

Newsletter No 33 July 2019



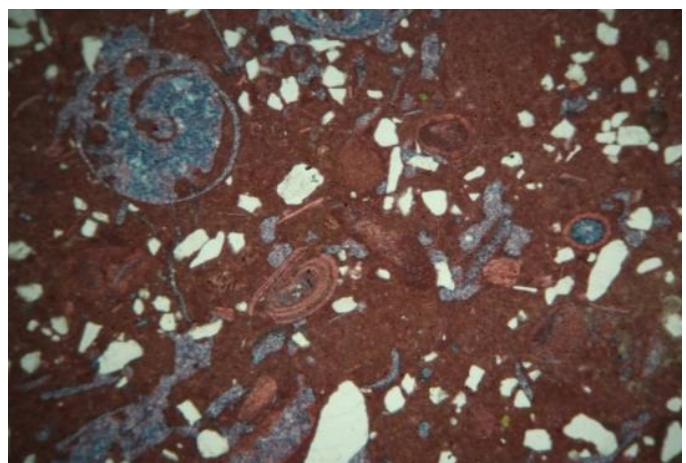
Dinosaurs at Tring



Minerals at Halton



Ammonites in Dorset



Microfossils from Bugle Pit

From the Editor

Welcome to another newsletter with the usual mix of meeting reports, news, reviews and assorted geological curiosities. In this edition we look at geology near, slightly further afield and, courtesy of surprise finds in the County Museum's collection, considerably further away. I am glad that members have written in with ideas, questions and follow-on pieces relating to previous articles - I am in the course of developing these into future articles. So, please, if anything in this newsletter prompts you to question, think-on or explore related ideas, please let me know. Likewise, if you have unearthed an interesting rock, fossil or mineral, visited a geological exhibition or caught a news item of geological interest please do get in touch.

Mike Palmer

Mick Oates – awarded the GA President's Medal

Bucks Geology Group member, Dr. Michael Oates, has received a prestigious award from the Geologists' Association.



The President's Medal was awarded to Michael (right) during the GA's Annual General Meeting on 3rd May 2019 by the serving president Nicholas Pierpoint (left).

Michael (Mick) Oates has been a member of the Geologists' Association since 1970 and has served on the GA Council since 1991. He has helped organise Rockwatch, the UK's nationwide club for young geologists, in particular securing funds and leading trips.



In presenting the award Nicholas Pierpoint made special reference to Mick's involvement with the Buckinghamshire Geology Group and in running field trips for the GA. Impressively, Mick has been Meetings Secretary for the Geologists' Association since 1991. We would all like to add our congratulations to Mick.

Graham Hickman

The Problem with Field Meetings...

The weather in the first half of 2019 has highlighted how the best-laid plans of mice and local geology groups often go awry. Forecasts of high winds meant that we had to cancel the Coombs Quarry clean-up and tour scheduled for Saturday 16th March. A similar fate befell our AGM and planned visit to Buckingham Sandpit on Saturday 27th April. We will certainly be back at Coombs Quarry at some point in the future while the AGM and Buckingham Sandpit visit has been rescheduled for Saturday 27th July. Access to Buckingham Sandpit is limited to very occasional openings, so do take this opportunity to discover more about this Ice Age site if you can.

A week full of rain put pay to our planned visit to the large working chalk quarry at Kensworth just over the county border in Bedfordshire on Friday 14th June. At the behest of the quarry manager, we had to cancel this trip as well, which, while disappointing, was certainly the right decision as knee-high chalky mud does not help in the revealing of chalk strata or the discovery of Cretaceous fossils and minerals. A rescheduled date for this trip has been set for Friday 30th August. Please contact Mike Palmer if you are planning to attend.

I am aware that the imposition of weekday-only access and stringent personal protective equipment (PPE) have made this trip difficult for some, however, we can only access such sites as and when the quarry owners say. With regard to PPE, the increased requirements are unfortunately a health and safety fact of life. The Group has purchased a number of helmets and safety glasses to try and help members, but hi-vis jackets and over-trousers are more personal items for would-be quarry visitors to purchase. The Group will endeavour to include access to working quarries in future programmes (including this year's planned visit to sites in North Lincolnshire) and so, investment in such items may prove worthwhile in the long run. It is a big ask and a difficult situation and so, if you have any thoughts the committee would be interested in hearing from you.

Mike Palmer

British Dinosaurs – From Fossils to Feathers exhibition

5 April until 11 October 2019



A number of British dinosaur fossils are currently on display at the Natural History Museum, Tring. Those of you who have visited this outpost of London's Natural History Museum will know that the temporary exhibition space is somewhat

compact and bijoux so don't expect to see Dippy (he's currently on the Newcastle leg of his tour).

That said, they have squeezed in some choice specimens from the London-based collections including a complete skeleton of *Hypsilophodon foxii* from the Isle of Wight. This dinosaur is known to reach lengths of at least 2.3 metres but the specimen on display is a juvenile specimen and so, somewhat smaller.



Fossil skeleton of a juvenile *Hypsilophodon foxii*

Other fossils on display are parts of dinosaur rather than the whole animal but are still of interest. These include sizeable fossil leg-bones (femur and tibia) from *Iguanodon bernissartensis*, a hip bone from a *Megalosaurus* (the first dinosaur to be described), a skin impression from *Haestasaurus becklesii* (a long-necked sauropod) and vertebrae from *Baryonyx walkeri* (but sadly not the large claw that made all the headlines when it was discovered in Surrey 1983)



Clear graphic panels and two video screens communicate key information about British dinosaurs while the floor of the exhibition space maps out the locations of British dinosaur finds.

Professor Paul Barrett, NHM dinosaur researcher, was on hand at the exhibition opening and noted that two find spots marked on the map related to

Buckinghamshire discoveries. These are the probable Megalosaur footprints found at Thornborough Mill, near Buckingham (original specimen on display in Oxford University Museum of Natural History with casts on display at Bucks County Museum and Buckingham Old Gaol) along with the toe-bone from a Camptosaur-like dinosaur found at Hartwell in the late 19thC/early 20thC (part of Bucks County Museum geology collections).



