

# Down to Earth exera

Issue 144 December 2024



#### From the Editorial team...

At the end of a year in which we saw a General Election and a new Labour Government, and the USA, saw the re-election of Donald Trump for a second term, it's appropriate for us to peer into the crystal ball that is 2025.

With the conclusion of COP29 in Azerbaijan it's fair to say that the wider world is coming to realise that the actual delivery of some of the commitments that were made only a few short years ago are getting more difficult to deliver and are looking to water down some of those lofty aims. Meanwhile other countries, such as the small Pacific Island states, recognise the stark reality of what will happen if there isn't real action - and soon.

Back in the US, there has been genuine surprise and in some cases horror, at some of the candidates put forward by Donald Trump for high office in his second administration's cabinet. Putting aside specifics and instead focussing on the more general aspects. There's a real sense in which expertise in general, and science specifically, is under attack. At a time when the world needs expertise in all kinds of areas it really makes no sense to offer people with so little obvious talent for these crucial tasks. Indeed it seems that all that was required was intense loyalty to the person of Donald Trump, above all else.

Back in the UK we face up to 2025 with so many challenges many of them involving political choices. How do we address the problems associated with electric vehicles and the lack of take up by the public? What should happen to the Rosebank Oilfield, off Shetland, currently going through the courts in Scotland? What will happen during 2025 to the Woodsmith mine project in North Yorkshire?

Whatever map, or may not happen in 2025, do have a good Christmas and New Year!

Chris Darmon & Colin Schofield The Down to Earth Editorial Team

#### Sign up for a Zoom course this Winter - see page 11!



## Anglo American cuts back on the North Yorkshire polyhalite mine project

Mining giant Anglo American has announced financial cuts and a slowing down of the delivery of its North Yorkshire polyhalite mine project.



A recent image of Rig 50 at the Woodsmith Mine site near Whitby. (Image: Callum Fitzpatrick via Facebook)

News of the huge cutbacks on the project came as the mining giant announced that it had made a loss of £544m in the first 6 months of

the year. This was due largely to it making at £1.2 billion write-down on the Whitby project. It has slashed investment in the project from £1 billion a year to £200m over the coming years and put back the operational opening date to 2030.

At the same time the Company announced that it was looking for strategic partners to help it get the project over the line. There had been good progress with construction of 30km of the total 37km of the tunnel linking the mine with the River Tees port facility being completed. This work will continue albeit at a slower pace. Work on the two shafts has been going well whilst they have stopped advancing the production shaft, work on the other shaft is continuing.

All this has come at a cost to the local economy in terms of job losses both those directly employed by Anglo American and others employed by some of the many contractors.

However an announcement at the end of November of a research agreement has given renewed optimism that the project will eventually be seen through to completion.

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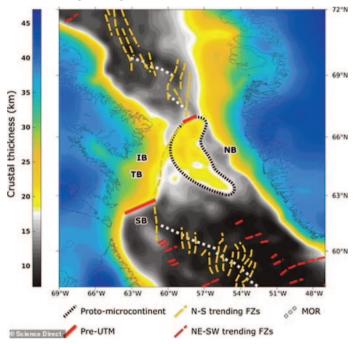
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## UK and Swedish scientists discover new micro continent between Greenland and Canada...

A discovery by scientists from the Universities of Uppsala and Derby is casting new light on the birth of the North Atlantic and what is currently being seen in Iceland.

#### This comes from the Times of India:

"A team of geologists from Sweden's Uppsala University and the University of Derby in the UK has uncovered an isolated block of thick continental crust in the Davis Strait. This formation, measuring 19-24 km thick, was likely separated from Greenland due to east-west extension along its margin."



The newly discovered micro-continent in the Davis Strait. (Image: Science Direct)

## Meanwhile, Derby University had a somewhat different slant on the discovery:

The incredible discovery was made by Dr Jordan Phethean, a lecturer in Earth Science at the University of Derby, as part of a wider team of scientists from universities in Southampton, Switzerland, Italy and the USA. The project was led by researcher Valentin Rime, who invited Dr Phethean to join the project due to his experience in Icelandic fieldwork and research. The findings mean that, contrary to the traditional model for the formation of Iceland and the Greenland Iceland Faroes Ridge (GIFR), scientists now believe that the break-up of the European and North American continents is still ongoing.

