains unclear. It was probably used as a lookout tower during the Civil War, (1642-1648), particularly for the first encounter of opposing sides at Edge Hill (1642). By examining these building blocks, we were able to get a good understanding of the Marlstone Formation lithology and its depositional setting. Many blocks were composed of fine sand within a calcareous argillaceous cement. Others were more argillaceous calcareous mudstones. Brachiopod nests were seen and trace fossils (burrows) were also identified. Pebbles were occasionally seen. These variations implied that the depositional environment was variable, as to be expected. Most of the blocks were a light brown rusty colour whereas some were a medium green-grey colour. This is due to the iron content within the rock, some of which remained in its ferric condition, the marlstone being the iron ore that had been quarried here periodically from 1865 to 1925.

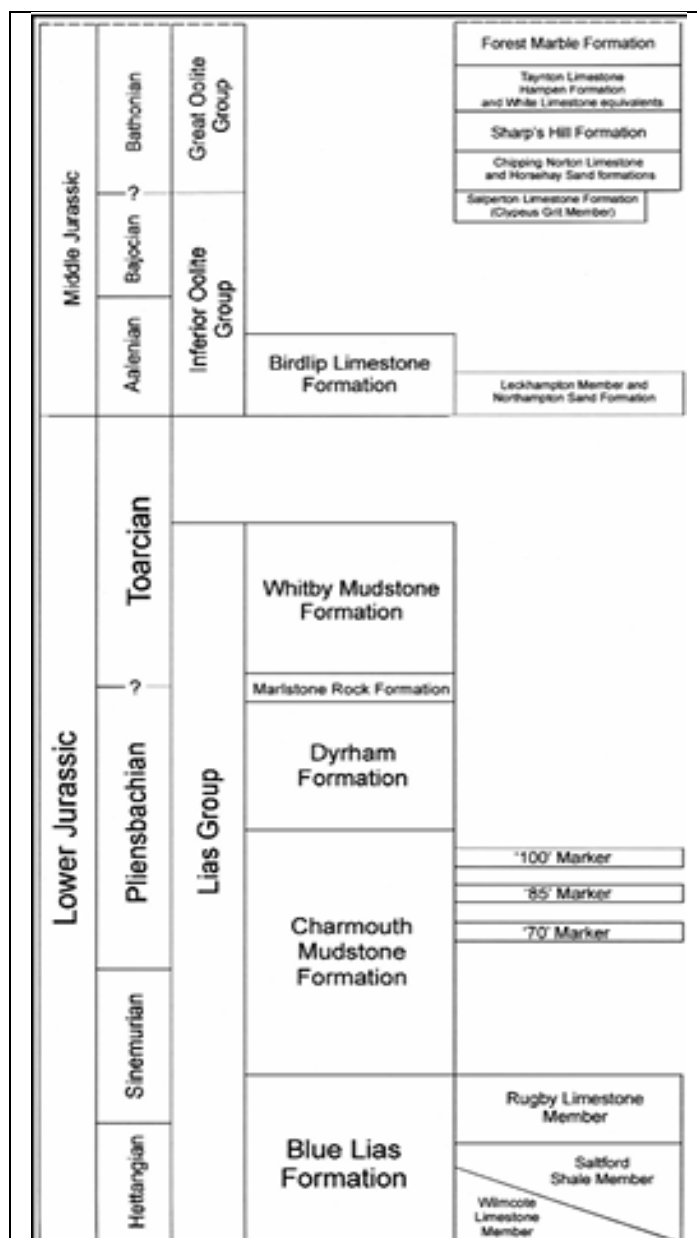


Figure 32: Cotswolds Stratigraphic Chart. Outline of the Lower and Middle Jurassic succession in Warwickshire¹

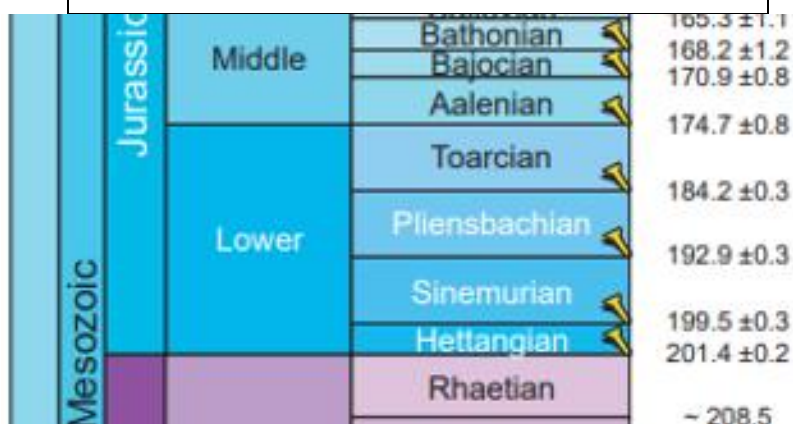


Figure 33: Section from International Stratigraphical Chart

With the aid of the stratigraphic charts (Fig.32 and 33), Ray explained that Blue Lias (important for cement manufacture in Rugby, Southam and Wilmcote) is not exposed in the Country Park. The Charmouth Mudstone Formation overlies the Blue Lias. This, likewise, is also not exposed on the Country Park, but forms the bedrock of the lowland area around Burton Dassett. The Middle Jurassic is represented to the west of the Vale of Morton Axis by oolitic and bioclastic limestones of Aalenian age (Birdlip Limestone Formation), replaced further east by the Northampton Sand Formation.