Prof Paul Barrett describing the Natural History Museum's latest work on dinosaurs on one of the video screens in the exhibition

Paul was familiar with the latter as he had visited the County Museum's geology store at Halton, when working as a palaeontologist at Cambridge University. He was, however, unaware of our sauropod (probable Cetiosaur) claw from Aylesbury. I hope to investigate this specimen with Paul in more detail.

Mike Palmer

Caldecotte Ichthyosaur - New panels for MK Library

Since the mid-1980s a 75 percent complete, five metre-long fossil Ichthyosaur (*Ophthalmosaurus* sp) has adorned the wall of Milton Keynes Central Library's reference library (see BGG Newsletter No. 26, December 2015). This is certainly something to see but it seems that many visitors to Milton Keynes and, indeed, many visitors to Milton Keynes Central Library are largely unaware of the 160 million-year old spectacle. In a bid to counter this the library commissioned Bucks County Museum to produce three A0 graphic panels exploring what Ichthyosaurs are, how the Caldecotte Ichthyosaur was found and what other

prehistoric life swam alongside it in Buckinghamshire's Jurassic seas.



MK Central Library

The panels will be on permanent display in the library foyer and are accompanied by a case of Jurassic marine fossil from the collections of Bucks County Museum until 13th August

Mike Palmer

The Wonderful World of Minerals hands-on workshop, 26th January



Bucks County Museum Resource Centre meeting room

Twelve people attended this morning workshop organised and delivered by Dr Jill Eysers. The morning certainly lived up to its description thanks to the range of mineral samples brought along by Jill, with both common examples and more exotic samples for handling and close inspection.



Part of Jill's mineral collection

The first question posed was 'What is a mineral?'. A simple question but potentially a tricky one to answer. In simple terms, it is 'a natural, inorganic substance which has a characteristic crystalline composition'. Importantly, it was noted that this specific chemical composition can be recognised by observing the mineral's hardness, lustre, density, cleavage and other features. Rocks differ in that they are formed from minerals – sometimes the same mineral, e.g. sandstone formed from quartz grains, or sometimes a combination of minerals such as granite, made from quartz, mica and feldspar.

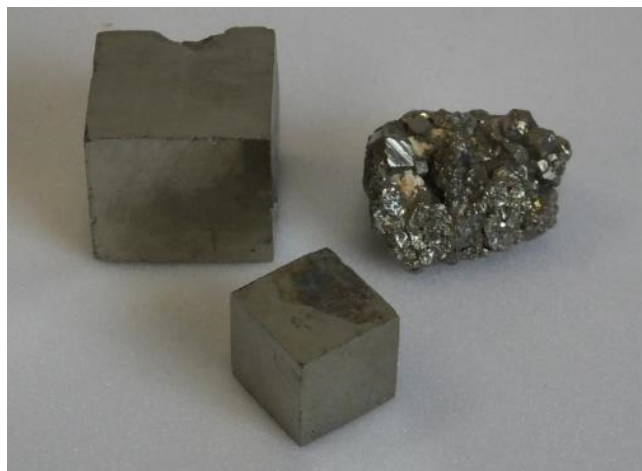
Although there more than 4000 minerals in the world a knowledge of around 20 minerals will take you a long way. Today's workshop set out to introduce the following minerals: quartz; feldspar; calcite; mica (biotite and muscovite); iron oxide; olivine; pyroxene; amphibole; garnet; pyrite; and gypsum. The various ways in which minerals form was discussed, from crystallising within magma chambers and cooling igneous rocks to evaporating waters.

Minerals looked at included **Quartz**, one of the hardest common minerals, which cannot even be scratched with a steel nail. If it has room, it grows into its natural crystal shape, a 6-sided pointy crystal.



Three of several colour forms of quartz. L to R - citrine, clear quartz, amethyst

Everyone knows '**Fools Gold**', aka pyrite / Iron Sulphide. The natural crystal shape of pyrite is a cube! These cubes can be very tiny (as seen sometimes in parts of Dorset or Bedfordshire) or enormous – mostly coming from Brazil.



Two naturally formed cubes of pyrite along with one cluster of crowded would-be pyrite cubes

In the chalk of the Chilterns, another form of Iron Sulphide is found, Marcasite, generally forming a rough sphere or elongated shape, with a radiating pattern visible if cracked open. Marcasite nodules have been found at Kensworth Quarry on previous visits and so fingers cross for this year's trip.

Desert Rose is one of the many forms of gypsum, that has formed as a result of evaporating moisture within desert sands.



Desert Rose – a spectacular form of Gypsum

In Buckinghamshire, the most commonly encountered form of Gypsum is Selenite – see photo at the end of this article. Also see Newsletter No 16, October 2011 (available on website) for more on Selenite in Bucks

At the end of the session Mike Palmer, Keeper of Natural History and Geology at Bucks County Museum brought out a small selection of Buckinghamshire minerals from the Museum's stored collection.



Minerals from the County Museum's collection: Top left - two marcasite nodules; Top right – a colourful form of Chalcedony inside flint; Centre – four crystals of selenite; Bottom left – Manganese oxide dendrite on broken flint; Bottom right – quartz crystals in flint

Look out for some of our future workshops which will usually be during the winter months when it is nicer to be inside rather than visiting cold and wet sites.

Jill Eyers

Rock & Fossil Day, Bucks County Museum, 13th April

750 people attended this year's Rock & Fossil Day at the County Museum. Displays included cases of Bucks fossils and minerals, hands-on displays of Ice Age mammal bones, hands-on mystery geology items along with some fantastic minerals from Linda Holmes own collection.



Selection of ammonites from the Museum's stored collections

The children's fossil dig and Jurassic Sea collage were as popular as ever while Jill Eyres and Ian Hudson were kept busy on the rock and fossil identification table (see following article).



From the Jurassic Sea collage. Who really knows what colour Ichthyosaurs were?



Jill and Ian looking through the many mystery fossil finds brought in for identification

If you have any geological items that you would like to display at future Rock & Fossil Days please contact Mike Palmer

Mike Palmer

Oh what a blast....oid!