Dr Phethean said: "The discovery indicates that the North American and Eurasian tectonic plates have not yet actually broken apart, as is traditionally thought to have happened 52 million years ago. They are, in fact, still stretching and in the process of breaking apart."

Controversially, this discovery sparks a debate over exactly how many continents officially exist in the world as, based on these findings, scientifically speaking North America and Europe could be classed as one, not two.

It also means that Iceland is now thought to be not just a volcanic island created by a hot mantle plume beneath, but that it also contains



Derby University's Dr Jordan Phethean is one of the academics behind this new discovery. (Image: Derby University)

within it pieces of lost and submerged continental fragments buried beneath millions of years of volcanic lava flows.

Dr Phethean said: "I like to think of this concept as the Earth Science equivalent of finding the Lost City of Atlantis; fragments of lost continent submerged beneath the sea and kilometres of lava flows.

By studying the evolution of rifting in the volcanic Afra region of Africa and comparing this to the behaviour of the Earth in Iceland, we are able to see that these two regions are evolving in very similar ways."



During their research, the scientists realised that Iceland and the Greenland Iceland Faroe Ridge is a newly-recognised type of feature – a Rifted Oceanic Magmatic Plateau, or ROMP for short. Their new concept of ROMP – a world-first – defines a newly recognised type of Earth feature that can better explain plate tectonic observations.

Dr Phethean added: "Our findings might also explain unusual indications of continental crust beneath Iceland and the GIFR, as seen from geochemical and geophysical experiments, and build on work and suggestions from other experts.

While it is controversial to suggest that the GIFR contains a large amount of continental crust within it, and that the European and North American tectonic plates have perhaps not yet officially broken up, our findings suggest this is the case."

*The Editor comments:* Wow! This really is a revolutionary concept in the evolution of the North Atlantic, building upon what we've known for several years now about what lies beneath Iceland.

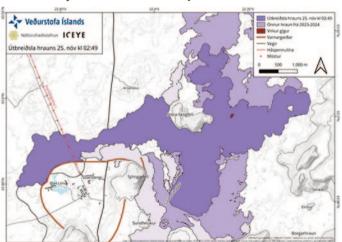
This concept clearly has a long way to run before we can have a more definitive history for the North Atlantic over the past 52 million years, but this is a giant step in the right direction - at least for me.

#### Read more here:

https://www.derby.ac.uk/news/2024/scientists-make-groundbreaking-discovery-sparking-conversation-over-continent/

## Meanwhile in Iceland, there's yet another eruption going on - seven so far this year!

The latest eruption at the Svartsengi eruption site, the seventh in 2024, began on November 22nd. It required a rapid overnight evacuation of around 200 people who were staying at the Blue Lagoon hotel complex. During the following day, the Blue Lagoon's extensive car park was overwhelmed by lava.



This is the lava flow map as of November 27th. during the latest eruption of the Svartsengi volcano. (Image: ICEYE/IMO)

As with all the previous eruptions on 2024, there was an initial outpouring of magma from a rift which later became confined to a more distinct single vent. Such that on November 27th. The Icelandic Meteorological Office (IMO) was able to report:

"A new eruption at the Sundhnúkur crater row began in a location between Stóra-Skógfell and Sýlingarfell, within the Reykjanes volcanic system, after a brief period of precursory seismicity. The eruption was the tenth to have occurred on the Reykjanes Peninsula since March 2021 and the seventh in 2024. A small earthquake swarm started at 22.30 on 20 November and was followed by pressure changes in boreholes at 22.37, both indicative of a dyke intrusion."



This is the latest eruption site on November 29th. (Image: Hörður Kristleifsson/mbl.is)

#### **GEOLOGY - ISLE OF ARRAN**

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Geology that does not cost the earth £575.00 per person

News from Essex - Ros and Ian Mercer are up to their geological tricks - again...

Down to Earth readers Ros and Ian Mercer are never still! Whether it's organising Essex Rock and Mineral Society's two venues with their monthly lecture programme, or the wider promotion of geology across Essex and beyond.



Ian and Ros Mercer with the sculptor Michael Condron stand in front of the mammoth at Chelmsford's Channels development.

The latest is a 'mammoth project' which involves a huge sculpture being installed at Channels Park in Chelmsford. This striking piece of public art was a part of the original planning permission for the development of the site. The site now occupied by Channels Park was a former gravel quarry in the Essex White Ballast.

