



**The newsletter of Malvern U3A geology group  
April 2017**

**The leader**

Many thanks to Prof Donny Hutton for his excellent talk on the Andes. His description of the many trips he has spent there studying the formation of these mountains, their volcanoes and the mechanics of the underlying subduction zone was fascinating. His detailed study of shear planes is helping to substantiate the growing theory of a new horizontal, subduction mechanism at work in the region. This is new work, yet to be published and his talk adds to the long list of thought provoking subjects we have privileged to hear.

The subject of the group venue is obviously high on our agenda at the moment and thanks to those of you who responded to my email on the subject. I received a total of just over 20 responses of which 7 were positively against a move. A number of those felt that we should be supporting the Cube if possible as it is a community facility, a factor that the we in the Steering Committee also felt needed consideration. However, bearing in mind these numbers versus the size of the group I believe that we have a strong mandate from you to make a move if required.

If we do move, we need to resolve a few issues first; particularly the storage of our library and the practicalities of the refreshment system. Consequently, as we are close to the end of our winter lecture series, we have decided to delay any decision on a move until later. This will allow us to present a case to the Cube and the Malvern U3A Trustees for improvements to be made particularly to the audio/visual equipment. If this fails we will plan to move in time for the start of our autumn meetings.

You may not know it but we have a group rock collection! It currently languishes in Dick Harris's garage and is not used! We can now announce, however, that the collection has been properly catalogued, photographed and the details placed on our website. Please have a look at it [here](#) and see what you think. The rock samples may be borrowed if required and if you would like to add to it, please get in touch.

May I say a big thank you to Richard Edwards and Alan Hughes for their efforts in running the 2 rock identification courses, the second of which has just occurred. Richard was pleased with the results and hopes that it helped those who attended in that most basic of skills for a geologist – looking at and

understanding rocks! If there is sufficient interest, we will look to run it again next year.

Finally, we are in the process of finalising our plans for the May monthly meeting. At this stage we have arranged to have a short talk from Alan Gray on Fuerteventura, briefings from each of our sub groups on their year's work plus of course an opportunity for us to discuss with you any ideas/feedback you may have regarding the running of the group.

### **The Anthropocene**

The winter is clearly a popular time to escape to warmer climes, and your editor also missed this lecture, instead enjoying the sunshine in Lanzarote. Apologies in advance then if there is any repetition. There are literally thousands of minerals, often formed during metamorphic processes, but recent research has identified 208 new minerals that have formed as a result of human activity. The majority of the recognized minerals originated in ore dumps, through the weathering of slag, formed in tunnel walls, mine water or timbers, or through mine fires. Six were found on the walls of smelters and three formed in a geothermal piping system.

According to the authors of the research paper, some minerals formed due to human actions can also occur naturally: Three in that category were discovered on corroded lead artefacts aboard a Tunisian shipwreck, two on bronze artefacts in Egypt, and two on tin artefacts in Canada. Four were discovered at prehistoric sacrificial burning sites in the Austrian mountains.

There are some really bizarre ones, for instance Tinnunculite has been identified as a product of hot gases reacting with the excrement of the Eurasian kestrel at a burning coal mine at Kopeisk in Russia. Whilst the following image is Fordite from the abandoned paint shops of car factories



### And since we mentioned excrement...

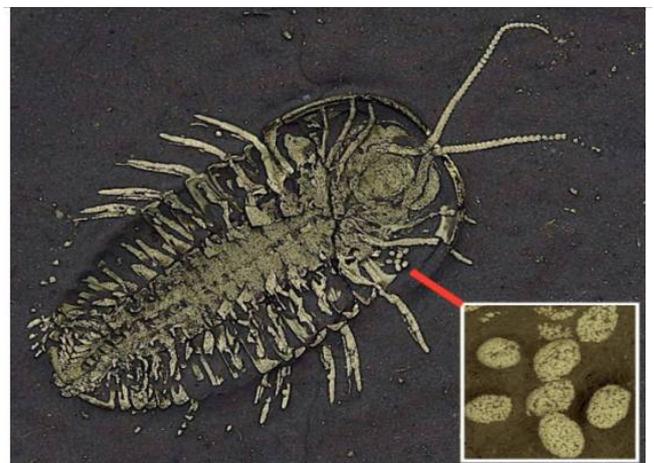
Archaeologists can gain quite useful information from studying ancient cesspits; they can infer dietary patterns and also some aspects of health and hygiene. Geologists have it a little easier because the faecal matter becomes fossilised over time and hence no longer malodorous. It still though yields useful information. The terminology changes too, to coprolite. Just by way of an example, fossilised tapeworm eggs have been found in coprolites dating from 270-300 MYA, the earliest recorded occurrence of these parasites.



