31 March 2023

Newsletter

Bedfordshire
GEOLOGY GROUP
bringing landscape to life

Included in this issue:

Kensworth revealed!

Our volunteers after a hard morning's work at revealing Kensworth's features

(Image: Bev Fowlston)

By Bev Fowlston

A mild January morning saw our intrepid volunteers scale the heights of Kensworth Quarry on Dunstable Downs. The weather was set fair but as usual the weatherman got it wrong. Just as we started the heavens opened and we were drenched. This did not deter us as we endeavoured to reveal some key features for which this Local Geological Site (LGS) is renowned.

The gang were split into three teams. One team working on clearing the overgrown vegetation and small saplings that had started to encroach on the site. Team two began to uncover the fault situated in the centre of the exposure. The third team worked on cleaning the face around a solution pipe and digging down to try and reveal the Caburn Marl which is at the base of the outcrop.

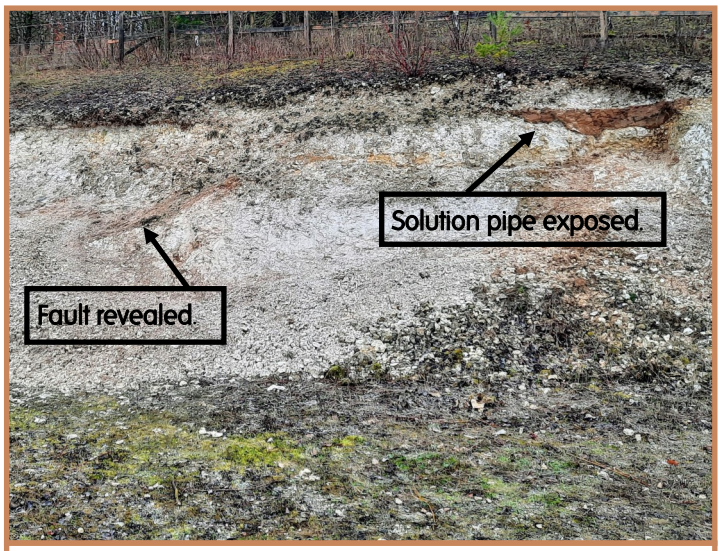
One of our volunteer's children who came along to help with one of his scouting badges was keen to get involved in the clearing and restoration of this LGS. He was particularly interested in some of the fossils discovered in the fallen pieces of Chalk. He took great pleasure in hammering these loose pieces to see what was hidden inside.

The day was very successful in revealing this exposure but further work will be required to uncover the Caburn Marl, which we didn't quite get down to - maybe some heavy machinery such as a small digger will be required the next time we schedule this site for maintenance.

Thank you to all our volunteers for their hard work and who braved coming out on a wet January morning.

Team Two (left) working on the fault line. Team Three (right) working on the solution pipe and trying to reveal the Caburn Marl.

(Image: Diane Sutherland)



The exposures revealed.

(Image: Diane Sutherland)

Gibbithyris semiglobosa

Image 1: Brachiopod fossil *Gibbithyris semiglobosa.*
(Image: Diane Sutherland)

This fossil brachiopod was discovered during the maintenance and monitoring work at Kensworth Nature Reserve LGS. It is Cretaceous in age, probably from the Upper Turonian (~93.9 ± 0.8 Ma and 89.8 ± 1 Ma) Lewes Nodular Chalk Formation which is exposed at this site.

The brachiopod is a *Gibbithyris (Terabratulina) semiglobosa.* It is a relatively rare fossil found in the Upper Chalk layers of Southern England and Northern France.

Brachiopods are rare marine creatures today that live in seabed habitats from across the globe. These animals are defenceless apart from their shells. Many are attached to a hard seabed via a stalk, called a pedicle. Their feeding habits are via food-bearing currents and are essentially filter feeders.

Indicative of shallow-marine environments, these creatures are a great geologists' tool. They can infer habitat and environment such as water depth, salinity and oxygen levels. Due to their rapid evolution, the brachiopod fossils can be used as relative dating tools and correlation of rock successions.

References:

1. https://ehive.com/collections/4128/objects/563994/brachiopod-_gibbithyris-terebratulina-semiglobosa
2. Cox, B M, and Penn, I E. 2000. Brachiopods: fossil focus. (Nottingham, UK: British Geological Survey.)

