Autumn 2018

Newsletter

Ammonites galore at Devils Dyke

By Derek Turner

The Oxford Clay dominates a solid geology map of Bedfordshire but with accessible exposures as common as hen's teeth these days, BGG members headed off to King's Dyke Nature Reserve in September to re-acquaint themselves with it.

The reserve, off the road from Peterborough to Whittlesey, is a Regionally Important Geological Site and after our arrival, we didn't have to wait long to see some geology as just beyond the car park, we came across an 8 ton glacial erratic boulder.

From there, we walked down a short distance to a place where a spectacular panorama opened up across the base of the worked-out King's Dyke pit. This contains the buildings and three chimneys of the working brickworks, all built between 1969 and 1973, which can churn out 5 million bricks a week when working flat out. In front of them were many neat, rectangular heaps- looking a bit like a series of giant wafer biscuits- that contain up to 45 million stock-piled bricks.

Tony & Martin discussing their ammonites

An information board told us this and helpfully pointed out the conveyor belt that nowadays brings in clay from the neighbouring Must Farm quarry and told us what goes on within the works.
From there, another short descent brought us to a fenced enclosure containing a fresh pile of clay full of fossils to delight everyone from a professional geologist through to a family group walking casually past. Much of the clay here prised apart readily and it seemed that almost every lamination contained numerous well-preserved impressions of 160 million year old ammonite shells.

Heads down & bottoms up in search of fossils

INSIDE THIS ISSUE

Devils Dyke continued …….

The Nature Reserve occupies a series of clay pits that were abandoned many years ago and is well worth a visit in it's own right. I noticed a weathered cliff of Oxford Clay representing the edge of one of the former pits. Otherwise, an undulating area of spoil and rejected bricks underlies a series of grasslands, bushes, trees and pools, home to a wide range of birds, mammals and reptiles including grass snakes, common lizards and slow worms. At the end of a long, hot, dry summer, wild flowers were few but masses of rose hips provided plenty of colour.

Our thanks go to Tony and Janet Baker for organising this event and in particular to Philip Parker of Philip Parker Associates who facilitated the visit, provided information about the site and arranged for fresh clay to be dumped in the fossil hunting area of the reserve.

As many members could not make this visit we hope to repeat it next year. It could, perhaps, be coupled with a visit to nearby Flag Fen to learn about human occupation of the area in prehistoric times when the surrounding landscape was quite different. Let us know if this interests you.

View across nature reserve to the brick production area. The clay used now comes by conveyor from the Must Farm pit (beyond the horizon). The fossil collection area appears grey in the far left centre.

Harrold-Odell Promotional Stand

By Bev Fowlston

On 5th August, Anne Williams, Bev and Emma Fowlston, took a BGG promotional stand at the beautiful Harrold-Odell Country Park. Jan Munro had invited us along to the Woodcraft day and as some of Bedfordshire's Woburn Sands Formation contain fossilised wood she thought we would fit it!

The day was very hot and luckily, we were housed in the marquee where we had some shade to get out of the 28°C temperatures. Not quite the hottest day of the year but getting close!

We had a steady stream of visitors to the stand and sold a variety of Bedfordshire's fossils and rocks. Some people showed an interest in joining our group after learning about the local geology and its significance to the park. The park is set in an old sand and gravel pit which has been restored into a haven for wildlife. The geology is now obscured but the landscape tells the story of this once industrial scar and its return to nature.

*So where can you see **Green** Greensand in Bedfordshire?*

*BGG visited Husborne Crawley church to confirm that the actual **Green** coloured sandstone does exist!*

By Henrietta Flynn

It was a perfect sunny October afternoon for our walk to St James church in Husborne Crawley. Fourteen of us can testify to the existence of the true green sandstone. The church is built from a mixture of brown ironstone and the distinctive green greensand stone giving a stunning and attractive patchwork effect.

The greensand was sometimes a soft friable moss/sage coloured stone which was easily weathered. Other stones were dark green, olive or turquoise and appeared to be much harder and in some of the stones the green colouring appeared as lenses. (*See below)*

We know that the green colour comes from the mineral glauconite—an iron potassium phyllosilicate of the mica group. It forms exclusively in marine environments where sedimentation is slow. It develops as a result of the diagenetic alteration of sediments and is influenced by the decaying process of organic matter in reducing conditions particularly nearshore.