A steering committee including Ros and Ian, was set up in 2020 to consider the theme and this is the end result. The mammoth, created by sculptor Michael Condron reflects the Ice Age history of the area with the sculpture being filled with glacial gravel from another local site, Bulls Lodge quarry, linking the geological and human history of the Channels site.

The 4.5 m tall, 5.5 m wide and 8 m long sculpture depicts a steppe mammoth which was a larger precurser of the woolly mammoth. Research into the geological past of the Channels site reveals that it was (and still is) the site of a glacial till cliff composed of well travelled rocks brought by the glacier.

The project has been funded through developer Section 106 contributions which can only be used for the use of public art, and routed through officers at Chelmsford City Council.



Close up of the sculpture showing its filling of glacial gravel. (Image: Ros Mercer)

Asked about the role played in the project by herself and Ian, Ros said: "We worked with Michael to encourage him in his endeavours and to help with the workshop for local people as he was tasked with engaging with local people and schools as part of the brief. He was intrigued with the form of braided rivers that reflected the ancestral Thames and he used this for the mammoth's cladding. Its body is filled with Essex White Ballast as it rises out of the landscape. It is located on a rise overlooking the main road into the development and particularly when floodlit at night, it stands out over the skyline."

We hope that you agree that this is a welcome addition to Essex!



## Down to Earth - in print...

If you've enjoyed reading this Down to Earth extra, you'll love our quarterly Down to Earth! It's a 32-page quality magazine in full colour that's packed with up to the minute geological news and articles. You can get your hands on this either in print or electronic formats. Why not request a FREE sample electronic copy of the current issue?

For 2024/5 why not treat yourself or a loved one to a gift subscription? Go to: www.geosupplies.co.uk and enter the online shop or ring us on 0114 245 5746.

**Down to Earth** is published quarterly. Subscribe now for 2024/5 for just £17.00 in the UK. We'll send you the next 4 issues, to the end of 2025 and back issues from 2023/4. For an additional £30.00 (UK only) we'll send you a parcel of back issues - around 50! Alternatively, take a 2023/4 e-subscription for £10.00. Additionally, all subscribers will get **DtoE extra** FREE each month.

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## **Announcing our seventh Summer School...**



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- 6 full days of field work with a choice on some days
- A visit to a Castleton cavern
- A visit to the Peak District Mining Museum in Matlock Bath
- The Triassic rocks of Alderley Edge
- Visit to Wollaton Hall Museum, Nottingham
- The Torrs at New Mills by train from Grindleford
- Geology of Matlock and Matlock Bath
- Geology of Monsal Head & Dale (see image above)
- Coach/minibus transport to field locations
- Full board accommodation in single ensuite rooms (can also be double rooms)
- Evening talks and activities from visiting speakers and our own team
- Social events and opportunities for down time

Everyone is invited to join us for our annual Summer School. The cost is £1395.00 per person whether you are in a single or shared room.

See the brochure & book online at www.geosupplies.co.uk Email downtoearth@geosupplies.co.uk or ring us on 0114 245 5746 Geo Supplies Ltd 49 Station Road, Chapeltown, Sheffield S35 2XE



### The learning zone



We still have some vacancies on most of our 2025 trips. We can accommodate a few more on Cyprus now thanks to a couple of cancellations.

Most trips have only a small number of vacancies, so act quickly to secure your places. This is particularly the case if you are looking for a single room.

To view a brochure, go to our to website at: www.geosupplies.co.uk or Tel: 0114 245 5746

Remember that booking forms are only available direct from us:

Email: downtoearth@geosupplies.co.uk

## Residential Field trip programme 2025...

All trips are available to book NOW!

#### 2025

- Isle of Arran, March 30-April 6
- Troodos Mountains, Cyprus, April 24-May I
- NEW! Scarborough, Yorkshire Coast June 1-6
- Mull & Ardnamurchan, June 11-18
- Western Lake District, June 25-30
- Heart of Wales, July 9-16
- Peak District Summer School, August 9-16
- Iceland, North & East Fjords, September 1-10
- NEW! Torbay, South Devon, October 8-15

Early booking is advised, especially if you are looking for a single room.