Name/Title: Brachiopod

Originally identified by: Larkin & Lomax

Taxonomic Classification: Gibbithyris (Terebratulina) semiglobosa

About this object: A brachiopod from the Cretaceous.

Annual social and visit to Silsoe Quarry

By Bev Fowlston

This year's social gathering, which we normally hold in December, was delayed due to booking issues and the inclement weather in early December - remember the snow! We tried something different this year, a visit to a local quarry followed by a meal in a nearby restaurant. Visiting Silsoe Quarry, a hidden gem of the Woburn Sands Formation, then a lovely meal in The Flying Horse at Clophill was the order of the day.

Some of the explorers in front of the large-scale cross-bedding (Image: Bev Fowlston)

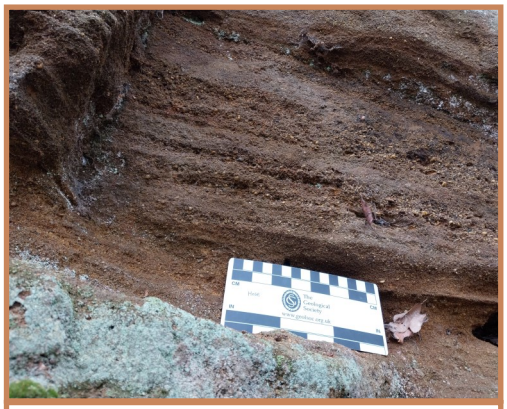
Several members joined Bev Fowlston, as organiser, for a short walk across the A6 to the quarry, for which BGG are keyholders. We spent the morning exploring the quarry. Discoveries included some rootlet and plant fossils along with the unusual nodules filled with soft sand. Mike Kingdon discovered an unusual piece of rock with what looked like cobalt. We have sent the sample to Cranfield University for testing - watch this space for a report in a future newsletter.

Some of the sedimentary features seen in the exposed cliffs included large-scale crossbedding and what we think is small-scale hummocky cross stratification too.

Sandstone nodule showing concentric rings of iron banding (Image: Dr Tom Hose)

Fossilised wood (Image: Bev Fowlston)

The whole site is a wonderful resource for teaching and would benefit from an in-depth site survey and record of its features. BGG are looking into how this can be done in conjunction with the quarry company for future preservation of the geology as the quarrying comes to an end. Research into this is ongoing and if you would like to become involved then please contact Bev Fowlston in the usual way.

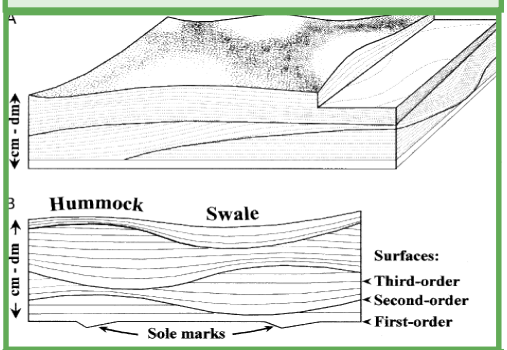


Micro-bedding possibly HCS (Image: Bev Fowlston)

The group finished exploring the quarry and its wonderful geology before retiring to The Flying Horse for a wonderful and well-earned meal. The day was a wonderful end to 2022/start of 2023. Here's to next 2023's social event. If you have an idea of how to celebrate the end of the year, please let us know.

Hummocky Cross-stratification

Hummocky cross-stratification (HCS) is diagnostic of storm activity in the area of the ocean called the shoreface-offshore transition. It comprises low angle laminations in finer-grained sediments. These laminations appear as drapes over the peaks and troughs of larger underlying bedforms.



(Image courtesy of Springer Nature)

GCLP Update

By Bev Fowlston

Greensand Country Landscape Partnership continue to champion the area through various events and news. Take a look at their website for things that may interest you https://www.greensandcountry.com/

Don't forget in May there is the Greensand Country Festival. Derek Turner will be hosting our contribution this year - a lovely walk through Woburn - check out the details on our website's events page

An opportunity for you ...

If you feel confident giving talks to some of the lovely groups that ask for presentations, then please get in contact with Bev Fowlston who can provide you with material for talks and presentations as well as holding our own (rather old!) projector and (enormous!) screen should you need it. Don't forget we also have a huge selection of recently-catalogued rocks and fossils for use in presentations.

