



# Newsletter

## Fun Palace in Leighton Buzzard

By Bev Fowlston

In October, we were invited to attend the Leighton Buzzard Fun Palace. Bev, Diane and Derek went along, taking some samples of local rocks and fossils for the visitors to explore and discover more about (Image 1). Diane did a fabulous job of entertaining the children with colouring sheets of prehistoric scenes and animals. She also did a great job of encouraging the children to mould their own fossils, whilst telling them all about them. Diane was also involved in having a go at other groups activities – namely kick-boxing! (Image 2). Bev and Derek shared their local knowledge of geology and landscapes with many visitors who were intrigued to discover so much geology right on their own doorstep. It was a lovely day with a steady flow of visitors to our stand.



Diane learning a new skill - kick - boxing!



The stand at the LB Fun Palace.

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When it snows, you  
have two choices:  
shovel or make  
snow angels.

UNKNOWN



# Visit to Scott Primary School

Article By Paul Hawkes

The Bedfordshire Geology Group was invited to Scott Primary School in Bedford on 27th November to give a presentation on geology.

We gave a short talk on the main types of rock and how they were formed, in support of the current Key Stage 2 curriculum, but the main emphasis was to give the children the opportunity to examine these different rock types, igneous, metamorphic and sedimentary. We also laid out numerous fossil and mineral specimens for the children to look at.

The children were incredibly engaged and enthusiastic about our hands-on practical sessions, and loved examining all the specimens. They asked lots of insightful and intelligent questions about how the rocks were formed, and enjoyed trying to identify the specimens by looking at the mineral and fossil reference books that were also laid out for them. They particularly loved the ammonite fossil specimens and were interested in finding out about how these animals lived 150 – 200 million years ago.

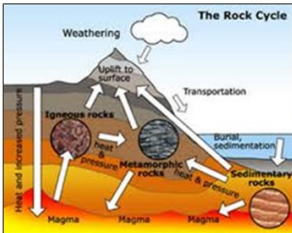
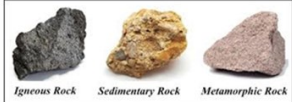
The children were also interested in how these animals evolved through time, supporting the evolutionary themes taught within the curriculum.

We covered the whole of the year group in three separate sessions over the course of the afternoon and it proved to be a very successful event, judging by the response from the children and support staff at the school.

### Types of Rock

There are 3 types of rock:-


- **SEDIMENTARY ROCKS**
  - These rocks are deposited near the Earth's surface and then get harder over a long period of time.
- **IGNEOUS ROCKS**
  - These rocks are formed when hot molten rocks cool down and become hard. Lava from a volcano is an example of an igneous rock.
- **METAMORPHIC ROCKS**
  - These rocks form when igneous or sedimentary rocks are heated and pressed tightly together, usually when they are buried very deeply in the ground




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### Some Types of Igneous Rocks


#### GRANITE




Granite slowly cools from molten magma which pushes into the Earth deep below the ground



#### BASALT



Basalt quickly cools from molten lava which comes out of a volcano



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## Committee News!

### News from the Committee

By Bev Fowlston

At the latest committee meeting held in November, we were delighted to welcome a new member of the committee. Em Fowlston was appointed at the AGM in October. She has agreed to be our new newsletter editor and membership secretary. Those members who have been with us for several years will remember Em from the various events she has attended as a child tagging along with Bev.

Discussions were had on various topics including a new bench installation at Clophill's Old St Mary's Church near the Wall of Geology as part of the final GCLP project ends; a new Bedford Geotrail; updates on our progress with the LGS monitoring; and ideas for future events.

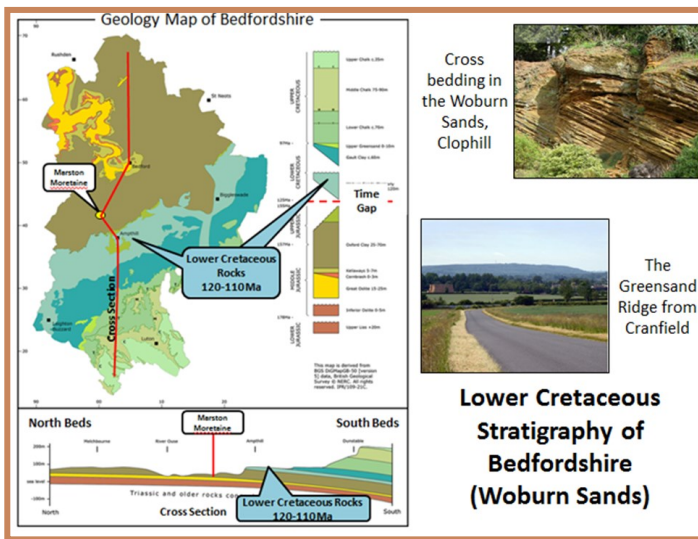
Our next committee meeting is Thursday 15th February at 7.30pm via Zoom. If you have anything you think we need to discuss or wish to come along to observe, then please email [secretary@bedfordshiregeologygroup.org.uk](mailto:secretary@bedfordshiregeologygroup.org.uk)