The source of this green building stone is a mystery as no known quarries are evident locally. It is not known when the church was first built but extensive restoration and rebuilding took place in 1911 to most of the church with the exception of the tower. So where did the builders source this greensand? Do you have any information to add?

Glynda Easterbrook remembered that the OU had collected specimens of this green rock from a spoil heap adjacent to the church. Perhaps there was a small quarry close by which has since disappeared or is now hidden with vegetation. Looks like some BGG research is needed here.

Annual General Meeting

After the church visit we gathered at the Reading Rooms for refreshments and the 13th BGG AGM. Derek Turner gave us a review of this year's work and Bev Fowlston presented a report on progress of the GCLP project.

The election of the committee took place (*see last page*). No changes except Bev has decided to step down as Events Organiser (she already fulfils several other roles) so we are looking for new blood to join us. Anne Williams has kindly offered to step in on a temporary basis to schedule an events calendar for 2019. If you couldn't make the AGM but feel you could fill the Events Organising role or could help with publicity or fundraising please contact a committee member.

In search of the 'Holy Well'

Archaeology at Old Linslade

By Bernard Jones

In the medieval period, Old Linslade, or 'Linslade' as it was then known was famous for a Holy Well. In 1299, the Bishop of Lincoln issued an edict that the well was to be put out of use on pain of excommunication. Since then its location has been lost.
In a somewhat vain attempt to find it an excavation was carried out in September and October following a resistivity survey in the field between a house called *The Lilacs* on Old Linslade Road and the canal to investigate a small depression in the field.

Starting the dig

There was no archaeology until a layer of broken clay tiles was found at a depth of around 1 metre. Just above this, a clay pipe bowl with a conjoining piece of stem dating to 1660/80 was found, together with a spur and knife with bone handle, so dating the layer of clay tiles to around 350 years ago, or earlier. The question arises as to where the tiles came from since most buildings back in the 17th century were timber framed with thatched roofs. Tiles would have denoted high status so possibly they were dismantled and dumped from the manor house, church or vicarage nearby.

Digging down to 1m revealed tiles & stones

Several interesting geological questions arose. As noted above, there was no archaeology found until we reached a depth of 1m. The plough soil and sub-soil were a sandy clay homogeneous context suggesting there had been significant hill-wash over the last 350 hundred years as there was no evidence of any back-filling.

Broken roof tiles & pottery

We dug to a depth of 2m to see whether there was any archaeology beneath the layer of tiles and to look at the geology. There was no bedrock as expected (Woburn Sands) but it became less loamy and more of a darker coarser sand.

Although there is a depression in the field today, it is possible there was a deeper depression 350 years ago when the clay tiles were deposited. One hypothesis is that this was a disused quarry pit. Could the sand have been dug to mix with clay from another site to form the tiles for firing in a nearby kiln?

A further point of interest is the construction of the garden wall around *The Lilacs* which seems to be much older than the house. The lower course appears to be of undressed Totternhoe Stone. This would have been costly to bring to the site, simply to build a garden wall. So why was it used? There are so many unknowns about this excavation, the surrounds and their significance. The source of the Holy Well was not found probably because when the Grand Union Canal was built in 1805 the spring line and natural water courses would have been altered but the dig did unearth many objects of interest which are still being dated and researched.

Thank you Bernard and the LBDAHS (Leighton Buzzard & District Archaeological & Historical Society) for sharing your interesting dig with the BGG.

Come to the Xmas Party

Wednesday December 12th, 7.30 to 10pm at Husborne Crawley Reading Rooms, Husborne Crawley MK43 0XE

This year our Xmas Party will be even more exciting!!

* *Raffle & Prizes*
* *Picture show & Fun Quiz*
* *Identify the mystery rocks & fossils*
* *Party food & drinks*

Please bring along:

- **A plate of food (hot or cold as we have kitchen facilities)**
- **A bottle of your favourite tipple**
- **A raffle prize**
- **An object of geological interest or an oddity for discussion!!**

We had an inquiry into the origins of this peculiar greensand nodule from Richard Carter……..

'The photo which I've attached shows a 'sphere' of indurated Woburn Sands, which I've split in half and found filled with loose dry sand. This is not the first of such spheres which I have found in this interesting local formation'

He would love to know how they form like this. Anyone like to take a stab at it? Worthy of discussion. Please send your theories to : henriettaflynn@btinternet.com and I'll feature them in the next newsletter.