Monthly get-togethers

By Bev Fowlston

Our monthly get-togethers this quarter have been quiet. Probably due to everyone being wonderfully busy with life again! Do watch out for next month's Zoom get-together where you can sit and chat with fellow like-minded geology enthusiasts. Discover what's been going on locally, nationally and globally in the geology news.

Next Zoom Get-Together

Discover the latest global geological news and catch up with your fellow members

Thurs 20th Apr 2023 at 7.30pm

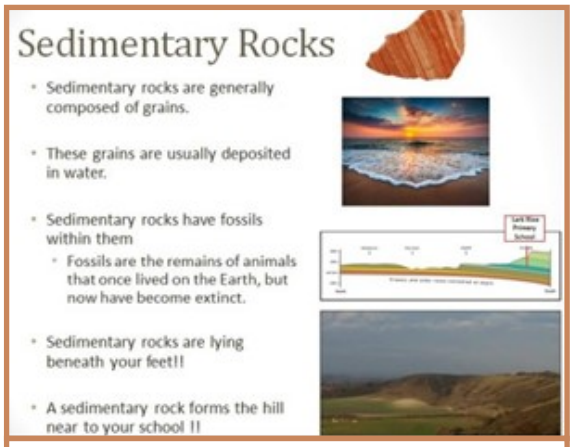
Email secretary@bedfordshiregeologygroup.org.uk for Zoom link

Education News!

Visit to Lark Rise Academy

By Paul Hawkes

Bedfordshire Geology Group was invited to Lark Rise Academy in Dunstable on 31st January, to help the Key Stage 2 pupils with their curriculum geology work. We showed the children examples of the main types of rocks (sedimentary, igneous and metamorphic) and explained how they developed, along with a display of different types of fossils and minerals.



One of the slides used to enhance the pupils understanding of rocks.

(Image: Paul Hawkes)

The children loved being able to look at all of the specimens, and were very attentive and excited to be able to describe the main characteristics of the fossil and mineral specimens. They particularly enjoyed looking at the detailed morphology of the fossils using a hand lens, and squirting water on all of the specimens!

The afternoon was very enjoyable, and the staff and parents were very grateful that we were able to attend the school and give the children such a hands-on experience.

Photos reproduced with the kind permission of the parents of Lark Rise Academy.

The Higgins' Little Science Labs

By Anne Williams and Derek Turner

Unlike our last visit to the Higgins Museum in Bedford when attendance was poor, the place was swarming for the Science Lab on 11th March. BGG members were kept busy entertaining a large proportion of the 564 visitors who came through the door and visited our stand.

One of the children makes a model of a fossil under Diane's guidance
(Image: Derek Turner)

It was good to have Anne Williams helping out once more along with John Busby. They encouraged many eager children to examine the rocks and fossils in the Museum's handling collection and answered their questions. Diane Sutherland patiently helped younger children make casts of ammonites using modelling clay and colour in pictures of creatures that roamed the earth millions of years ago.

Who knew that so many children have a passion for obsidian but apparently it is a major material in Minecraft! There was also great interest in the large Carcharodon megalodon shark's tooth (easily recognised as a tooth) and the mammoth's tooth (not so easily recognised as a tooth, this needed a bit of miming) - who knew mammoths roamed the Great Ouse valley not so long ago?

Derek, John and Anne were quite overwhelmed by the interest of crowds of children and parents in the rocks, minerals and fossils taken from our own collections and the Higgins Handling Collection set out in the Settlement Gallery of The Higgins. We were there as part of Little Science Labs throughout the museum offering exciting science-based activities for young people. Sharing their knowledge, John and Derek hardly sat down or took a breath all day. Diane also drew crowds with the creative aspects of geology to take home – very artistic drawings and colouring of dinosaurs and marine reptiles and making of clay moulds of ammonites.

This was a very successful and enjoyable day as there is so much interest in geology among young people, so please consider coming along to help with future events, possibly ' bring your own rock and fossil finds for identification' (or not, try to puzzle the experts!).

Many families filled in a visitor survey before they left and 92% of respondents said that they learned something new and 78% felt inspired to do more creative activities in the future. Here are some of their comments:

"It was just great, well organised and really appreciate the hard work."

"Excellent presenters, good level of information and involvement."

"Really varied events, hands on activities, interesting and fun."