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

[www.bedfordshiregeologygroup.org.uk](http://www.bedfordshiregeologygroup.org.uk)

# Presentation at The Forest Centre & Millennium Country Park, Marston Moretaine

Article By Paul Hawkes



The Bedfordshire Geology Group was invited to give a talk at The Forest Centre & Millennium Country Park at Marston Moretaine on 6<sup>th</sup> November. Our talk was entitled 'A Journey Through Time: 120 Million Years of Bedfordshire History' and formed the first of a winter series of Lunchtime Learning Sessions convened in the conference area at the Forest Centre.

The presentation covered the geological evolution of the Bedfordshire area from Middle Jurassic - Early Tertiary times. The presentation covered all of the main non-glacial stratigraphic units forming the bedrocks of Bedfordshire, focusing on their evolution, distribution and environmental interpretation.

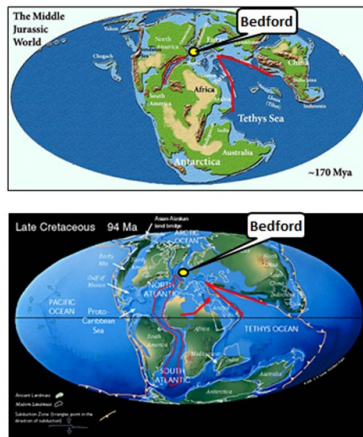
The structural evolution of Bedfordshire was also described, with a description of the major unconformity between the Upper Jurassic Oxford/Amphill Clay and Lower Cretaceous Woburn Sands. The regional tectonics which led to the tilting of the Cretaceous and Jurassic stratigraphy during Early Tertiary times was also illustrated.

The presentation attracted a large audience, with approximately 50 people filling the conference room to capacity – the audience including a number of members from our Group, which was great to see!

Following the presentation, there were lots of informed questions, and we finished up with a review of the local rocks in the area, specimens of which were laid out on a table for people to look at.

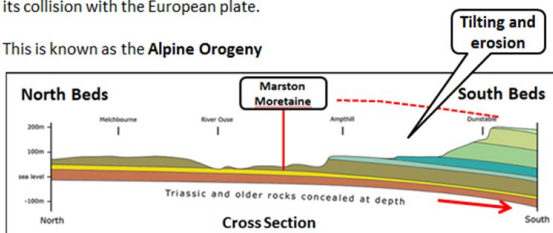
## Plate Tectonics, Mid Jurassic - End Cretaceous

- Bedfordshire was located: -
  - to the north of the (progressively-opening) Atlantic.
  - To the west of the (progressively-closing) Tethys Ocean
- Marine conditions were dominant during this time, with the exception of the earliest parts of the Early Cretaceous (Time Gap Period).
- With the progressive opening of the Atlantic, the African Plate rotated northwards, and ultimately impinged on the European Plate during the Tertiary – forming the **Alpine Orogeny**



## Early-Mid Tertiary

- Younger rocks deposited during the Tertiary period are primarily found within the London Basin, to the south of Bedfordshire.
- During Early-Mid Tertiary times, the main impact on the Bedfordshire area involved the progressive southward-tilting, uplift and erosion of the pre-existing Jurassic and Cretaceous rocks.
- This uplift event was caused by the northward movement of the African Plate, and its collision with the European plate.
- This is known as the **Alpine Orogeny**



# LGS Update

By Bev Fowlston

The monitoring of the sites across Bedfordshire continues and progress is slow but steady. There are only a few more sites to complete before starting the rounds again next year. If you can get involved in the smallest capacity your help would be very much appreciated to lighten the load. Take a look at the location of the sites on our website <https://www.bedfordshiregeologygroup.org.uk/local-sites.html> and if there is one near to you or one that you visit regularly, then please consider becoming an LGS Ranger. Contact Bev [bev.fowlston@gmail.com](mailto:bev.fowlston@gmail.com) in the first instance to discuss what is required.