P.S. any resemblance to a scotch egg is purely coincidental, and presumably irrelevant …..

The original Scotch Egg?

Wall of Geology nears completion

By Derek Turner

After a long period of anticipation, the labour-intensive work to restore the churchyard wall at Clophill Old Church began in September when contractors Riverdale Stone Ltd, started taking apart the old wall. Several stones had been robbed from the wall in the past and much of the remainder had been damaged and could not be reused. When the site was cleared fresh greensand boulders were delivered from the Cainhoe Quarry just down the road.

Derek brick laying

The contractors started building at the west (ecolodges) end of the wall and with lime mortar taking much longer to dry than cement mortar, work progressed in fits and starts along the length of the wall. The BGG Wall of Geology section, showing a simplified cross-section of the solid geology of Bedfordshire did not begin to emerge until early in October. Several members took the opportunity to visit the site and a few of us tried laying the stones which proved to be much harder than it looks, as the builders looked on patiently and answered our questions. With some interruptions caused by the weather, the craftsmen from Riverdale completed the construction work by rendering the "sky" area on November 2nd when the final photograph (see below) was taken before we went to press. The render will be painted when it has dried sufficiently and small panels with names will be affixed later.

Bev working on the wall

We have also started to compile information that will feature on the interpretation board alongside the Wall. The board will enable us to introduce Bedfordshire's geology to site visitors and will include information about the five main rock types in the wall, where they occur in the County and how they have affected the landscape, wildlife, farming and industry.

The Clophill Heritage Trust were due to 'open' the restored churchyard wall at their Remembrance Day service on 9 November but we will delay celebrating the launch of the Wall of Geology until everything is complete and better weather returns next year. Watch this space for further details.

We are extremely grateful to Tarmac Limited Landfill Community Fund whose grant is paying for a substantial share of the work and to the Heritage Lottery Fund.

Thanks also to all the BGG members who have given their time and expertise in the building of this wall.

Wall near completion

Halloween at Clophill Ecolodges

By Anne Williams

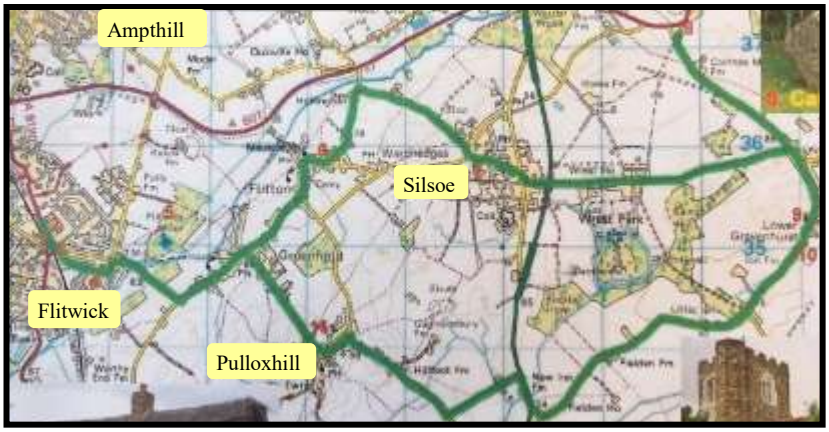
Pumpkins, Morris dancers in Halloween garb, teddy bears parachuting from the church tower (sorry, no photos, they flew too fast) and the Bedfordshire Geology Group, drew crowds to Old St Mary's Church and the Clophill Ecolodges to celebrate Halloween with music, barbeque and cakes.

Lots of fascinated children examined our BGG rocks, fossils and minerals and learned about the Greensand all around them, notably in the church and the new 'Wall of Geology' being constructed nearby.

On yer bike ...

Try a geotrail with a difference, an Edwardian bike ride to Flitwick to Silsoe

Back in 1905 The GA (Geologists' Association) organised a cycling excursion to Flitwick and Silsoe, part of an organised programme of field excursions started in 1860 and which continue today. Between 1880 and 1920 the GA organised11 mainly walking trips to Bedfordshire, three of these were to Bedford and one to Luton. The GA used railway routes where possible, many not now in existence today.