Search online at www.geosupplies.co.uk or ring us on 0114 245 5746 Geo Supplies Ltd 49 Station Road, Chapeltown, Sheffield S35 2XE



### The learning zone

#### If you haven't joined one of our residential field trips before, what can you expect?

- Our residential field trips are suitable for adults of all levels of interest and geological knowledge.
- Our trips are friendly and informal and usually comprise 15-20 people. Overseas trips are usually larger.
- We usually make use of comfortable small hotels and guest houses and all meals are included.
- You have the services of Chris Darmon and Colin Schofield as field leaders. Both are highly experienced and knowledgeable field geologists.
- For some trips we have a hired minibus but on other trips we will use shared cars, or even public transport.
- Dates shown in this listing are the start and finish dates.
- Where prices are quoted, they are per person in a shared twin/double room.

If you still have any questions or queries, don't hesitate to email us at: downtoearth@geosupplies.co.uk or tel: 0114 245 5746

#### Before you book for 2025...

We are always pleased to welcome new people along on our trips. So if you are thinking about it, what do you need to know before you 'take the plunge'?

#### Who are the trips aimed at?

The short answer is that they are not aimed at any particular group of people. Our participants are mainly older retired people who want to keep their minds and bodies active, but younger people are welcome.

Some people have lots of geological field experience whilst others are complete beginners. As one person put it to us "I've forgotten all I once knew and need to come along to hear it again." Our UK trips are all small groups of 15 to 20 people maximum so we can make lots of what we say personal to you.

#### Will I be able to manage the walking?

We always try to keep walking to a minimum, but, almost by definition, some walking will be involved. If you can't manage a particular walk, just tell us and it will never be a problem for you not do it. We have one person who really enjoys sketching - she's done some amazing sketches while the rest of us visit a quarry!

#### How do we get about on trips?

It varies a lot from trip to trip. Sometimes we hire a minibus, on other occasions we use public transport and at other times we'll make use of shared cars. Look at the details for each trip to find out.

#### What about accommodation?

We always try to use hotels or guest houses that have ensuite rooms as standard. Most of our accommodation will provide breakfast and evening meals, but sometimes we eat in local restaurants. We include the cost of all food, including a packed lunch for each field day.

We prefer to use small family run hotels and guest houses but they are getting harder to find, so sometimes we use larger hotels such as Premier Inns and hotels in the Leisureplex group. Once again, see the individual trip brochures for details.

#### Are your bookings safe with us?

Yes indeed they are! We've been in the business of running trips a long time and ensure that all the money you pay us is safe in a client trust account until your trip is completed.

#### The 2025 programme...

We are delighted to inform you that we have now completed our programme of residential field trips for 2025. With a slightly reduced number of trips, demand was always going to be strong. Accordingly you are strongly advised to get your booking as soon as you can.

#### To make a booking email us at:

downtoearth@geosupplies.co.uk or ring us on: 0114 245 5746 Whilst the brochures are, or will be, available on our website, booking forms are only available from us. You can then arrange to pay the deposit and we'll send you the booking form.

#### Isle of Arran, March 30-April 6

£1395

Welcome to the Isle of Arran that is the original geologists' paradise. James Hutton was probably the first person to study the geology of Arran in 1786 when he described an unconformity at Lochranza. Since then, thousands have trod the paths to examine the rocks! Arran is currently going down the path to become a full geopark.



Arran on a beautiful day showing the landscape and a magnificent raised beach. (Image: Scottish Geology Trust)

This trip is based at the very comfortable (and warm) Best Western Kinloch Hotel at Blackwaterfoot on the Island's quiet west coast. We spend a leisurely week examining most parts of Arran, making full use of unlimited travel on the local buses - the terminus of the main route is right outside our hotel.

At this time there are vacancies for single and twin/double rooms.

#### Troodos Mountains, Cyprus April 24-May 1 £1795

Come and join us as we visit the Troodos Geopark in Cyprus for the very first time. In the company of an experienced local guide and geologist we'll explore something of the magnificent geology of this great Mediterranean island.

Five nights will be spent based at the Rodin Mount Hotel in the heart of the Troodos Geopark from where we will explore the rocks of this world renowned ophiolite complex. The final part of the trip will examine some of the sedimentary rocks from a second base in the heart of old Larnaca. This is a great time of year to be visiting this upland part of Cyprus - do come and join us!

## Welcome to our exciting world!





The fabulous Troodos Geopark, where geology is at the heart of the landscape

Thanks to a cancellation, we have a double or twin room available for 2 people. In addition, we can accommodate both a male and female if you are willing to share a twin room with another male or female.