Each year Rock and Fossil Day (held at the Buckinghamshire County Museum in Aylesbury) throws up something unusual. We get all sorts of things – a wide variety of rocks, minerals and fossils with a few archaeological items thrown in for good measure. Some are local, some from further afield (Pakistan, India, the Himalayas and the Alps feature now as regulars!). Often the bringer of goodies to our identification table does not actually know where they came from - either due to them not keeping a note of it from way back when it was originally found or sometimes because they have inherited a relative's unlabelled collection. As well as offering the reminder to always put a location with date collected alongside your treasures, this little piece is to show you one of the examples from this year's Rock and Fossil Day.

The little objects shown below were thrust under my nose. The owner had collected several but had no idea what they were. I must admit to being stumped at first glance but had a nagging feeling I had seen something like this under 'echinoderms' in a book somewhere. These little hunches often prove fruitful and low and behold I found it! Blastoids.



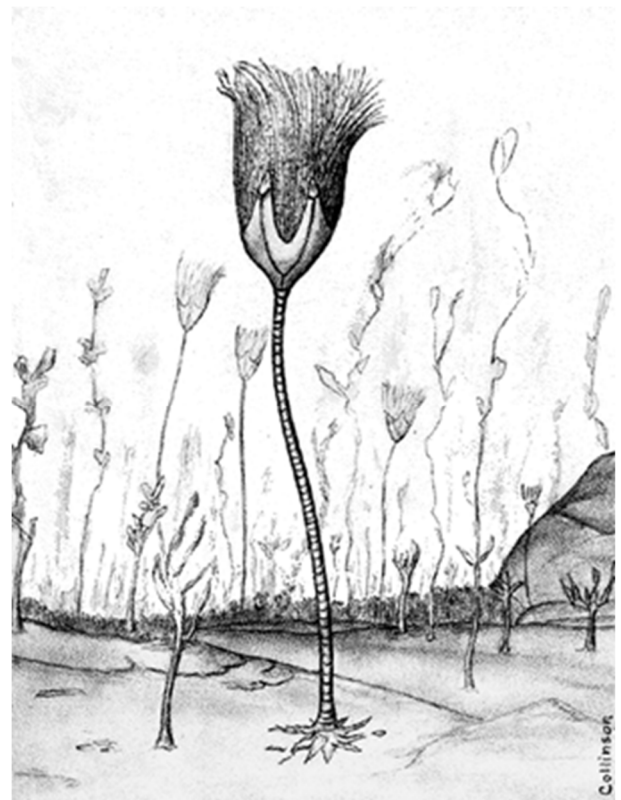
Blastoids calyxes brought in to Rock and Fossil Day

What is a blastoid I hear you mutter? Well, they are an extinct kind of echinoderm (sea urchins, crinoids, starfish, etc). They lived between the Ordovician and the Permian periods (from 472 to 250 Ma). Like crinoids, they had a stem mounted with a calyx (the business end), differing from crinoids in the structure of the calyx. And, just like crinoids, the component parts of the blastoid often fell apart and became separated after the death of the animal.

In some areas the body fossils can be quite common. Examples such as *Pentremites* (below) are very common and useful for dating rocks and biostratigraphical studies. They were suspension feeders and often the food grooves can be seen on the fossil.



Lower Carboniferous Blastoid, *Pentremites godoni*



Artists impression showing the similarity of Blastoids to Crinoids with stem leading up to the calyx

I can't believe I have gone on this long in the game of fossils without having one in my collection! Clearly none to be found in Bucks!

Jill Eyers

Kimmeridge Field Trip, Dorset ***4th May***

Members of the Bath Geological Society and the Bucks Geology Group met at Kimmeridge Bay for a field trip led by Graham Hickman. The morning was spent examining the rocks in Kimmeridge Bay and the afternoon was spent at the Etches Collection Museum admiring the many wonderfully preserved fossils extracted from the Kimmeridge Clay Formation.



Kimmeridge Bay looking east



Kimmeridge Bay looking west

The cliffs around the village of Kimmeridge, in Dorset, provide the type-section of the Upper Jurassic Kimmeridge Clay Formation. At this stratigraphic level, the exposures are one of the most complete successions in Europe. The coastal exposures measure approx. 400m in thickness, however boreholes drilled to study the formation further inland have proved a thickness of 550m. The sediments are dominantly clays, calcareous mudstones (marls), organic rich shales, and occasional limestone or dolomite marker beds. They are interpreted to have accumulated as a shallow marine environment, perhaps less than 100m deep, in which the water column was stratified with anoxic bottom water. The Kimmeridgian climate was warmer than that of today, with elevated carbon dioxide content.

Plate tectonic reconstructions suggest the UK was sub-tropical at around a latitude of 30° north.

A distinct cyclic pattern can be seen in the sediments, particularly identifiable using total organic carbon content and radioactivity measurements. These have been interpreted to be Milankovitch-related cycles (precessional cycles of 19ka and 23ka; obliquity cycles of 38ka etc.). Easily identifiable features are the 'stone bands' or ledges that form prominent marker beds in the cliffs and broad ledges in the intertidal areas. Traditional ammonite zonation and sub-zones work well within the Kimmeridge Clay due to their excellent preservation, widespread occurrence and rapid evolution. Offshore oil exploration has used microfossils and palynology to further the correlation and dating methods.



Kimmeridge Bay detail

The Kimmeridge Clay has been extensively studied as it forms a prolific source rock in the North Sea. Although thermally immature for oil at outcrop here in Dorset, a 1m thick oil shale known as the 'Blackstone' has been historically mined. Known locally as 'Kimmeridge Coal' it burns with an unpleasant sulphurous smell. During the late C19th commercial mining extracted and refined paraffin wax from the shales. The 'Blackstone' bed outcrops at sea-level around 2km east of Kimmeridge beyond Clavell's hard.