## Focus on the Pinnacle

By Bev Fowlston

The Pinnacle Recreation Ground in Sandy is a local authority park which has some fascinating geological features and displays some wonderful geomorphology of the surrounding countryside from its fabulous panoramic views (Image 1).

It was first designated in August 2005 as one of the original RIGS (Regionally Important Geological and Geomorphological Sites) now an LGS. The designation was for its "interesting and accessible geomorphological site and fine viewpoint". The Pinnacle itself is formed by hard-capped sandstone of the Woburn Sands Formation. This is visible near the steps of the climb up to the summit (Image 2) and on the top where

thousands of feet have worn away any vegetation to reveal the orange hues of the sandstone and the loose sands that have eroded out (Image 3).

The views from the summit are spectacular, if a little obscured in places by mature trees (Image 4). You still get the sense of the immense river that once coursed its way through forming the valley below. The River Ivel now meanders sedately through the Ivel gap which is seen between the Pinnacle of the Greensand Ridge on the eastern side of the valley and the distant southwestern high point of the Greensand Ridge near to Southill. This valley formed during the Anglian Ice Age, some 400,000 years ago. It cut down through the sandstone



Image 2: Woburn Sands Formation sandstone exposed near the steps.

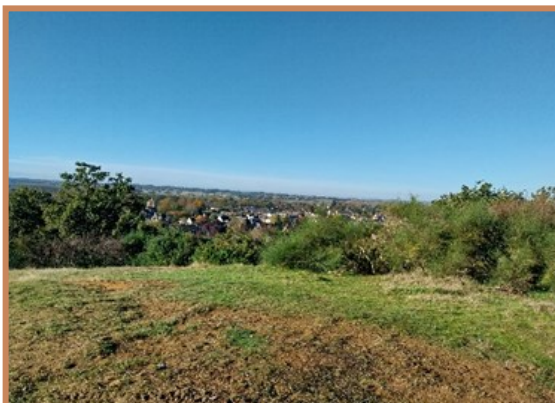


Image 1: Panoramic view from The Pinnacle

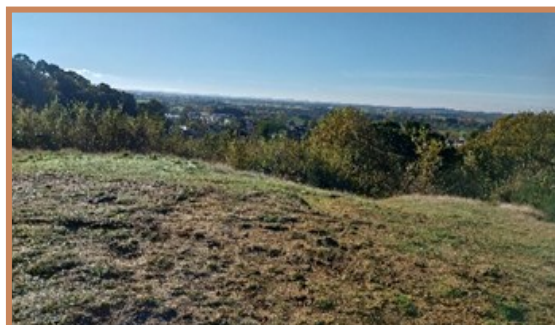


Image 3: Sandstone revealed by erosion.

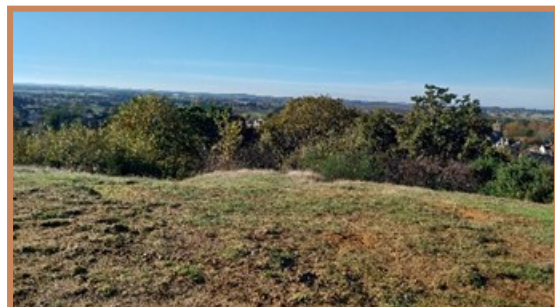


Image 4: Views obscured by mature trees.

and reveals the Jurassic Oxford Clay in the valley floor.

Monitoring of this site was a simple walk around the main features and to check if the views were still visible. It will be another 5 years before this site needs to be revisited for monitoring but it is always a lovely area to visit as a stop off on the Greensand Ridge Walk.

# Which ones shall we choose?

By Derek Turner

Our November and January sessions exploring Bedford town centre attracted eight members who found plenty of contenders to include in our forthcoming Bedford Geology Trail. This will fill the void left by an earlier booklet which has long been unavailable. In 1991, members of the Geology and Landscape course at Bedford Retirement (now Rothsay) Education Centre carried out a similar survey and produced a 32-page booklet entitled "Look at the building stones of Bedford- a town trail". In the intervening 23 years, some of the features it identified have gone and new ones have appeared, but many continue to stand.