The tree line, visible from the Beacon marks the spring line around Burton Dassett. This is the junction where water emerges after percolating through the permeable rocks which overlie the impermeable Charmouth Mudstone. Samples of ammonites and bivalves taken from the Charmouth mudstone at Blockley Brickpit indicate shallow marine shelf conditions with a clean and well oxygenated environment, excellent for marine life development. Warwickshire's plesiosaur and ichthyosaur skeletons were recovered from this formation.

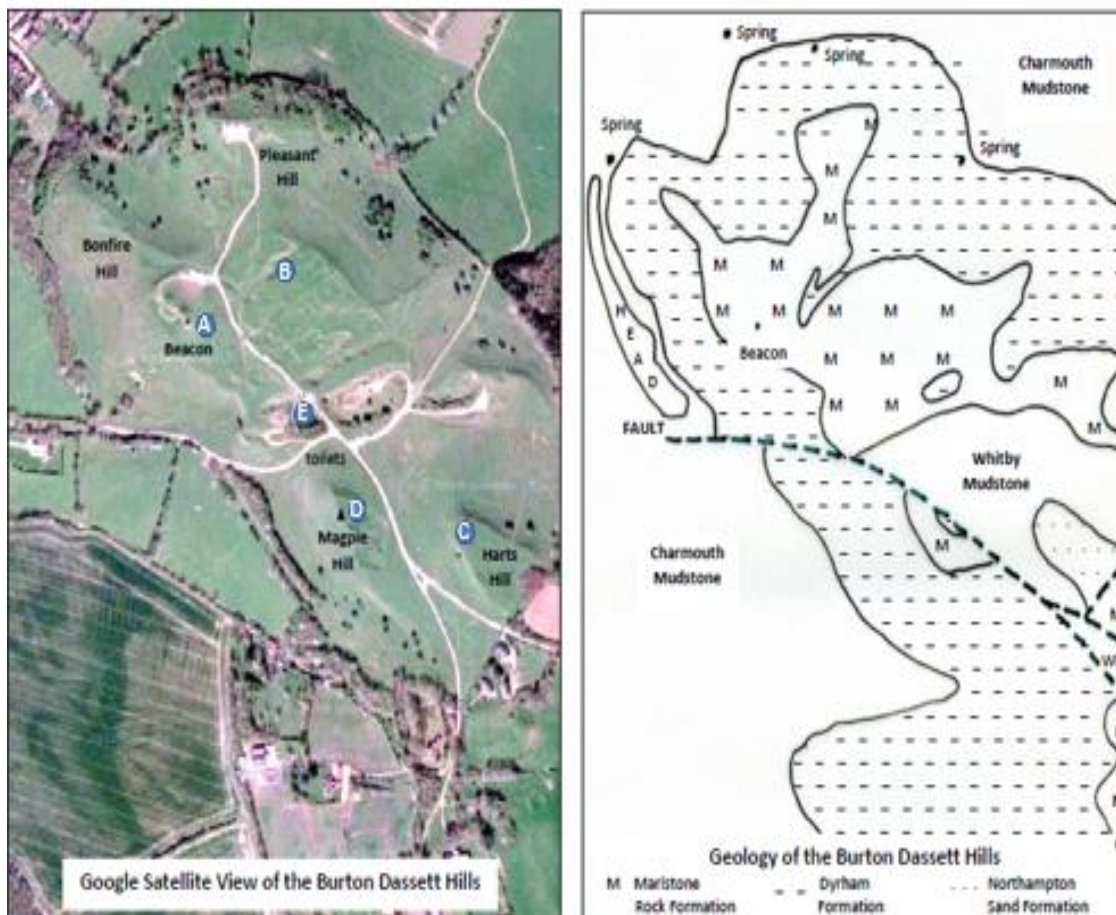


Figure 34: Burton Dassett Country Park and Geology sketch map of the area

At the first exposure (point B, Fig.34) we were able to examine the contact between the base of the Marlstone Formation and the underlying Dyrham Formation. The Marlstone protrudes over the Dyrham Formation, clearly showing that it is more resistant to erosion. The Dyrham formation is generally finer-bedded and occasionally micro micaceous, indicating a quieter and probably a deeper water depositional setting than the overlying beds. The bedding plane between the two formations was seen in an elevated worked face, and gave rise to a conundrum: why had the quarry men extracted so much of the Dyrham Formation? It is a non-iron bearing rock, and consequently waste material. Tracing the

contact along we were able to see that the Marlstone did in fact descend to the worked floor and that the juxtaposition viewed was a consequence of faulting.

There was clearly a break in deposition prior to the Marlstone Formation deposition, as the base of the Marlstone is marked by the presence of rounded pebbles. (Fig 5). We were able to trace this base, in the exposures along the tramway from Beacon Hill to the toilet block.



Figure 35: Rounded pebbles, base of the Marlstone

The toilet block (E, Fig.34) is constructed of local Marlstone, just like the Beacon and with the same sorts of inclusions. Next to the toilet block is a Marlstone face which appears to have remained unworked in order to support the roadway above. Just like the first exposure, we were able to observe the unevenness of the bedding plane surface indicative of current action during deposition. Here we also saw a clear lateral slip open fault surface trending NE-SW, providing further evidence of tectonic activity post deposition and lithification.

From the toilet block we followed the Marlstone outcrops from the base to the top of Magpie Hill. The exposure at the toilet block is quite massive, whereas those on Magpie hill appeared to be thinner bedded in general. In the photo (Fig.36) we see an example of Marlstone composed of fragments of shells, possibly deposited in a storm event.