Tom Hose has recently revised the Flitwick, Silsoe cycling route which focusses on the Woburn Sands Formation and shows that the relationship between geology and topography is best appreciated on a bike.

The original geotrail on April 15th 1905 was led by John Hopkinson and started from Flitwick railway station cutting where he showed a good section of Woburn Sands, since bulldozed away to create a carpark. The route goes through Flitwick High street, Flitwick Moor, Flitton Quarry, Wardhedges Quarry, Wrest Park, Cainhoe Quarry, Castle Hill Pit (now dangerous and closed to public), Lower Gravenhurst brickworks, Pulloxhill gold mine (no gold was ever found!) and finally Flitwick old sand pits. It should be noted that some of the original locations are somewhat overgrown or have since been covered with housing developments but are still very interesting historically.

The map above is a poor representation of the route but if you would like the full geotrail plus briefing notes, please contact Tom Hose at t.hose123@btinternet.com.

Tom is currently working on another Edwardian cycling geotrail; Luton to Stanbridgeford which traverses Chalk, Totternhoe Stone and Gault formations. It starts at Bute Street station and cuts through Chaul End, Dunstable, Maiden Bower, Sewel railway cutting, Stanbridgeford, Tottenhoe tramway and stone pit and ends up at the Tottenhoe Knolls. These geotrails are particularly intended for use on smartphones or tablet. Again please email Tom for further details.

The Geologists' Association Local Groups AGM & Festival of Geology

by Henrietta Flynn

As BGG has now joined the GA, I represented Bedfordshire at the Groups & Societies AGM, held in Burlington House on November 2nd. It was attended by about 30 regional societies and Council members. Discussions on the agenda included activities during the past year - Conferences, School Rocks, Geolab, Publications, Field trips, Geoconservation, Research Grants, Data Protection, Insurance and the use of Apps. Please let me know if you'd like a copy of the minutes and I will forward later.

The GA have recently revised their website so please pay a visit at ***www. geologistsassociation.org.uk***

They hold interesting geological talks every first Friday of the month at Burlington House and lead field trips both in the UK and abroad. So as members we can avail of these.

The Festival of Geology was held the day after the AGM at UCL. A fabulous day open to all where regional groups promote themselves and displays of rocks, minerals & fossils abound. This year NASA Moon rocks were on loan for presentations & talks along with other talks from eminent geologists on Antarctica, The Earth's Interior, The Ethiopian Rift system and Sky Stones. Always a great informative day out with plenty of activities for children too.

Lanzarote Geology .....a report on the island's volcanic history

by Glynda Easterbrook, BGG's roaming cruise reporter

After Fuerteventura, Lanzarote is the second oldest island of the Canaries. The Canary Islands are thought to have formed by volcanic activity as the result of movement of the African plate over the Canary island hotspot, a mantle plume, currently located close to the southern coast of El Hierro, the youngest of the islands. The islands generally become older the further away they are located from the hotspot with additional volcanism associated with fracture zones or transform faults.

Submarine volcanic activity started in Lanzarote some 20 million years ago. As the volcano grew in height it emerged from the sea around 14mya, forming the Ajaches volcanic complex to the south and 3 million years later the Famara complex to the north (shield forming stage). The Famara shield volcano is exposed in the north-west as the 600m Cliffs of Famara. There was some Quaternary rejuvenation of volcanic activity in the Famara shield, producing the Teguise and Corona volcanic groups.


Famara cliffs

The La Corona lavas advanced along a wave-cut platform located 70m below the present sea-level. This eruption produced one of the largest known lava tunnels in the world. Today almost 2km of the lava tunnel is submerged, following sea-level rise after the last glaciation. Access to the lava tunnel is possible at the popular tourist attractions of Cuevos Verde and Jameos del Agua and well worth a visit.


Timanfaya vents

Lanzarote suffered two recent historic eruptions (1730–1736 and 1824). The former was the 3rd largest fissure eruption recorded in historical times (after the Icelandic eruptions of Eldja in 934 and Laki in 1783). Almost 1/3 of the island was destroyed, and many inhabitants emigrated, never to return. The volcanic vents produced now form part of the spectacular Timanfaya National Park, along with 3 vents formed during the shorter 1824 eruption.