Graham also described the history of the Kimmeridge Oil field and stressed that the oil in the Kimmeridge Oil field is NOT sourced from the Kimmeridge Clay. This is immature and has not been buried deep enough. The oil is sourced from the deeper Lower Lias Clays in the English Channel Basin. The Kimmeridge oil field is also unusual, as most of the inversion structures which have been drilled, have failed. Suggesting the late movements have breached the traps or the caused the oil to re-migrate.



The Etches Collection, Kimmeridge

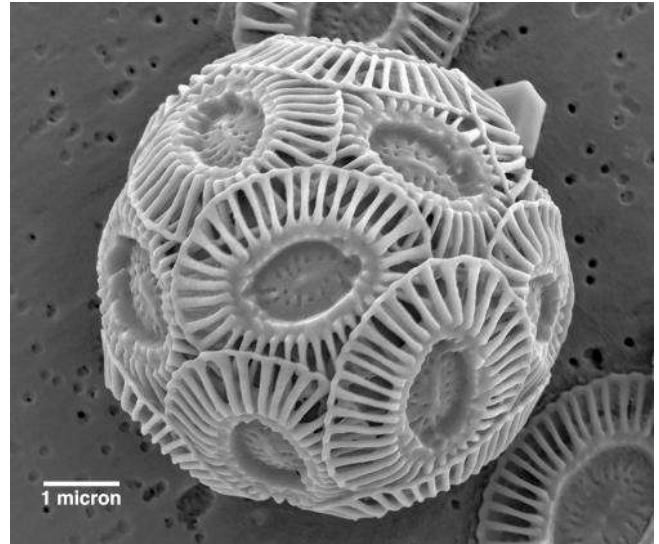
After lunch the group visited the Etches Collection Museum in Kimmeridge village. Steve Etches has been collecting fossils from the Kimmeridge Clay for over 30 years. Originally stored in his garage in a special air-conditioned environment to prevent decay, his fossils are now on display in a purpose-built Heritage Lottery funded museum. Steve, a plumber by trade, is now a world authority on Kimmeridge fossils and has been awarded an MBE and honorary doctorate. His keen eye and determination have added considerably to the palaeontological understanding of the Kimmeridge Clay with many new and rare finds.

The attendees thanked Graham for leading a very enjoyable field trip and returned home to Bath and Buckinghamshire respectively.

A Brief introduction to Micro-Fossils

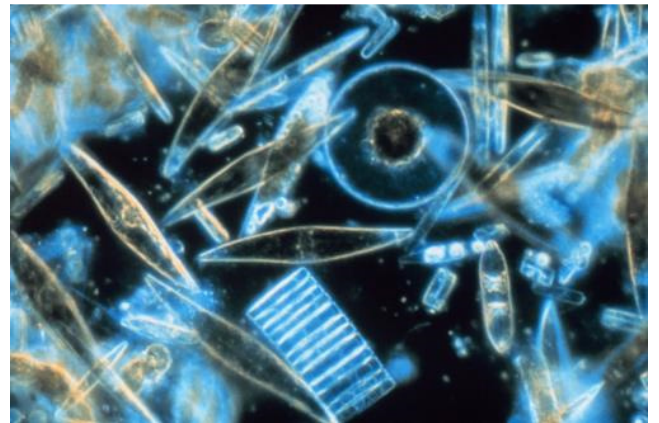
Members may be familiar with some, if not all of the major macro-(larger)-fossil groups such as ammonites, belemnites, echinoids, gastropods, etc. I must admit, however, that I had never heard of Blastoids until this issue. Microfossil groups, on the other hand, are likely to be less familiar. By way of an introduction, here are some examples of organisms likely to be encountered when studying microfossils

Coccolithophores are single-celled algae surrounded by microscopic plates made up of calcium carbonate. These plates, known as coccoliths, are the major constituent of chalk, and usually measure between 0.002 to 0.025mm (or 2-25 microns)



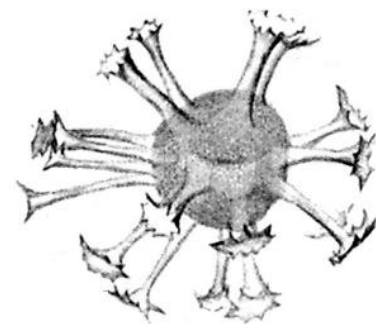
Coccolithophore showing the surrounding shell of coccoliths

Diatoms are single-celled, water-living algae that live in shells made of transparent silica. These shells can be intricately ornamented and preserved in the micro-fossil record



Living Diatoms (Prof. Gordon T. Taylor, Stony Brook University)

Dinoflagellates are mobile micro-plankton characterised by their whip-like flagellum used to propel them through water. Many have a dormant stage in their life cycle, known as a cyst or dinocyst. These, along with their spores can be found in the fossil record.



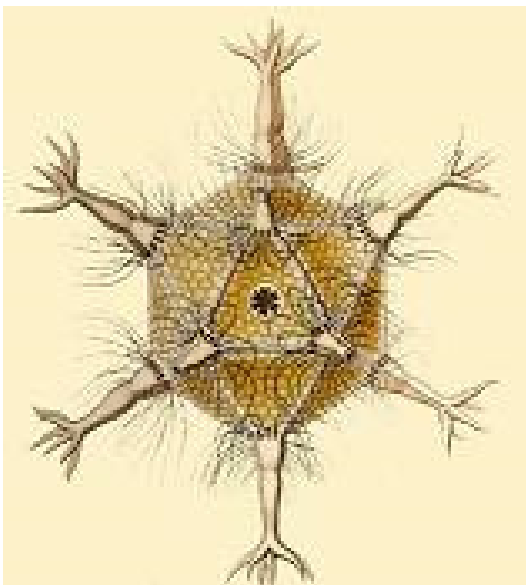
Dinoflagellate cyst aka Dinocyst (drawn by Ehrenberg in 1837)

Charophytes are a group of multicellular algae, often known as Stoneworts. Microscopic parts relating to their reproductive cycle, notably gyrogonites and oogonia can be identified in the fossil record.