#### Scarborough, on the Yorkshire Coast June 1-6 £895

Amazingly, we have never based a trip at Scarborough the 'queen' of the Yorkshire Coast, for the simple reason that we've never found suitable accommodation! Based at the comfortable Cumberland Hotel, we'll spend 5-nights in and around the town, taking in field



The Cumberland Hotel in Scarborough. (Image: Leisureplex)

visits to places like Filey, Forge Valley, Robin Hoods Bay and Whitby to mention just a few. This will allow us to examine rocks from the Jurassic and also the Cretaceous with lots of fossils and sedimentary structures that give us clues to ancient environments.

At the time of writing we have single and double rooms available.

#### Isle of Mull & Ardnamurchan June 11-18 £1695

We have managed to secure reasonably priced accommodation at the Park Lodge Hotel in Tobermory and this trip replaces the one previously advertised to Raasay.

The Isle of Mull and Ardnamurchan will put two Tertiary igneous centres at our disposal with that on Mull being one of the most imposing, whilst that on Ardnamurchan is the most accessible. We also hope to be able to take in a visit to the tiny Isle of Staffa with its famous basalt columns, depending on the weather. Another highlight

will be a visit to the Island of Iona with its Precambrian rocks.



Near the lighthouse at Ardnamurchan Point

With at least one full day on Ardnamurchan we'll be able to take in the fossiliferous Jurassic sediments as well as the basement metamorphics from the Moinian and the Tertiary igneous rocks.

At the time of writing we have only twin/double rooms available on this trip.

#### Western Lake District, June 25-30

The Lake District is renowned for its superb landscape and scenery, but access to the central part is limited and accommodation is very expensive. We have previously stayed at Summergrove Halls in Whitehaven, but this is no longer available to us. Accordingly we've turned to Workington and the comfortable modern Premier Inn.



Amazing New Red Sandstone cliffs at St Bees. (Image: St Bees community)

From Workington we'll be able to access all of the Western Lakes, with trips to see places like Eskdale, Lake Windermere, the iron mines of West Cumbria and St Bees Head.

At the time of writing we can accommodate people in single rooms as well as twins and doubles.

#### **NEW! Heart of Wales. July 9-16**

£1295

This is one of the most unusual offerings in our 2025 programme, for the simple reason that's an area that very few people know about. Mid-Wales, or as we prefer to call it, the Heart of Wales is a sparsely populated area set in the county of Powys.

We'll be based in the quirky Neuadd Arms in the quiet village of Llanwrtyd Wells, which offers excellent food, including an afternoon tea and cake, and even an onsite brewery!

From here we'll explore the surrounding area, taking in Llandrindod Wells with its fossils, Builth Wells with its volcanic rocks, Llandeilo and its famous Ordovician rocks. We take in the local Elan Valley rocks and scenery, the minerals of Cwmystwyth and the fine cliffs of Aberystwyth.

At the time of writing we have vacancies for about five more people.

#### **Summer School Peak District, August 9-16**

£1395

For the first time in the 7-year history of our Summer School weeks we're actually returning to a place that we've visited before. Cliff College in the Peak District of Derbyshire is a well known Methodist theological college. It provides excellent ensuite bedrooms and lovely home cooked food, and makes for an ideal summer school base.



The beautiful grounds of Cliff College (Image: Cliff College)

We'll be sampling lots of the excellent local geology and giving you those added summer school bonuses of evening talks and special visits to places of cultural and historic interest as well as geology. We can accommodate lots more people at this stage, including people looking for a single room.

#### Iceland - the North & East Fjords, September 1-11 £2595

These days a lot of people go to Iceland, but they very rarely visit the north and east of country. In this trip with our usual guide and driver Ingi, we'll begin at Keflavik near the airport and then travel to Akueyri before working our way clockwise to Myvatn to the volcano Krafla before heading to the beautiful east Fjords.

We'll stop in the amazing geo-village of Borgarfjarðar Eystri to see Iceland's most colourful rhyolitic rocks. The last time we were here we did see the Northern Lights in all their glory!

We fly back from Egilstaddir to Reykjavik and then transfer to Keflavik where we started. There's an option of an additional night at the end to have a day looking at the most recent volcanic activity on the Reykjanes peninsula and viewing the recent lavas, which will still be hot!