Figure 36: Magpie Hill marlstone with shell fragments

Viewing Harts Hill from Magpie Hill we see a noticeable break in slope near the top. This marks the boundary of the Northamptonshire Sand Formation and the underlying Whitby Formation, both younger than the Marlstone Formation but at the same elevation on which we stood. This was clear evidence of a NW-SE trending fault with its downthrown side to the east. This fault is orthogonal to the fault at the toilet block.

On the side of Harts Hill there are a number of very small exposures of Northamptonshire Sand Formation. On close examination we see that the rock properties vary a lot. Some samples show good porosity, while others show lots of sparry calcite filling the pores. Some samples contain oolites indicating a near shore tropical depositional setting.

Looking northwards from the top of Harts Hill we observed the slope still exhibits mediaeval ridge and furrow farming relief. It was no surprise to learn that underlying this mediaeval field was the Whitby Mudstone. The soils on the Marlstones and Northampton Sand were very thin and thus unsuitable for horticulture, whereas on the mudstones they were thick and fertile. In 1908 an Anglo-Saxon grave was discovered on Pleasant Hill indicating that Burton Dassett was a settlement at that time. All Saints Church dating from the 12th century, located to the south of Harts Hill, is of considerable size indicating the population of the area would have been much bigger than today. The Black Death of 1348 would have ravaged the population, however the primary depopulation occurred at the end of the 15th century with the onset of lucrative sheep farming, for which the Cotswolds is well known.

From Harts Hill we made our way north to a small Marlstone quarry at the base of the hill. At the east end of the quarry, we saw more faulting running NW-SE, and a lot of jointing, all indicating severe stress (Fig.37). Some faint cross bedding is also visible (Fig.38) indicating a near shore depositional setting.



Figure 37: Stress fractures in a Marlstone block



Figure 38: Cross-bedding

Marlstone, whilst no longer quarried at Burton Dassett, is still quarried at Edge Hill and is an important local stone for aggregate and building blocks. It is commonly known as Horton Stone, and has been used widely in the construction of many South Warwickshire and North Oxfordshire villages. The new toilet block by All Saints Church (Fig.39), is constructed of this stone sourced from Edge Hill. Common in the stone are belemnite fossils, indicating a slightly deeper water environment for these free-swimming animals. The rusty colour is due to oxidation of the stones iron content.



Figure 39: New toilet block by All Saints Church

Acknowledgements

1. Adapted from Sumbler, 1996; Barron et al., 1997; Cox et al., 1999; Ambrose, 2001 and Cox & Sumbler, 2002, and with kind permission from Jonathan D. Radley, and the 'Mercian Geologist' (EMGS).

2. Imagery ©2026 Airbus, Maxar Technologies, Map data ©2026 Google.

Kenilworth Castle Quarry (KCQ) FT 8/7/26.

Led by Stuart Burley

4th July 2026

Attendance 11

Report by Ray Pratt & Jane Allum.

On Saturday, July 4th, a small team of WGCG members undertook a clearance session at the quarry in preparation for this visit led by Stuart Burley.

Many thanks to Gareth Jenkins, Ray Pratt, Nigel Prentice and Rosemary Hyde. Gareth, Rosemary and Nigel can be seen here cutting their way into the quarry which was densely overgrown with stinging nettles. There was also much algal growth over the rock faces since last jet washed by WGCG.



Figure 40: WGCG volunteers tackle the overgrowth

Castle Quarry is one of the few exposures remaining in the Kenilworth Sandstone and was excavated in the upper part of the Kenilworth Sandstone Formation, very close to the western boundary fault of the Coventry Horst. There are three exposed faces in the quarry which we estimate provide a total exposure of around 7m of stratigraphic section.