Light micrograph of a whole-mount slide of an oogonium and antheridium of *Chara* sp (Curtis Clark, Creative Commons – image cropped)

Radiolaria are sea-living planktonic protozoans. They produce intricate mineral skeletons including some made from pure opal which can be preserved in the fossil record



Circogonia Icosahedra, from Ernst Haeckel's 1904 "Kunstformen der Natur".

Foraminifera are a group of single-celled amoeba-like water-living organisms that secrete characteristic protective shells that usually measure between 0.5 to 1mm in length. They are commonly preserved in the fossil record.



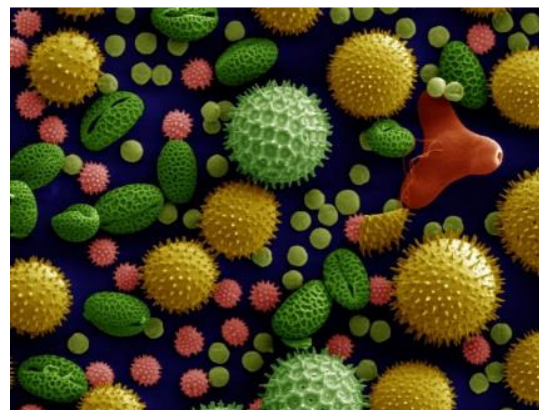
Foraminifera (Hans Hillewaert, Creative Commons)

Ostracods are tiny crustaceans, related to the larger crabs and lobsters but more similar in appearance to water fleas. They usually measure between 0.5 to 1.5mm



A living Ostracod (Anna Syme, Creative Commons)

Palynomorphs and Sporomorphs relate to pollen, produced by flowering plants, and a whole range of spores produced by fungi, algae and other organisms.



Scanning electron microscope image (500x magnification / coloured) of pollen grains from a variety of common present-day plants (Dartmouth Electron Microscope Facility, Dartmouth College)

Any members looking for more information on the study of micropalaeontology should visit the University College, London MIRACLE website at <https://www.ucl.ac.uk/GeolSci/micropal/palynology.html>

Mike Palmer

Micropalaeontology of Bucks Geology Group Field Meetings

During recent BGG fieldtrips, samples for biostratigraphic analysis have been collected from various sites including Bugle Pit, Duns Tew Quarry and Coombs Hill Quarry. These have been prepared for micropalaeontological analysis (foraminifera, ostracods, charophytes and macrofossil debris). Samples are also being prepared for palynological analysis (dinocysts, spores, pollen, algae and miscellaneous palynomorphs).

Micropalaeontological analysis can be carried out on softer lithologies which breakdown easily such as claystones, siltstones, marls and poorly cemented sandstones. In order to extract the microfossil content a small volume of sample material (20g+) is soaked in 20% Volume of Hydrogen Peroxide for 20 minutes (to break down the lithology), then washed through a 63 or 53 micron sieve and dried in an oven. The washed residue is then picked using a binocular microscope and very fine paint brush to extract the individual microfossils which are placed onto slides.

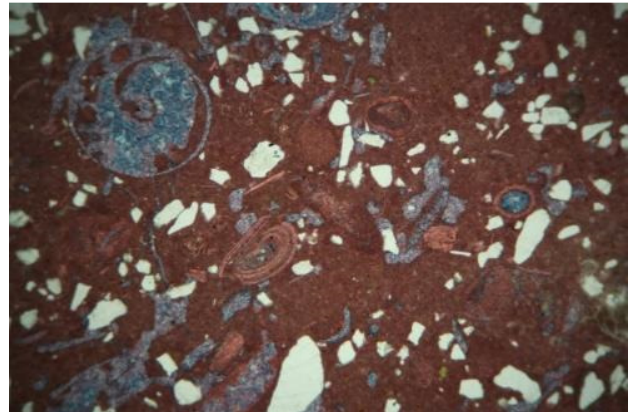


Material from coarse fraction of Duns Tew quarry sample DTQ-9 showing star-shaped crinoid stem columnals and micro-gastropods

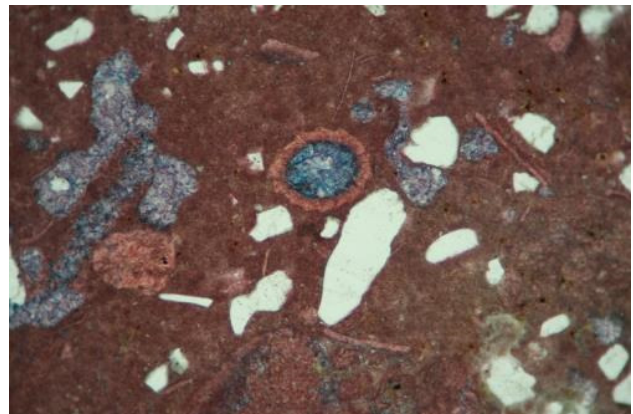
Prepared micropalaeontological residues from the Bugle Pit, Duns Tew Quarry and Coombs Quarry localities generally all yield rich assemblages of Jurassic microfossils including benthic foraminifera, ostracods, charophyte gyrogonites and macrofossil debris (echinoderm, bivalve, gastropods, bryozoan and crinoid material).

Whilst the harder limestones cannot be prepared for routine micropalaeontology as they will not breakdown sufficiently to release the microfossil content they can be prepared as thin-sections,

enabling the microfossil content to be observed and recorded. In the Coombs Quarry section for example roughly half of the samples collected from the marly lithologies have been prepared for routine micropalaeontology whilst the other half from the harder limestone beds have been prepared as thin-sections. In contrast most of the samples collected from the Duns Tew Quarry trip last summer can be prepared for routine micropalaeontology as most are from relatively soft sandstones or marls.



Thin-section image. Bugle Pit Bed 1. Sandy limestone with microgastropods (top left) and charophyte oogonia (middle right). Plane polarised light, x 40. Field of view 5 mm.



Thin-section image. Bugle Pit Bed 1. Sandy limestone with charophyte oogonia (centre). Plane polarised light, x 100. Field of view 2 mm.



Thin-section image. Coombs Quarry. Bioclastic rich limestone with common disarticulated ostracod valves. Plane polarised light, x 50. Field of view 5 mm.