We can accommodate a few more on this trip.



The Eastern Fjords are beautiful in any season! (Image: Chris Darmon)

NEW! The South Devon Riviera, Torbay, October 8-15 £1295



Distinctive Red Permian rocks of South Devon

The South Devon Riviera coast has been a holiday destination for more than 150 years and we will be staying in the family run Hotel Balmoral in Torquay. From here we will be exploring the local area that lies within the UNESCO world geopark. This is an area of great coastal scenery, with lots of Devonian sediments, plus some volcanics. As the geology is best seen from the sea, we'll ensure that we have at least one boat trip out into Torbay to get up close and personal with the cliffs and their fabulous structures. We also hope to take a trip on the Paignton and Kingswear steam railway and combine it with another boat trip on the River Dart ot Totnes.

The brochure for this trip is now out and we have already taken some bookings

For further information or to book, email: downtoearth@geosupplies.co.uk or ring us on: 0114 245 5746



Don't worry, we don't bite!

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Come and join us!



## **Distance Learning**

#### Learning with us is FUN...

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All our learning programmes are created and delivered by our in house team of Chris Darmon and Colin Schofield. Both are experienced teachers of distance learning over many years.

We deliver courses that are enjoyable and stimulating whilst at the same time being informative and educational. No one is required to carry out any sort of assessment and there's no entry requirements or formalities. Just sign up and go!

#### Announcing our new courses for winter!

#### The Geology of the British Isles

This course continues for a further 7-weeks in the new year. If you would like to join us this is still possible - contact us NOW to find out how you can catch up over the Christmas break.

Course dates: Starts Monday January 13 for a further 7 weeks. Cost: Contact us for details

Zoom sessions on Mondays at 2.00 and 7.00 pm (you choose)

#### **Hot Rocks!**

In this 10-week course you'll learn all about igneous rocks and processes and how they link into plate tectonics. Igneous rocks define how our Earth works and have been around since the dawn of time.



Dykes and cone sheets at Kilchoan pier Ardnamurchan (Image: Chris Darmon)

This course will be pitched at both those who already have a body of knowledge as well as those just setting out upon their geological journey.

Course dates: Starts Thursday January 16 for 10-weeks. Cost: Ten hour-long Zoom sessions with electronic background papers £80.00 for one person or £100.00 for 2-people studying together. Printed background papers cost an additional £20.00. Zoom sessions on Thursdays at 2.00 and 7.00 pm (you choose)



Perryfield Quarry, Isle of Portland (Image: Wikipedia)

#### The Wednesday club...

We're building upon the success of our Autumn series of talks with a further offering of up to ten sessions this coming Winter. Join us for an hour on a Wednesday afternoon or in the evening - it's your choice!

As you'll see, we've got an eclectic mix of subjects for you to choose from. All are designed to educate and inform you in an informal and entertaining way.

December 11	The Ediacarans - the world's first fossils?
December 18	Gemstones of the British Isles

#### New talks for 2025

January 15	Lagerstatte - exceptional fossil sites in the UK
January 22	Gold rush! - gold mining in the UK
January 29	Bowen's reaction series for igneous rocks
February 5	Portland limestone - the Cenotaph rock
February 12	Roderick Murchison - pioneer geologist
February 26	Radiometric dating as applied to rocks
March 5	The Permian/Triassic extinction event
March 12	Millclose - a Derbyshire lead mine
March 19	Hard rock aggregates in the UK
March 26	UK marbles - the genuine and the look alike!

Cost: Individual talks £10.00 or £15.00 for 2 people. New talks for 2025: Take five sessions for £40.00 or all ten for £70.00 or £100 for 2 people.

Timings: Wednesdays at 2.00 or 7.00pm - your choice.

To register interest, email us at: downtoearth@geosupplies.co.uk or ring us on: 0114 245 5746

You can enrol via our online shop at: www.geosupplies.co.uk or ring us on: 0114 245 5746



## Featured books for December 2024

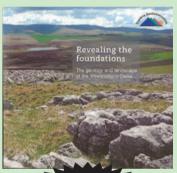
In each issue we are pleased to be able to introduce you to a range of featured books. Where they are being offered at reduced prices, these will be current to the end of December 2024 provided that stocks are available. Please note, all prices include UK postage.







Buy both of the above for £10.00





THE ISLAND OF VOLCANOES

New!