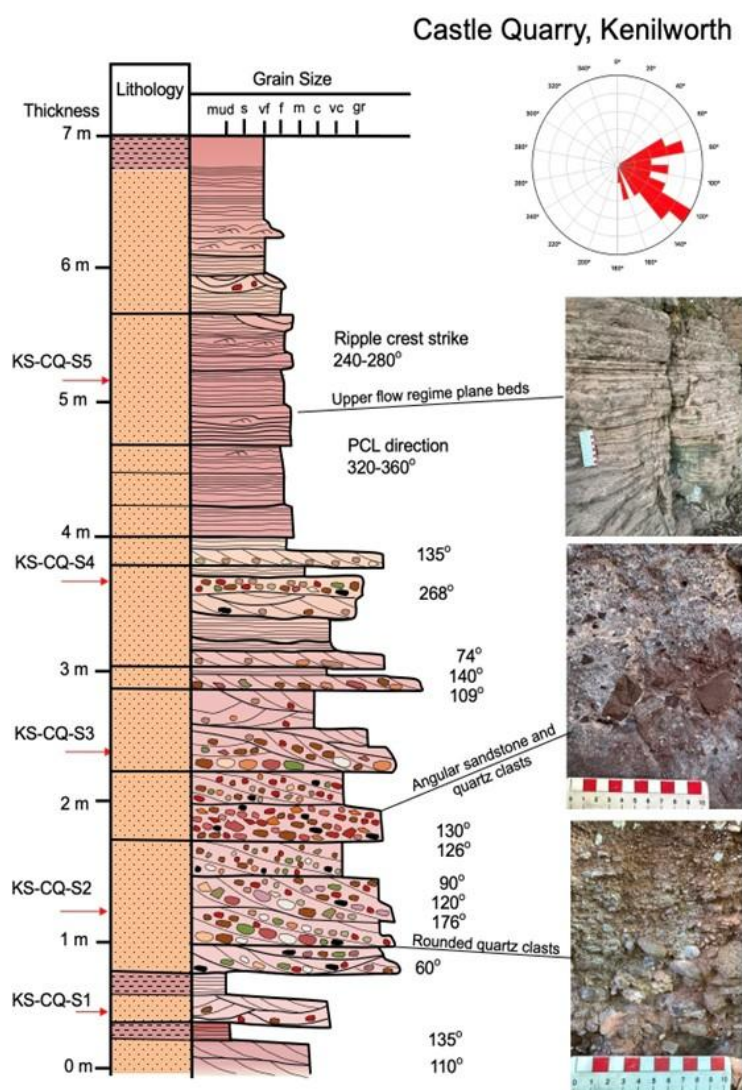


Figure 41: Graphic Log of KCQ compiled by Stuart Burley

On entering the quarry at the western end, we encountered a planar bedded unit, a sequence of high energy, upper-flow regime, plane-bedded sandstones. Close examination of these reveals some low amplitude ripples and bedding surfaces show parting current lineation, typical of upper flow regime plane beds. The absence of a fining-up sequence terminated by a mud unit indicates that these are not low energy over-bank deposits. These were probably laid down as shallow water flash flood events in a broad river valley.



Figure 42: Plane Beds on western side of the quarry

As seen above the plane beds are c.200mm thick, comprising slightly silty fine to medium subangular to rounded sandstones. Sub-horizontal faulting and joints were also noted.

Following the trail around to the eastern side of the quarry, we find the underlying breccio-conglomerates. Pebbles in the conglomerates are of distinctive rock types and indicate source provenance. The conglomerates are hard. The matrix of the conglomerate was medium to coarse sandstone. In parts the conglomerates are cemented together by secondary calcite cement.

The photograph below was taken last year following the jet washing of the rock face and shows the poorly sorted nature of the conglomerate comprising subrounded sandstones, mudstones and quartzite pebbles noted in the sand matrix. Calcite veins were occasionally noted in the mudstone clasts. The orientation of foresets on the cross-bedding indicates that the paleocurrent for these breccio-conglomerates was predominantly to the southeast (see the Rose diagram in the graphic log section).



Figure 43: Conglomerate on eastern quarry side

This exposure, along with many others in the district, was mapped in detail by Fred Shotton in 1929. He classified this as a breccia, in contrast to the Gibbet Hill exposure which he classed as a conglomerate.

The Kenilworth Sandstone Formation has been considered to be Permian in age based on the discovery of three partial skeletons of the amphibian *Dasyceps*, the first of which was found in 1849.



Figure 44: *Dasyceps*. By Creator: Dmitry Bogdanov - dmitrchel@mail.ru, CC BY 3.0, <https://commons.wikimedia.org/w/index.php?curid=4488416>

Stuart proposed that the evidence for this is scant as the above fossil is also attributed to the late Carboniferous. If this is the case these deposits may equally be a continuation of the late Carboniferous Warwickshire Group, as the boundaries between the underlying Tile House Mudstone Formation and the overlying Ashow Formation are all conformable, with a similar depositional setting throughout. The basin in which they were all deposited, initially called the Coventry Cuvette, stretches as far south as Oxford. The Kenilworth sandstone is only seen in the Kenilworth area as elsewhere it has been eroded.

The western Boundary fault reportedly runs north south, literally at the western end of the quarry. There is no evidence of this within the quarry.

Published reconstructions of Kenilworth Sandstone palaeogeography provide another conundrum. Sediment supply is reportedly from the Variscan Front mountain range to the south, but mapped flow direction from these outcrops suggest a westerly source.

Clearly there is a lot to consider in determining the history and age of these beds. Thanks to HS2 Stuart has been able to log most of the new cuttings along the path of the new rail line, recoding data that has never been seen before, and in many cases will never be seen again.

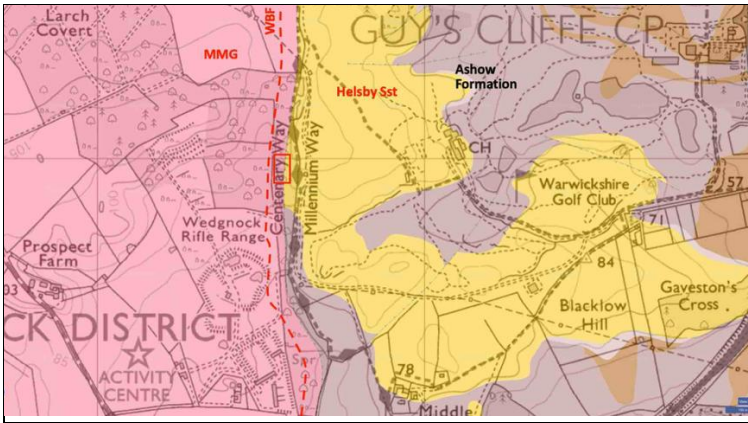
Woodloes Quarry and Leek Wooton exposure FT

Led by Stuart Burley

Wednesday 5th August 2026

Report by Ray Pratt & Jane Allum. Attendance 21

On Wednesday, August 5th, following geoconservation work by a small team of volunteers in February 2026 (Stuart Burley, Ray Pratt, Peter Hawkswood and Tom Collins) 21 members met at the Warwickshire Golf course and walked up to the exposure of the Helsby Sandstone (Middle Triassic) in Woodloes Quarry on a delightful, warm summer evening.



The location is off the Millenium Way and east of the Boundary fault of the Coventry Horst with Mercia Mudstone to the west (in pink on the image below) and the Helsby Sandstone directly overlying the Late Carboniferous – Lower Permian strata to the east (in yellow). The approximate location of the site is a red rectangle on the image below.