Although the island is largely volcanic, Lanzarote has a wide central plain covered with recent wind-blown sands that are not volcanic in origin. Many of the beaches are also composed of this sand rather than the black volcanic sand beaches one might expect. It is often mistakenly thought that these sands have been blown in from the Sahara by the trade winds. The sands do contain some Saharan dust, but the majority of the sands are formed of biogenic material of marine origin. This is because during the Pleistocene, when sea levels were considerably lower than at present, bioclastic sands covered most of the island to elevations of several hundred metres. Calcrete, sometimes several metres thick, was formed on top of these sands by dissolution of carbonate marine fossils. Reworking of these sands has formed the present-day dunes and beaches. The desert area, known as El Jable is part of the Lanzarote Geoparque, a protected area inhabited by many rare native species.


El Jable desert

Thank you Glynda. And where is your next cruise destination?

2019 Events

Date	Event	Description	Time	Venue
Wednesday 12th Dec	Social	**Annual Social Evening**: celebrate the year and festive season with a few drinks and nibbles. There will be the usual quiz and picture show.	7.30 to 10pm	Husborne Crawley Reading Rooms, Turnpike Road, Husborne Crawley. MK43 0XE.
Wednesday 16th Jan	Visit	**Visit to The Sedgwick Museum Cambridge** and a chance to pop over the road to the fabulous new Museum of Geology for lunch in their café and see the whale.	11.30 am	The Sedgwick Museum, Downing Street, Cambridge. CB2 3EQ.
February	Walk	**A winter walk** in the Chalk hills or on The Greensand Ridge. Specifics to be confirmed and subject to weather forecast.	TBA	TBA
Sunday 10th March	Talk	**Lie of the Land: new digital mapping techniques in the flatlands of eastern England.** Come to a fascinating talk by Dr Martin Whiteley (formerly Chairman of the Bedfordshire Geology Group and the University of Derby).	2.00 pm	The Higgins Museum Barbican Room, Castle Lane, Bedford. MK40 3XD
Saturday 23rd March	GCLP event	**The opening of the new access ramp and information board,** to allow people with disabilities to appreciate Greensand geology.	10.00 am	Potton Scout Hut, Sutton Road Potton, SG19 2DS

We held a great variety of events last year and successfully managed at least one event per month. (*All reported here in this newsletter! Thank you to all who helped organise*). Above are the 2018 events scheduled so far but we have other events yet to be finalised:

- **Official unveiling event of the Wall of Geology at Clophill**
- **Kensworth Site Clearance at the Chalk pit in the Nature Reserve**
- **Visit to Ravensburgh Castle and Hexton Chalk Pit**
- **A return visit to King's Dyke and Flag Fen near Peterborough**
- **The John Catt Symposium/Conference at the University of Hertfordshire (Saturday July 13th)**
- **Walk the proposed Western GCLP Geotrail**
- **Talk by Dr Haydon Bailey on the Chalk of the Chilterns and the impact of HS2**

These are just ideas gathered from the committee. Please let us know which ones you would be most interested in or if you have other suggestions— a favourite walk , idea for a talk, a quarry visit or an out of county excursion.

Please note all events are subject to change so watch out for details by email nearer the day.
For further info please contact Anne Williams. Also look at events at: www.bedfordshiregeologygroup.org.uk

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Publicity	**VACANT**	**Could this be you?**

Come and have some fun - join our friendly committee!

Photo taken by Derek at October meeting at Marston Forest Centre.

(*L-R, Anne, Henrietta, Bev, Tony, Glynda*)

Visited our website recently? Help us update it.

It's been quite a few years since the website was revised. It's beginning to look a little dated and could be improved with better design, text, images, navigation tools and links. So to get the ball rolling we would like to set up a sub-committee. Could you spare a little time to review the website content with us and help decide where improvements could be made.
We're not looking for a techy wizard as we will use a professional outfit to restructure it. But if you do have experience in this area that would be brilliant - please get in touch with Derek or Anne.

Newsletter compiled and edited by Henrietta Flynn
If you wish to include an article, photo or share your geological interest in the next issue, then please contact me by email at henriettaflynn@btinternet.com

Hope you enjoy the read!

Please keep looking at our website and social media for news on events, walks and talks.
It's easy to download our flyers and geotrails

www.bedfordshiregeologygroup.org.uk
Also look at our Facebook page:
https://www.facebook.com/bedfordshireGeologyGroup/
or Twitter https://twitter.com/BedfordshireG