The microfossil assemblages recovered can be used to define the age of the sections, based on the identification of key age diagnostic taxa which in the localities mentioned above maybe a combination of ostracods, foraminifera, charophytes, dinoflagellate cysts and sporomorphs.

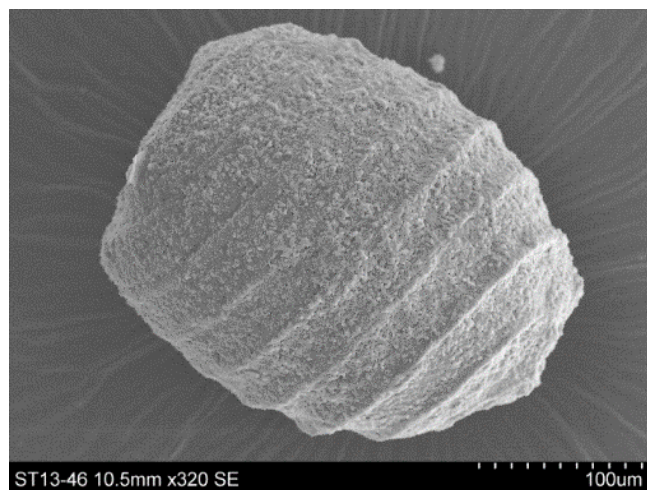
The environment of deposition may also be determined for each sample based on its microfossil content. For example, in the Bugle section shallow open marine conditions are indicated by the presence of common benthic foraminifera and ostracods (for example Bed 5, Marl), whilst in other parts of the section the occurrence of charophyte gyrogonites indicates more proximal non marine to marginal marine (brackish) conditions. In the Duns Tew section the Horsehay Sand Formation lacks good marine fossils, reflecting relatively proximal environments (intertidal and deltaic) whilst marine indicators (foraminifera, ostracods and abundant macrofossil debris) occur within the Sharp's Hill Formation and more abundantly in the Taynton Limestone Formation above indicating deposition in gradually deepening open marine settings up-section.

Microfossil studies are at an early stage, with processing and analysis of samples well underway. Full results of our studies will be reported in more detail once the analytical work is complete, starting with the Dun's Tew Quarry section, which will hopefully be ready for the next newsletter!

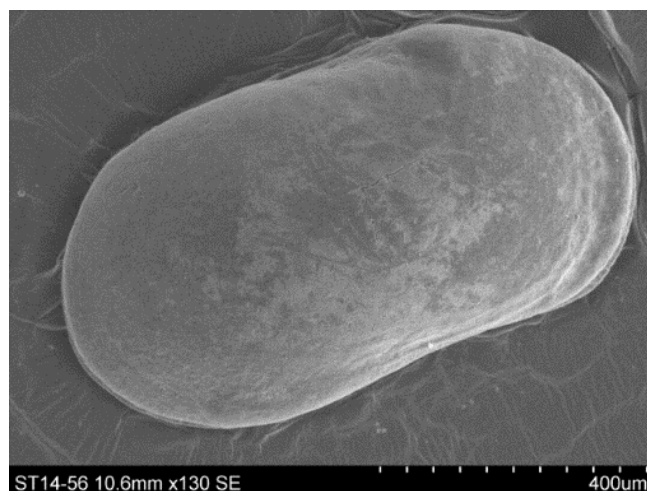
Scanning Electron Microscope (SEM) images of selected taxa from routine micropalaeontology preparations. Scale bars in microns (1000 um = 1 mm)



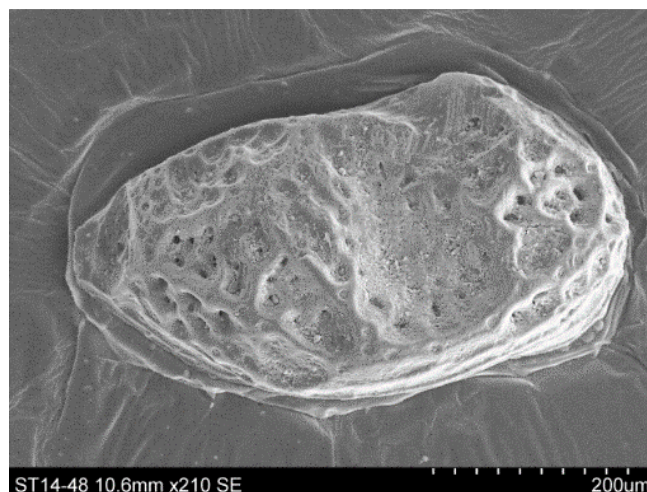
ST13-43 10.6mm x210 SE
Benthic Foraminifera
[Bugle Pit; Bed 5 marl].



ST13-46 10.5mm x320 SE
Charophyte oogonia
[Bugle Pit Bed 13, marl].



ST14-56 10.6mm x130 SE
Ostracod specimen.
[Bugle Pit Bed 7].



ST14-48 10.6mm x210 SE
Ostracod specimen.
[Bugle Pit; Bed 5 marl].

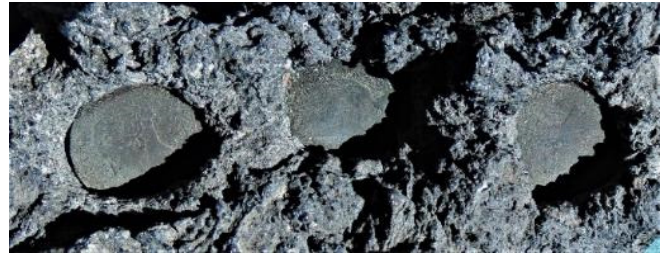
Dr Stephen Packer

Victorian Geotourism to Vesuvius – evidence found in Bucks County Museum

As many of you know, Ian Hudson and myself volunteer once a month to sort through the geology education collections held by the Bucks County Museum. Curator, Mike Palmer, notes that the term 'education collection' is applied here loosely as it is really a jumbled up collection of items acquired over time including much material with no obvious link to Bucks. The overall aim is to rationalise and organise this material into a more useable collection. Recently, we have been going through an amazing collection of geological curiosities picked out by a former curator as items deemed too special to be part of a generic handling collection. This work has been such fun for us. At any point you can be looking first at Scottish granites, Carboniferous brachiopods or Coal Measures plants, the next moment at Turkish leaf fossils, Plesiosaurs from Dorset or local fossils from the Chalk or Jurassic. The latter was what we had first expected to be working through, so you can imagine what a thrill this varied collection has given us!