Among these, of course, are the town's historic churches and some of them will, no doubt, feature in our trail too. The main ecclesiastical stones are late Jurassic limestones and with transportation of heavy stone being a costly undertaking, much of it must have come from the Ouse Valley to the north-west of the town. Long-gone quarries at Bromham must be among the prime contenders for its source. Representing the younger Cretaceous rocks south of Bedford are lumps of sandstone from the Greensand ridge and Totternhoe Stone from the chalk. Other limestones have been imported from beyond Bedfordshire for the most recent restoration.



Members look for mason's marks at St Paul's church

At St Paul's church, we noticed that some of the sandstone grave markers had been badly eroded, prompting speculation about its cause. For what it's worth, my theory is that they have been relocated away from their earlier positions close to the road where salt spray was the culprit, but maybe you know otherwise? Their condition contrasted strongly with the handful of slate gravestones which remain in excellent shape with the lettering recalling those interred below as crisp as on the day it was chiselled.



Admire the marble at the former jewellers (21, St Peter's St).  
It may be replaced soon.

While ancient churches are constructed almost entirely of masonry, the structures of other buildings are usually of concrete, brick, steel, or other materials. To make shop fronts more distinctive and appealing, thin panels of stone are often employed to clad them and many are metamorphic rocks from distant parts of the country or overseas. Slate appears on some and small rectangular tiles adorn the entrance to the empty Next store on Midland Road. Another building waiting for new inhabitants is the former Debenhams on the High St where two grey granites- one light and the other dark- decorate the frontage. In St Peter's St, planning permission is being sought that includes replacing the white and grey marble facade on the shop that used to house John Bull jewellers. Maybe we should be more proactive about threats to buildings like this in the future and try to

ensure that any geological interest is maintained when change is in the air?

Of course, geology crops up in other contexts as well as buildings. The 1811 bridge over the river on the site of the Ford that gave the town its name has been widened and repaired several times using different limestones. Kerbstones must be tough to do their job and Shap granite with its distinctive huge pink feldspar crystals is employed in Mill St. Another granite occurs at the entrance to the Swan Hotel car park and Bedford's sole remaining horse trough at St Peter's Green is hollowed out of one huge block of it.



A colourful metamorphic rock at Empire (85, All Hallows)  
but what is it?



Shap granite kerbs in Mill St

The last place we discovered was a derelict and much-altered building tucked away in the delivery area behind Debenham's. It began life as the George Inn and appears to be the only surviving example of a secular building that is at least partly built of local stone. In all, we found over 40 places where the geology is readily visible in the town centre, and we shall need to whittle them down to less than half that to make our geology trail manageable.

**If you'd like to join the working party in selecting those that will appear or can identify any of the rocks, we'd love to hear from you.**



## 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).

If you wish to pay online directly to the BGG account, contact [treasurer@bedfordshiregeologygroup.org.uk](mailto:treasurer@bedfordshiregeologygroup.org.uk) for details.

Please email [membership.secretary@bedfordshiregeologygroup.org.uk](mailto: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.

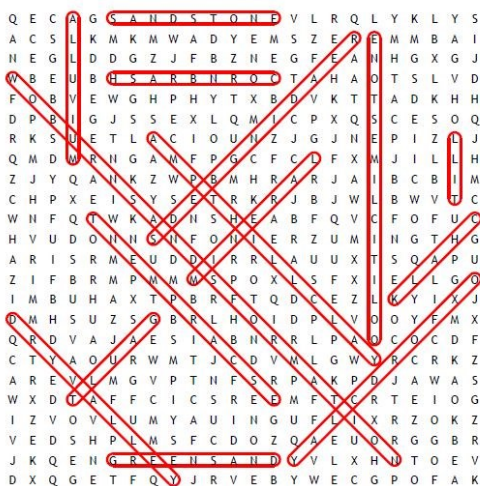
**Your membership entitles you to 4 newsletters a year, free entry to all BGG events (non-members pay £2 per event to cover insurance), walks & talks and frequent communications.**

## Quick Geology Brainteaser

Answers from Autumn 2023

Geological Word Search

### Bedfordshire Geology



Alluvium	Amphill Clay	Chalk
Cornbrash	Dry valley	Escarpment
Gault	Greensand	Mineral
Oolitic limestone	Oxford Clay	Reading Beds
Sandstone	Till	Woburn Sands Formation