"I think it was pitched well to give children the opportunity to explore and ignite an early love of science."

"We spent 2hrs at the museum, loved the geology rocks section and experiments outside."

"Such a lovely venue, fabulous people and really good entertaining teacher."

"Great free/cheap (we gave a donation) day out. I love that it is free and accessible for all."

Let's hope that some of the youngsters who visited us will choose a career in earth sciences when they get older.

Huge thanks to every one of our volunteers who gave up their time to inspire others.

Sandy Warren Lodge Quarry visit

By Derek Turner

Our visit to the RSPB got off to a bad start when we encountered problems paying the parking fee by phone in the Yew Tree car park just as a heavy shower passed overhead. We decided to regroup in the main car park where the ticket machine proved to be much more amenable and the rain stopped. Our change of route meant passing some of the heather which has flourished in recent years where rows of conifers had once cast dark shade. Gorse was in bloom and cheered us up before we entered the darker woodlands and headed for the quarry which needed its three-yearly monitoring.

The trees parted in places to give us a faint view of the Chilterns over 10 miles away to the south and then a better view of the Greensand Ridge near Old Warden where it resumed its journey south-westwards beyond the misfit River Ivel in its glacially widened valley. Our path meandered and undulated and we were once again within a stone's throw of the quarry only to head away from it for a while before we got there. The Lodge Quarry is designated a Local Geological Site for its fine exposures of current bedded sandstone which is particularly well consolidated at its base where Glynda is pointing (Fig 1).

Fig 1. Glynda pointing to the current-bedded sandstone cliff
(Image: Derek Turner)

The close-up shot below (Fig 2) features this zone with narrow beds of Greensand above, deposited by tides and currents at various angles. Thin layers of loose sand between these have been eroded by the weather. Burrows of mining bees, wasps and perhaps, sand martins occur in many places and have undoubtedly weakened the rock in places. Mosses, lichens and other vegetation are gradually spreading, particularly on banks of loose sand. A climbing plant is invading from the right and the coppiced tree in the foreground is growing up vigorously and threatening to obscure part of the exposure when its leaves unfold. Clearly, we shall have to discuss with the RSPB what vegetation control can be carried out next winter whilst taking into account the site's considerable value for wildlife.

Fig 2. Close-up of cross bedding
(Image: Derek Turner)

The quarry is very wide and was used for many centuries to supply stone for local churches and for the wall around the estate. Other exposures further right exhibit similar features. This section below (Fig 3) seems to include a rectangular "window" in the centre which may indicate where building stone has been extracted.

Fig 3. Exposure with 'rectangular' window of extraction
(Image: Derek Turner)

Mission accomplished, we walked back to the car park and some sought-after refreshments in the shop. A cafe is under construction and we look forward to using it next time we visit.

If you wish to learn more about this LGS, then read last quarter's newsletter for more detail. Available on our website.

Holiday Geology from Devon

By Derek Turner

(All images by Derek Tuner)

The Turner family travelled to east Devon for their holiday in June 2022. Sidmouth is a traditional seaside town with fine Regency architecture along the sea front and it makes an ideal base from which to explore the impressive geology in cliffs on either side of the town. However, care is needed and a substantial rockfall occurred just to the west in the week after we left. I photographed this beautiful red Otter Formation sandstone (Fig 1) exposure from the safety of the other side of the Sid estuary. Note the "ice cream cornet" which may preserve the shape of the root of a rare plant that had been growing in the desert sand from which the rock was formed. Nowadays, it drips water when it rains, staining the sandstone below.

Fig 1: Otter Formation showing possible fossilised root (left of centre) dripping water.

Fig 2: View eastwards showing Mercian mudstones taking over the geology in the distance.

Standing on the seafront, I admired the coastal scenery eastwards (Fig 2). The sandstone disappears as the beds dip towards the east with 450m of Mercian mudstones taking over. Out of the picture to the right, I was just able to make out the distinctive outline of the Isle of Portland on the far side of Lyme Bay.

Five miles east of Sidmouth above the picturesque village of Branscombe, the cliffs to the east finish in Chalk at Beer Head (Fig 3). Further on from there but out of sight, the geology becomes older again along the Jurassic coast.

Fig 3: View of Beer Head with its Chalk cliffs.

Fig 4: Dodder growing on gorse.