This example is from the Triassic period in Australia.

### And now for something rather different

Members of the fossils sub group will already have seen this image of a trilobite, but it is worth sharing with a wider audience. This example comes from a lagerstette – where the animals were preserved by an anoxic mud that prevented decay.



**Triarthrus eatoni (Hall, 1838) with eggs!  
Whetstone Gulf Fm., Lorraine Grp., U. Ordovician**

The Ordovician Period lasted almost 45 million years, beginning 488.3 million years ago and ending 443.7 million years ago.\* During this period, the area north of the tropics was almost entirely ocean, and most of the world's land was collected into the southern super continent Gondwana.

## Lanzarote

The deep throated gurgling didn't last long. There was a whoosh and superheated water shot metres into the air, scattering the onlookers and spattering the slow moving. It's quite a dramatic way to show that hot rocks at over 300°C exist just below ground level. This is Timanfaya National Park in the south west of the island.



Whilst there is little but Basalt rock forming the island, there is quite a varied landscape and over 130 volcanoes. Also worth a visit is the small coastal village of El Golfo with its fascinating colourful eroded lavas and green lake.



And finally, we've made group visits to lava tunnels in La Palma and Sao Miguel, but they do little to prepare you for the scale of La Cueva de los

Verdes. It is 7.5 km long and in places must be approaching 30m in height. It is impressive.



### Rock of the month



It's a concretionary nodule, and a pretty big one at that. So what, you might say, is one of those? Detailed studies have shown that concretions form after sediments are buried but before the sediment is fully lithified

during [diagenesis](#). They typically form when a mineral precipitates and cements sediment around a nucleus, which is often organic, such as a leaf, tooth, piece of shell or fossil. For this reason, fossil collectors commonly break open concretions in their search for fossil animal and plant specimens. Some of the most unusual concretion nuclei are World War II military shells, bombs, and shrapnel, which are found inside siderite concretions discovered in a coastal salt marsh in the Wash in Lincolnshire.

### The gallery



High Cup Nick – a glaciated valley - Lucy Cornelius



Icelandic columnar basalt - Dick Harris

Chalk cliffs Hunstanton - James Bullett

Here is a very small selection of the excellent pictures you have sent in. Please keep them coming!

[photoresources17@gmail.com](mailto:photoresources17@gmail.com)

## Taking a global perspective

The geology of our region is both splendidly diverse and easily accessible, so much so that we tend to be somewhat oblivious to the wider picture. The website below gives us the opportunity to redress that deficiency.



With the aid of your Mouse you can rotate the globe to any desired point and then zoom in to look at the detail. Have fun!

<https://www.clisap.de/fileadmin/B-Research/IA/IA5/LITHOMAP/dev/lithomap.html>

## The calendar

April	5	Local field trip: Southern Malvern Hills
	12	Monthly Talk: Idar-Oberstein; A Gem (Stone) of a Town
May	5	South Wales field trip (until 9 <sup>th</sup> )
	10	Members' Meeting
	24	Area field trip: Lickey Hills
June	14	Local field trip: Hollybush/Raggedstone Hill
July	1	Visit: BGS Open Day
	26	Local field trip: Bromsgrove building stones (Evening)
August	30	Area field trip: Hergest ridge
September	19	Brittany field trip (until 29 <sup>th</sup> )
October	11	Monthly Talk: Metal Mines of Spain
November	8	Monthly Talk: TBD
December	13	Monthly Talk: The Geology of the Malverns

## Who's who?

### The steering committee

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#### Group website

## Malvern U3A Geology



<http://geology.malvernu3a.org.uk/>