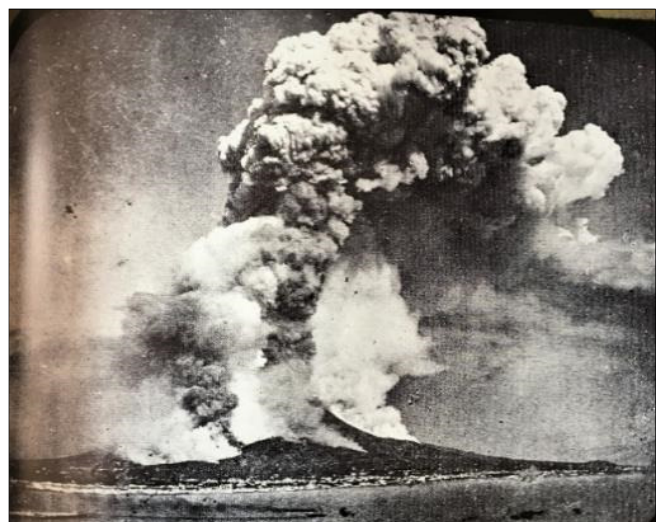
The latest surprise was an unusual object - three Victorian coins embedded in a piece of vesicular basalt (basalt that contains small holes as a result of the presence of volcanic gasses during its formation).

The surprise for us came firstly in that a specimen of basalt with three Victorian coins embedded was in the museum collections at all, but also in seeing that this was possibly from Vesuvius and it was from a basalt lava flow – still hot when the coins were embedded. This kind of lava flow is unusual for Vesuvius. Ash, andesite and pumice are much more the usual character. In fact, this volcano is famous for its Plinian eruptions (named after Pliny the Younger who described the eruption of Vesuvius in AD79 that famously obliterated the towns of Pompeii and Herculaneum) which, when they collapse, they produce pyroclastic surges.



Close up of three Victorian coins embedded into a small piece of vesicular basalt. The coins are Victorian – the two outer coins are heads of a young Victoria and letters of a partial inscription are those of Victoria's coins. The central coin is an obverse and shows Britannia with the date 1851. The paperwork which may relate to this item, although uncertain, says 'Vesuvius' but that the object was 'discarded' in the 1950s. But here indeed we do have coins in basalt. A mystery that needs solving!

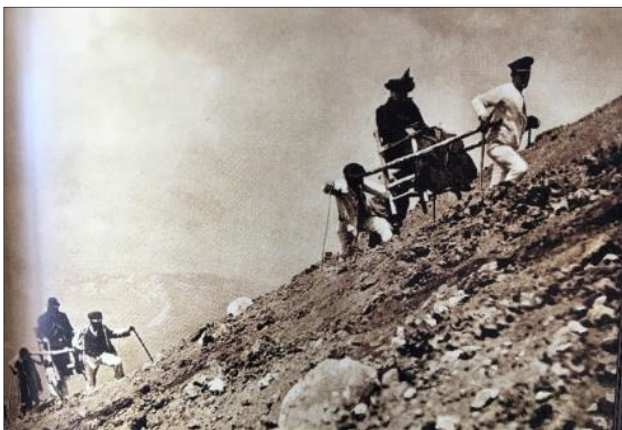
The coins indicate a date after 1851, but the only basalt lava flow we were aware of, and recorded, was that of 1944 (the last eruption of Vesuvius). It is highly unlikely that this tourist trinket was made during the wartime invasion. There are also no records of people going to the flow being inquisitive or to view it, other than those living in that area.



An example of eruptions from Vesuvius: above the 1872 eruption which is the first ever photograph of an eruption there.



The 1906 eruption was similarly explosive and caused many deaths. Image from the New York Times.



Just before the eruption this photo shows how geotourism was taking off with access to the summit by make-shift sedan chair! Image from a recent exhibition at the Bodleian Library, Oxford.

Archives contain many images of eruptions in this area – amazingly these date from 14th century engravings. By carefully looking at the paintings and descriptions of all flows post-1851, which is the date on one coin (that is 1858, 1861, 1872 and 1906, but excluding 1944), all appeared to be Plinian eruptions and would not have produced a

basalt lava flow – except for one - 1858. Below is an excerpt from a write up on the 1858 eruption (*Scientific American* 1858, Vol 13, No.43, p.340):

“Eruption of Vesuvius. *The lovely scenery of the Bay of Naples is again made awfully grand and dangerously sublime, by the streams of lava which are descending the sides of this volcano. For the last two years, Vesuvius has been unusually quiet, and has nearly made the world forget the frightful devastations which old eruptions have made, and Neapolitan Lazzaroni and Hermitage guides were almost dying of ennui, because their expected stimulant would not vomit forth his clouds of ashes and streams of fire. In May last, there were many indications of a coming eruption, and at the close of last month, it fairly set in. From the crater formed by the eruption of 1794, which is two miles in circumference, clouds of smoke began to issue, and then through the cracks in its sides small streams of melted lava were seen to glide. Gradually, but surely, these have increased in volume, covering the mountain's flank with broadening sheets of melted mineral, crackling as it cools. These streams have now covered many vineyards and surrounded many houses. Palmieri, the Director of the Observatory, has fled, and all the instruments are removed, as the building was threatened with destruction every minute, and we suppose has long ere this been destroyed. Thousands of persons were congregated on the spot within a short distance of the danger, and feasting, revelling and merry-making were going on where, ere now, the scenes of Herculaneum and Pompeii may have been again enacted. The people seemed to be perfectly indifferent, and were plucking grapes with great unconcern while their neighbours were fleeing for their lives, and the only sensation which appeared to be awakened among the non-sufferers was that produced by the grandeur of the scene. Vesuvius is very capricious, and this eruption may stop suddenly or may decimate the locality, but up to the last accounts (June 5th) it was increasing in intensity.”*

The report of people with picnics going to watch the spectacle is not surprising as geotourism was a very popular pastime and had drawn thousands of visitors since at least the mid-1800s as part of their grand tour. Each visit would be accompanied with a hope that the volcano would erupt to give a spectacle for the visitors!