The Helsby Sandstone is a sandy, low sinuosity river deposit, and is well exposed in the quarry faces. It is a similar section to the sequence seen at Guys Cliffe, although has additional interesting features. The sandstone is fine-to medium-grained, cross-bedded and locally micaceous in the summer sun. The flow direction as determined by the cross-bedding foresets is quite variable and Stuart explained the apparent difference in flow direction with reference to existing rivers where anastomosing braided rivers develop. A channellised sandstone is present towards the top of the exposure overlying a distinct mudstone paleosol. A number of c. 2.0m long vertical calcified root traces, 'rhizoliths' are seen in the underlying sandstone.

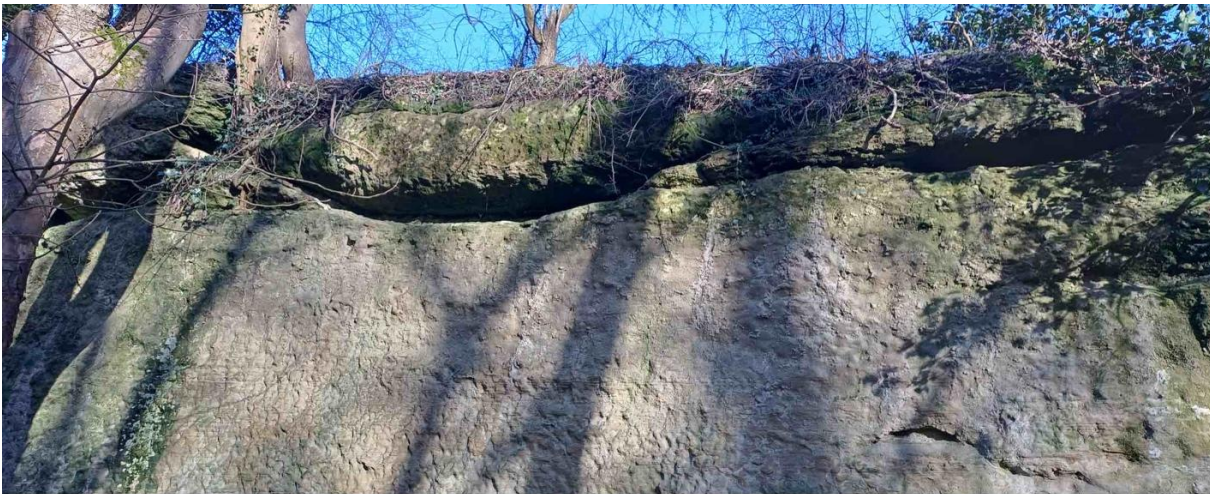


Figure 45: Finer deposits of mudstone are present in the gap between the two sandstone bodies in the above image. The two river channels in the top of the quarry face run east west. The calcified rhizoliths, (roots), indicate that the river bed in this section had been subaerially exposed for many years enabling soil and plant development before new river channels eroded than deposited sediment on top of this surface.

Our next stop was the exposure by Leek Wooton bus stop. Days prior to the visit, this rock face was mostly obscured by ivy and other vegetation. This was recently removed by WCGC volunteers especially for this event enabling the variable lithology and sedimentary features to be observed. This is an excellent exposure due to its ease of access and the variety of sedimentological features to be observed. As it is in the bus stop it is possible to very easily get up close to examine the rocks. The channelized nature of the sandstones are clear, and the basal erosion surface of two fluvial flow events can be seen, with about a metre of vertical relief on the erosion surface evident. Individual bed forms are around 1m in thickness giving a minimum water depth for the river channel, and reactivation surfaces demonstrate variation in flow discharge rates and water depth, indicating that the river was likely braided during water falling stage. In addition there is a small section where very well rounded grains are seen in a soft, friable sandstone lying on top of a calcrete (fossil soil), which is then overlain by another fluvial deposit. This may be a small wind-blown sand in the dried-up river course.



Figure 466: A 'softer' sandstone deposit sandwiched between two fluvial channel sandstones

The calcrete layer (2 in the image below) extends around the Leek Wooton exposure, varying in thickness. Throughout there are very coarse grained, irregular shaped clasts of calcite which are rip up clasts reworked from an underlying calcrete bed.



Figure 47: Calcareous calcrete layer, grain size in image of the right



Sandstone 2 comprises a variably 10cm thick, very calcareous calcrete layer. It is light brown, firm-friable, very fine to very coarse, round to subangular frosted translucent quartz, poorly sorted, common white patchy calcareous cement, large fragments of yellow light brown calcite clasts –

probable reworked rip up clasts from another calcrete bed, poor porosity. Overlying this calcrete layer is another soft, friable sandstone (3 in the image above), 30cm thick, with sub-round to sub-angular translucent quartz with traces of dark coloured grains.

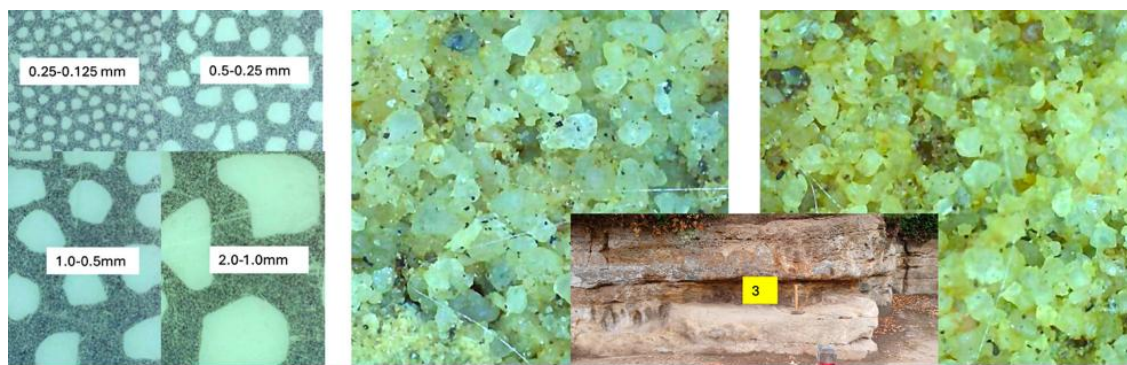


Figure 48: Yellow brown to rusty brown sandstone (3) overlying the more calcareous sandstone (2)