Many of the hills to the west and north of Sidmouth are capped by the Budleigh Salterton pebble beds of rounded but often flattened light purple quartzite, pale sandstones, cherts and igneous rocks. Many of them have become wooded but enough gorse and heather survives for them to be known as the East Devon Pebblebed Heaths and designated an Area of Outstanding Natural Beauty (AONB). Exposures at the coast show they were deposited by rivers flowing north or north east from a long-gone area of land in what is now part of the English Channel. The photo (Fig 4) shows the fine wispy stems of semi-parasitic dodder growing on a gorse bush which tolerates the poor soil between the pebbles at Peak Hill.

LGS Ranger News!

Focus on Barton Hills

By Bev Fowlston

Barton Hills National Nature Reserve LGS was another of the first sites to be designated by BGG back in April 2006 by Dr Jill Eyers. It lies within the Chilterns AONB and was chosen for its evocative landscape showing excellent chalk-related geomorphological features, including a dramatic coombe, dry valleys, soil creep, frost shattering, and a natural spring.

The full description from our designation form states "*The coombe is a particularly well-developed example with very steep sides. It contains a thick sequence of deposits in the valley floor that will have preserved environmental evidence (e.g. pollen and snails) for climate changes during the Ice Age. These deposits are of crucial importance to future research.*

View of some typical features found in and around Barton Hills, including a steep-sided combe in the foreground.

(Image: Derek Turner)

Features associated with soil creep are invaluable for training or teaching. The soil creep 'benches' are very well developed at this site, as are small scars associated with mass movement and gravitational failure.

The natural spring is a very interesting feature, particularly as it is the only example of a highly visible spring on public land in Bedfordshire. The spring emerges at the junction between the Middle Chalk and the less permeable, clay-rich Lower Chalk. It is therefore a good stratigraphical marker as well.

The site is already an SSSI for chalk grassland; there is a good link between rock type, soil type and the associated plant and animal communities."

As this site is already part of a protected landscape, BGG only have to monitor it every five years or so. We check that the features for which the site was designated are still visible and that no damage has occurred to them.

Derek Turner went out in March to monitor the condition of this site. He noted, however, that the site has become much more popular with visitors causing parking issues in Barton. The extra usage has increased erosion of path surfaces, litter, obstructions in the stream, damage to fences, fires and dog attacks. He reported that for its geomorphological and geological features it is in excellent condition, which is great news!

Thank you, Derek for all your work on this site.

View of some typical features found in and around Barton Hills, including soil creep.

(Image: Derek Turner)

LGS monitoring

Your help is always welcomed. If you are visiting an LGS then let us know. Take some images of the features and record the position the image was take from. Then tell us about the condition of the site.

Remember - many hands make light work!

Committee News!

Committee meeting summary

By Bev Fowlston

The committee met in February via Zoom, between us we held discussions on the group's normal activities.

Our finances remain healthy but still need to be audited.

Membership is staying steady with numbers at 35 for individual members and about 20 for our corporate members from The Wildlife Trust, Central Bedfordshire Council and KDK Archaeology. Reminders are to be sent out for renewals du end of March.

Our commitment to GCLP was discussed and due to new work commitments Bev Fowlston has stepped down as GCLP Rep. Derek Turner has agreed to take up the challenge.

Updates on the progress of the LGS monitoring were given with plans to continue the monitoring throughout 2023.

Finally, a discussion on past events and what to hold in the future was undertaken. Preliminary details are given later in this newsletter and on our website as we finalise them. Do let us know of any new ideas for events that you may have.

The next committee meeting will be on **Monday 1st June 2023**, if you wish to add anything to the agenda, please email one of the committee members. Contact details on the back page.

Do get in touch in the normal way if you feel you can help out.

Many hands make light work!

Membership Renewals
due 1st April 2023

Membership Information

Memberships are due on April 1st each year. They remain at £10 per person per annum
or £25 for group membership (organisations with 4 or more employees).

Please pay online directly to the BGG account:
Account name: Bedfordshire Geology Group, no 45377413
NatWest, sort code 60-01-16

Please email membership.secretary@bedfordshiregeologygroup.org.uk to let us know you have paid.

If you are unable to pay via online banking, cheques can be sent directly to the treasurer at the following address: BGG Treasurer, c/o 9 Latimer Close, Wotton, Beds MK43 9QA.

Please let the membership secretary know, via email,
of any changes in address, telephone no, email etc.