Certainly, the importance here is three-fold. Firstly, that interesting objects such as this one can turn up in unexpected places (as the Bucks County Museum's remit is as a holding for Buckinghamshire's geology). Secondly, the importance of continuing the process of working through archive collections and getting them onto the modern databases – that way the object will be known further afield. Thirdly, sharing these wonderful objects with others – whether specialists such as volcanologists or historians, or interested geologists such as the Bucks Geology Group members!

PS. There is often room for another person to assist Ian and myself at Halton. You would need a modicum of identification skills, but even if you come armed with a personal tablet or smart phone you might assist in the background research of these items as we go.

Jill Eyers

Open Displays of Geology – your help wanted

I'm looking to develop a gazetteer of '*open displays of geology*' (working title) in and around Buckinghamshire. By this, I don't mean museum public geological exhibition. Nor do I mean the accessible geological exposures and building stones we view on of field trips. What I am interested in is locating all those bits of geology that have been taken from one place and incorporated somewhere else for primarily decorative or informative purposes. Obvious examples include the many *Titanites* ammonites dug out of local Portland stone and placed in walls and buildings around the County, the bowl stones in the perimeter walls of Hartwell House and the large lumps of puddingstone set up on village greens and commons around Bucks.

So, if you know of any examples, let me know – I hope to produce an initial list for the next newsletter. I am also interested in any associated information such as where the particular fossils and rocks came from, who put them there, when and why. If you know of any existing sources of information or feel you can add your own information, please let me know.

Mike Palmer

Membership Details

Annual membership now runs from 1st April to 31st March the following year.

Individual membership is £7.50 and Family membership is £12 per annum.

Membership is open to beginners and experts alike.

A copy of the membership form is available on our website. Please complete and return payment Membership Secretary, Julia Carey, c/o BMERC, Place Service, 6th Floor, County Hall, Aylesbury, Bucks HP20 1UY (Email: jcarey@buckscc.gov.uk)

Alternatively, you can pay your subscription direct to the Buckinghamshire Geology Group account at: Lloyds TSB (White Hart Street, High Wycombe) Sort code: 30-94-28, Account no 00744003

Further Information

Website

www.bucksgeology.org.uk

For general enquiries please contact

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Remaining 2019 Programme

Cost: Unless otherwise stated, all events are FREE to member and £3 for non-members

Booking: Where stated booking is essential to ensure that events are not over-booked and to allow leaders to contact would-be attendees with any last-minute changes

Clothing: Some trips, especially quarry visits, may require protective clothing such as helmet and high-vis jackets. Please enquire with the event leader or see event flier nearer the time for details.

Saturday 27th July (rescheduled from 27th April) **Bucks Geology Group AGM**, Buckingham Old Gaol 1.00 – 1.30pm followed by a **Visit to Buckingham Sandpit**, 2 – 4pm, with Jill Evers – a rare opportunity to discover the ice age features of this usually locked site of geological interest. **BOOKING ESSENTIAL** Contact Mike Palmer on 01296 325223 or mpalmer@buckscountymuseum.org for further information and to book your place

Saturday 3rd August **Geological Trip to North Lincolnshire** visiting Jurassic and Cretaceous fossil quarry locations with Mick Oates. Optional second day on the Sunday visiting more locations. This is a Geologists' Association meeting for which a £5 charge is payable for the Saturday. The start time is 8.30 and so overnight accommodation is also recommended. **BOOKING ESSENTIAL** Contact Mike Palmer on 01296 325223 or mpalmer@buckscountymuseum.org for further information and to book your place

Saturday 10th August **Geological Walk around West Wycombe Hill** (10 – 11am) followed by a visit to the **Bradenham Pudding Stones** (11.15 – 1.00) with Jill Evers. **BOOKING ESSENTIAL**. Contact Jill Evers at j.eyers@btopenworld.com for further information and to book your place.

Friday 30th August (rescheduled from Saturday 15th June) **Visit to Kensworth Quarry** with Mick Oates (date and timings to be confirmed). A rare opportunity to visit this large working chalk quarry just over the county border near Whipsnade. **BOOKING ESSENTIAL**. Contact Mike Palmer on 01296 325223 or mpalmer@buckscountymuseum.org for further information and to book your place.

Saturday 21st September, 10am – 12 noon (**Date to be confirmed**) **Visit to Stowe Quarry** with Jill Evers with **optional informal building stones walk around Stowe Landscape Gardens** (National Trust charges apply) in the afternoon. **BOOKING ESSENTIAL**. Contact Jill Evers at j.eyers@btopenworld.com for further information and to book your place.

Saturday 19th October **What's in Store?** - A behind-the-scenes look at Bucks County Museum's geology collections with Mike Palmer. 10 – 11am with a second repeat session 12 noon – 1pm. Bucks County Museum Resource Centre, Halton. Places limited. **BOOKING ESSENTIAL**. Contact Mike Palmer on 01296 325223 or mpalmer@buckscountymuseum.org for further information and to book your place.

Saturday 16th November **Hands-on Rocks Workshop** with Jill Evers. Bucks County Museum Resource Centre, Halton. Places limited. **BOOKING ESSENTIAL**. Contact Mike Palmer on 01296 325223 or mpalmer@buckscountymuseum.org for further information and to book your place.

The Bucks Geology Group committee will be developing ideas for the 2020 events programme at the next business meeting.

Members are welcome to attend. Please contact Mike Palmer for details.

Alternatively, members can input ideas, suggestions and feedback to the committee by email.
Again, contact Mike Palmer