As the image above shows, whilst this sandstone does contain a lot of well-rounded grains it also contains many sub-angular grains and is not as well sorted as would be expected from an aeolian sandstone. It is probable that this bed contains a significant proportion of reworked aeolian sand deposited in a fluvial setting and due to the more rounded nature of some of the grains it is less resistant to erosion resulting in this inset eroded bed.



Figure 49: Image showing the dimensions of the outcrop

Aeolian units are not uncommon in the Helsby Sandstone, and have been described in outcrops from northern Cheshire, including the famous Frodsham Sandstone Member, which is interpreted as fossil wind blown dune sand-ridges. However, wind blown units have not previously been described from the Helsby Sandstone in Warwickshire, so this is a first sighting by WGCG.

The group retired to the pub for 8pm for refreshments and engaging conversation. One WGCG member, who was unable to join us for the field trip, did join the party at the pub

Thanks to Ray Pratt for organizing a very successful Summer Social and to the 2012 WGCG team of volunteers who initially cleared Woodloes Quarry.

Upcoming Events

25-27/9/26		GA Conference, The Tempest, Anderson Hall, Yorkshire Museum, York	
27/9/26		70 th anniversary of Wrens Nest 1 - National geological NR BCGS	
11/10/26	10:30 am	Day Field Meeting: Smestow Valley Meadow View Terrace, Wolverhampton WV6 8NX and Wightwick Manor, Wightwick Bank, Wolverhampton WV6 8EE with Andrew Harrison and Julie Schroder	
15/10/26	2:00 pm	Tour of Warks Museum's geology collection – Jon Radley (TBC) max 10	
15/10/26	7:15 pm	St Francis, Kenilworth	Talk: Geology & Industrial Archaeology of Harlech (TBC) – Allison Barraclough, GA President
17/10/26	10:30 am	Ask A Geologist. Herbert galleries and Museum, Coventry 10:30 -16:00 hrs	
24-1/11/26		Half Term	
19/11/26	7:15 pm	St Francis, Kenilworth	Talk: Geology of Stonehenge - Peter Worsley
5/12/26	10:30 am	Ask A Geologist. Warwick Museum 10:30 -13:30 hrs	
12/12/26	2:00 pm	Kenilworth Senior Citizens Club	Saturday afternoon Christmas party: Wine tasting
19/12-3/1/27		Christmas Holidays	
21/1/27	7:00 pm	St Francis, Kenilworth	AGM: Talk: The rocks beneath your seat - sedimentation in a syn-orogenic Variscan foreland basin – the intriguing story of the Kenilworth Sandstone - Prof Stuart Burley
13-21/2/27		Half Term	
13/2/27	10:00 am	Kenilworth Senior Citizens Club	Workshop:
18/2/27	7:15 pm	St Francis, Kenilworth	Prof Richard Butler: Dinosaurs
18/3/27	7:15 pm	St Francis, Kenilworth	Talk Prof Mike Searle (TBC) Cornubian batholiths or ophiolites
29/3-9/4/27		Easter Holidays	
15/4/27	7:15 pm	St Francis, Kenilworth	Talk: Prof Ian Fairchild: Snowball Earth
02/05/27	10:30 am	Day Field Meeting: Bridgenorth- Stuart Burley TBC	
21-24/5/27		Long Weekend Field Trip – Northern Pennines, based in Barnard Castle, led by Prof Stuart Jones of Durham University	
13/06/27	10:30 am	Day Field Meeting: Bridgenorth- Stuart Burley TBC	
29/5-7/6/27		Half Term	
21/7-1/9/27		Summer Holidays	

Non WGCG Events

<https://www.geolsoc.org.uk/events-and-venue-hire/public-lectures/> (Live on Zoom)

<https://geologistsassociation.org.uk/calendar/> (Talks live on Zoom)

<https://geologistsassociation.org.uk/overseasfield/>

<https://bcgs.info/pub/the-society/programme-of-events/> (In person or as a post meeting recording)

<https://shropshiregeology.org.uk/events/> (Live on Zoom)

OBITUARIES

JOHN HANCOCK



Figure 50: John Hancock

Dr John Hancock was a long-time member of WGCG, including in 2008 -10, a spell as Membership Secretary. We knew him as doctor. What we didn't know was that after school (Dulwich College on a Kent County Scholarship) he applied to do geology at university but was unable to get a place. So he applied, successfully, to study medicine instead. This brought him from Bromley via Leeds University to Warwickshire as a GP in Harbury from 1969 until 2012.

Outside his professional life John was interested in every aspect of the natural world. An early influence was a school biology teacher who sparked an interest in wildflowers, particularly orchids. The outdoors became an important part of John's life. He loved the Warwickshire landscapes for their biodiversity and geodiversity, which he explored intensively on foot and on (long) bike rides. John really enjoyed being a member of WGCG and regularly joined local field visits. He was always helpful, had a ready smile and was an engaging and friendly person to talk to. John had many interests and enthusiasms which he was happy to share.