Your membership entitles you to 4 newsletters a year, free entry to all BGG events (non-members pay £2 per event to cover insurance), walks & talks and frequent communications.

Quick Geology Brainteaser

Answers from Winter 2022

Geochronology Crossword:

Across: 4. Seven, 7. Divergent margins, 8. Subduction ,9. Asthenosphere, 11. Transform

Down: 1. Wegener, 2. Convection, 3. Granite, 5. Lithosphere, 6. Basalt, 10. Solid

Geological Word Scramble

1. EUSCATORCE _____
2. USAJRSIC _____
3. ASRSTIIC _____
4. EIC EAG _____
5. YPORLCTSACI _____
6. SNDESNOTA _____
7. GIRNTAE _____
8. OCDOIBPHAR _____
9. CBMOE _____
10. LKACH _____
11. ATBNOR LILHS _____

Upcoming events ...

Please join us for these planned events, details are available on the website or check out the regular emails from Derek.

Book your place by emailing the event organiser or secretary@bedfordshiregeologygroup.org.uk

Monthly Zoom get-together : Every 3rd Thursday - email for link - Next one **20th April 2023**

Sat 15th Apr, 10.30am: Hunt for Bedfordshire puddingstone and Stockwood Visit	**Organiser: Derek Turner**
Wed 17th May, 11am: Greensand Festival - Walk around Woburn	**Organiser: Derek Turner**
Wed 31st May: The Higgins/BNHS Workshop	**Organiser: Diane Sutherland/Paul Hawkes**
Thu: 8th Jun: Fossil Zoom session with Dr Christian Atkins	**Organiser: Bev Fowlston**
Thu 13th Jul, 10.30am: Visit to Broom South Quarry	**Organiser: Derek Turner**
Sat 29th Jul: Attend Dunstable Archaeology Day	**Organiser: Derek Turner**
Wed 9th Aug: Walk at Harrold Odell with BNHS	**Organiser: Derek Turner**

If you can help to plan, organise and run events then please do get in contact.

All events are arranged with risk assessments including Coronavirus. Should Government guidelines change prior to the event and we have to cancel or postpone, we will inform you via email. All face-to-face events must be booked with the event organiser or our secretary.

Other events proposed for next year include, but are not exclusive to:

EarthCache event: We will be visiting Greensand Country EarthCache sites. Details will be announced later in the year.

Joint visit with Cambs Geological Society to visit Upware pits: A chance to look at a rare outlier of Jurassic deposits in Cambridgeshire.

Please let us know if you have other places or events you'd like to include in this schedule. You will receive an email on each of these events nearer the time with exact details so keep watching your emails and check our website.

BGG Committee: Join us!

Our current committee members are:

Acting Chairperson:	Derek Turner	derek.turner@phonecoop.coop
Group Secretary:	Derek Turner	derek.turner@phonecoop.coop
Treasurer:	Bev Fowlston	bev.fowlston@gmail.com
LGS Coordinator:	Bev Fowlston	bev.fowlston@gmail.com
Membership Secretary:	Dr Christian Atkins	wyverns4@hotmail.com
Affiliated Groups Liaison Officers:	Paul Hawkes	paulhawkes04@gmail.com
	Glynda Easterbrook	glyndaeasterbrook@gmail.com
GCLP Rep:	Derek Turner	derek.turner@phonecoop.coop
Website/Social media/Newsletter editor:	Bev Fowlston	bev.fowlston@gmail.com
BNHS Recorder:	Bev Fowlston	bev.fowlston@gmail.com
Events Coordinator:	Diane Sutherland	diane_sutherland1@yahoo.co.uk

We are always looking for new members to join the committee and bring fresh ideas.

Please contact any of us if you'd like to join our friendly team.

We meet for quarterly meetings via Zoom.

Many hands make light work!

Come and join us!

Newsletter compiled and edited by Bev Fowlston.

If you wish to include an article, photo or share your geological interest in the next issue, please contact me by email at

bev.fowlston@gmail.com

Deadline for copy is 23rd June for inclusion in the next issue.

Hope you enjoy the read!

Please look at our website for news of walks, talks and events. It's easy to download flyers & geotrails.

www.bedfordshiregeologygroup.org.uk

You can also find us on other social media platforms:

www.facebook.com/bedfordshireGeologyGroup/

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