## Geology terms word scramble

1. ROTACKFESH \_\_\_\_\_
2. EEINOSDSPR \_\_\_\_\_
3. ECPEITRNE \_\_\_\_\_
4. EGSRYE \_\_\_\_\_
5. MNEROAI \_\_\_\_\_
6. RAYTHITARP GS \_\_\_\_\_
7. STINMAU \_\_\_\_\_
8. IOGPYHSESC \_\_\_\_\_
9. IHNXTOEL \_\_\_\_\_
10. EDGOIAMNSCY \_\_\_\_\_
11. FIIHCNAOLIITT \_\_\_\_\_
12. REODYLMTHRAH EVTN \_\_\_\_\_
13. NLLCISNAY \_\_\_\_\_
14. SACTL \_\_\_\_\_
15. EYSLEPLOAOG \_\_\_\_\_

## 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](mailto:secretary@bedfordshiregeologygroup.org.uk)**

**Sun 21st Jan, 3pm:** Strange building stones of All Saints Church, Husborne Crawley - a talk by Dr Peter Skelton

Is the green stone in this unique building really from Bedfordshire's Greensand Ridge or from a deposit of Upper Greensand further away? Maybe it has come from even further afield? You are all welcome to join us to find out Peter's views at Husborne Crawley Reading Room, MK43 0XE, about a mile from junction 13 of the M1. The doors will be open from 2.30pm and the talk starts promptly at 3pm. The church is half a mile away, so why not take a look at it for yourself beforehand?

**Sun 18th Feb, 2.20pm & 3.10pm:** The River Ouzel - it's wild past and how it was tamed - a zoom talk by Derek Turner

Remain in the comfort of your home while we consider how the valley was modified during the "Ice Age" and humankind's subsequent use of the area. This will be on Sun 11 February in two sessions starting at 2.20pm and 3.10pm with a short break in between at 3pm. Zoom link to follow.

**Sat 16th Mar, 10.30am (TBC):** Walk and monitoring day at Rushmere Country Park

We'll look at the condition of the greensand exposures in this popular and distinctive area near Leighton Buzzard. More details later.

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

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.

**In 2024, BGG turns 20, let us know how you want to celebrate!**

**Contact the committee with your ideas.**



## BGG Committee: Join us!

### Our current committee members are:

<b>Acting Chairperson:</b>	Derek Turner	<a href="mailto:derek.turner@phonecoop.coop">derek.turner@phonecoop.coop</a>
<b>Group Secretary:</b>	Derek Turner	<a href="mailto:derek.turner@phonecoop.coop">derek.turner@phonecoop.coop</a>
<b>Treasurer:</b>	Bev Fowlston	<a href="mailto:bev.fowlston@gmail.com">bev.fowlston@gmail.com</a>
<b>LGS Coordinator:</b>	Bev Fowlston	<a href="mailto:bev.fowlston@gmail.com">bev.fowlston@gmail.com</a>
<b>Membership Secretary:</b>	Em Fowlston	<a href="mailto:e.c.fowlston@gmail.com">e.c.fowlston@gmail.com</a>
<b>Affiliated Groups Liaison Officers:</b>	Paul Hawkes	<a href="mailto:paulhawkes04@gmail.com">paulhawkes04@gmail.com</a>
	Glynda Easterbrook	<a href="mailto:glyndaeasterbrook@gmail.com">glyndaeasterbrook@gmail.com</a>
<b>GCLP Rep:</b>	Derek Turner	<a href="mailto:derek.turner@phonecoop.coop">derek.turner@phonecoop.coop</a>
<b>Website/Social media/Newsletter editor:</b>	Em Fowlston	<a href="mailto:e.c.fowlston@gmail.com">e.c.fowlston@gmail.com</a>
<b>BNHS Recorder:</b>	Bev Fowlston	<a href="mailto:bev.fowlston@gmail.com">bev.fowlston@gmail.com</a>
<b>Events Coordinator:</b>	Diane Sutherland	<a href="mailto:diane_sutherland1@yahoo.co.uk">diane_sutherland1@yahoo.co.uk</a>

**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.**



Newsletter compiled and edited by Em Fowlston.

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

[e.c.fowlston@gmail.com](mailto:e.c.fowlston@gmail.com)

Deadline for inclusion in the next issue is 24th March.

**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](http://www.bedfordshiregeologygroup.org.uk)

You can also find us on other social media platforms:

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