As a scout he learned to rock climb and did a lot of mountaineering, the highlight being an expedition to the Karakoram in 1987. In a less vigorous vein John enjoyed classical music and was a regular attendee at concerts in Warwick Arts Centre. He was always ready for a chat at the intervals.

In recent years he had a double hip replacement which, against expectations, severely reduced his mobility. John tackled this setback with great determination and was pleased that, for a time at least, he could still get out into the landscape on his bike. He also continued to explore Warwickshire with a walking group despite being entirely dependent on two crutches. When he could no longer come to WGCG meetings he watched the talks via Zoom.

John leaves his wife, Sharon, a son, Steven, a daughter, Jane, 6 grandchildren and 3 greatgrandchildren. Sharon has recently written to WGCG and said "...John had a particular enthusiasm for butterflies so I shall purchase a butterfly attracting shrub for our garden."

WGCG ORGANISATION

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 on 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 aims 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 (local geological site) register and annually undertake geo-conservation of selected exposures within Warwickshire.
- Hold an annual educational workshop in February.
- Working with third-party organisations such as The Geology Trusts and participate in externally organised events e.g. the quarterly "Ask a Geologist" 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

WGCG OFFICERS

Management Committee (Trustees)		
Photo	Name	Officer role
	Stuart Burley	Chair
	Ray Pratt	Honorary Secretary (Co-opted)

	Kathrin Schütrumpf	Honorary Treasurer
	Jane Allum	Geo-conservation
	Claire Groves	Holloway Awards
	Peter Hawksworth	Outreach & Public Engagement
	Gareth Jenkins	External Group Representative
Education Sub Committee		

Photo	Name	Role
	Ray Pratt	
	Christine Hodgson	
	Helen Jones	
Others in Administrative Roles		
Photo	Name	
	Julie Harrald	

	Jon Radley
	Andrew Sanderson
	Anthony Allen
	Lauren Sewell

Other Roles: Public Engagement

X (Twitter)
 Facebook
 Instagram
 LinkedIn
 YouTube
 Online conferencing (Zoom)
 Web master

Dr Jon Radley & Dr Lauren Sewell
 Kathrin Schütrumpf & Lauren Sewell
 Kathrin Schütrumpf & Lauren Sewell
 Gareth Jenkins
 Ray Pratt
 Ray Pratt, Gareth Jenkins & Kate Torrens
 Anthony Allen supported by Ray Pratt

Newsletter editor	Dr Lauren Sewell
Local Geological Sites officer	Dr Andrew Sanderson
Geo-conservation co-ordinator	Jane Allum
Planning applications co-ordinator	Will Messenger
Office - Cataloguing	Ian Fenwick
Electronic Data Management	Ray Pratt
Group Admin Assistant	Julie Harrauld

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 Instagram	instagram.com/warwickshiregcg Maintained by Kathrin Schütrumpf & Lauren Sewell
 YouTube	WGCG YouTube channel Maintained by Ray Pratt
 LinkedIn	WGCG LinkedIn page Maintained by Gareth Jenkins
Website	wgcg.co.uk Maintained by Anthony Allen
Email	warwickshiregcg@gmail.com

Got something to say? Send your contribution to the NEWSLETTER via email to warwickshiregcg@gmail.com

WGCG Membership Joining or Renewal Form

WARWICKSHIRE GEOLOGICAL CONSERVATION GROUP MEMBERSHIP FORM FOR JOINING OR RENEWING	
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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:

That we may keep your details on our data base and used as described above	YES/NO
That we may communicate with you by e-mail	YES/NO

Please print in block capitals:

NAME	
ADDRESS	
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**
- ☐ Annual **Standing Order** to sort code **40-27-06** to account **51411101**
- ☐ Pay at your bank using the attached paying in slip
- ☐ **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.

GIFT AID : As WGCG is a charity, registration number 1144717, we can reclaim the tax you have paid on the subscription direct from the Inland Revenue at no cost or inconvenience to you. It provides an extremely valuable source of income to the Group.

Declaration : I am a UK taxpayer and I pay sufficient Income Tax and/or Capital Gains Tax to cover the amount of monies paid by myself to WGCG and wish all such monies to be subject to Gift Aid until I notify you otherwise.

Signature :

Date :

You should ONLY sign this part of the form IF YOU ARE A UK TAX PAYER and WANT WGCG TO CLAIM GIFT AID from your tax. If this is NOT the case, leave this part of the form BLANK.

Date _____		bank giro credit			
Cashier's Stamp	HSBC UK Bank plc		£50 Notes		
	LEAMINGTON SPA		£20 Notes		
	ACCOUNT		£10 Notes		
	WARWICKSHIRE GEOLOGICAL CONSERVATION GROUP		£5 Notes		
PAID IN BY		S&1 Notes			
		£2 Coin			
		£1 Coin			
		Other Coin (See over)			
		TOTAL CASH			
		Cheques, POs (See over)			
No. of items	40-27-06	51411101	78	£	

Please do not write or mark below this line or fold this voucher

⑈000000⑈ 40 27 06 51411101 78

Example

Date _____		bank giro credit			
Cashier's Stamp	HSBC UK Bank plc		£50 Notes		
	LEAMINGTON SPA		£20 Notes		
	ACCOUNT		£10 Notes		
	WARWICKSHIRE GEOLOGICAL CONSERVATION GROUP		£5 Notes		
PAID IN BY		S&1 Notes			
EXAMPLE		£2 Coin			
		£1 Coin			
		Other Coin (See over)			
		TOTAL CASH		15.00	
		Cheques, POs (See over)			
No. of items	40-27-06	51411101	78	£	

Please do not write or mark below this line or fold this voucher

⑈000000⑈ 40 27 06 51411101 78

It is quick and easy to join or renew your membership online

<https://www.wgcg.co.uk/join-us/>

GA Affiliated Groups and Local GA Groups (LG)

Amateur Geological Society <http://amgeosoc.wordpress.com>
Association of Welsh RIGS Groups Avon RIGS <http://avonrigsoutcrop.blogspot.co.uk>
Bath Geological Society www.bathgeolsoc.org.uk
Bedfordshire Geology Group www.bedfordshiregeologygroup.org.uk
Belfast Geologists' Society www.belfastgeologists.org.uk
Black Country Geological Society www.bcgs.info
Brighton & Hove Geological Society www.bhgs.org
Bristol Naturalists' Society www.bristolnats.org.uk/geology
British Micromount Society <https://bms.mineralcollective.com>
Bucks Geology Group www.bucksgeology.org.uk
Cambridgeshire Geological Society www.cambsgeology.org
Carn Brea Mining Society <https://www.cbms.org.uk/>
Cheltenham Mineral and Geological Society <http://cmgs.yolasite.com/society.php>
Cumberland Geological Society <http://www.cumberland-geol-soc.org.uk/>
South Wales Geologists' Association (LG) www.swga.org.uk
North Wales Group Geologists' Association (LG) www.ampyx.org.uk/cdgc/cdgc.html
Devon RIGS Group www.devonrigs.org.uk
Devonshire Association <https://devonassoc.org.uk/organisation/> sections/geology-section/
Dinosaur Society www.dinosauriansociety.com
Dorset Group (LG) <https://dorsetgeologistsassociation.org/>
Dorset Natural History & Archaeological Society enquiries@dorsetcountymuseum.org
Earth Science Teachers' Association <https://earth-science-teachers.uk/>
East Herts Geology Club www.ehgc.org.uk
East Midlands Geological Society www.emgs.org.uk
Edinburgh Geological Society www.edinburghgeolsoc.org
Essex Rock and Mineral Society (LG) www.erms.org
Farnham Geological Society (LG) www.farnhamgeosoc.org.uk
Friends of Sedgwick Museum Society <https://sedgwickmuseum.cam.ac.uk/support-us/friends-sedgwick-museum>
GeoEast <https://www.geo-east.org.uk/>
GeoLancashire (LG) www.geolancashire.org.uk
Geological Society of Glasgow www.geologyglasgow.org.uk
Geological Society of Norfolk www.norfolkgeology.co.uk
Harrow & Hillingdon Geological Society (LG) www.hhgs.org.uk
Hastings & District Geological Society
Hertfordshire Geological Society (LG) www.hertsgeolsoc.org.uk
History of Geology Group <https://historyofgeologygroup.co.uk>
Horsham Geological Field Club www.hgfc.org.uk
Huddersfield Geology Group www.huddersfieldgeology.org.uk
Hull Geological Society www.hullgeolsoc.co.uk
Kent Geologists' Group (LG) www.kgg.org.uk
Kingston Lapidary Gem & Fossil Society kingstonlapidarysocietyhull@gmail.com
Leeds Geological Association www.leedsga.org.uk
The Geology Group of the Leicester Literary and Philosophical Society www.charnia.org.uk

Liverpool Geological Society www.liverpoolgeologicalsociety.org.uk
Manchester Geological Association www.mangeolassoc.org.uk
London Geodiversity Partnership www.londongeopartnership.org.uk
Medway Fossil and Mineral Society www.mfms.org.uk
Milton Keynes Geological Society <https://www.facebook.com/mkgeosociety/>
Mineralogical Society www.minersoc.org
Mid Wales Geology Club www.midwalesgeology.org.uk
Midweek Geology Club Mole Valley Geological Society (LG) www.mvgs.org.uk
Newbury Geology Society <https://newburygeology.org.uk/>
Norfolk Mineral & Lapidary Society Norfolk Geodiversity Forum
www.norfolkbiobiodiversity.org
North Eastern Geological Society www.negs.org.uk
North Staffordshire Group of the Geologists' Association (LG) <https://nsgga.org>
Open University Geological Society www.ougs.org
Oxford Clay Working Group Email: saurian@live.co.uk
Oxfordshire Geology Trust www.oxfordshiregeologytrust.org.uk
Peak Lapidary & Mineral Society <http://rockexchange.uk/>
Peterborough Geological Palaeontological Group <http://peterboroughgeology.org>
Plymouth Mineral & Mining Club www.denul.net/pmmc
Reading Geological Society (LG) and www.readinggeology.org.uk
Rotunda Geology Group www.rotundageologygroup.org
Royal Geological Society of Cornwall www.geologycornwall.com
The Russell Society www.russellsoc.org
Scottish Geological Trust www.scottishgeologytrust.org
Shropshire Geological Society www.shropshiregeology.org.uk
Sidcup Lapidary and Mineral Society www.sidcuplapminsoc.org.uk
Southampton Mineral and Fossil Society www.sotonminfoss.org.uk
Teme Valley Geological Society <https://geo-village.org/>
Tertiary Research Group www.trg.org
UK Fireball Alliance www.ukfall.org.uk
Ussher Society www.ussher.org.uk
Warwickshire Geological Conservation Group www.wgcg.co.uk
Welsh Stone Forum <https://museum.wales/curatorial/geology/welsh-stone-forum/>
Westmorland Geological Society www.westmorlandgeolsoc.co.uk
West of England Group of the GA (LG) <https://www.wega.org.uk>
West Sussex Geological Society (LG) www.wsgs.org.uk
Woolhope Club, Hereford www.woolhopeclub.org.uk
Yorkshire Geological Society www.yorksgeolsoc.org.uk