



Down to Earth *extra*

Issue 75 March 2019

SPOTLIGHT

- Final vacancies on Spring residential field trips
- Chapeltown Day School March 9
- Lee Valley Day School March 13
- More information on 2020 residential field trips
- Vacancies on Summer School!

The splendid cliffs of the Devon Riviera Coast Geopark, near Dawlish. Showing an excellent section in the Exe Breccia, with sedimentary structures galore!
(Photo: Chris Darmon)

From the Editorial team...

We have just returned from a great week of field work on the Canary Island that most UK residents have never heard of - the island of El Hierro. It sits out in the Atlantic Ocean, more than 50 miles to the west of its much larger neighbour Tenerife. It's different from all the other Canary Islands in being largely unspoilt by the impacts of mass tourism.

El Hierro has no large hotels, loud bars or even, from what we could see, even a classical beach front. More than half of the island is under, what is called locally, close protection. Or put another way, most of it has been left in a natural state. On the island's website it states: "Life, in El Hierro, is different. It's special, it's unique. It's an island to enjoy with all five senses, to discover its landscapes and feel its peace. El Hierro is an island with soul."

Of course, we were there to study and enjoy the landscape and the geology. At a mere 1.12 Ma, it's the youngest of the Canary Islands from a volcanic perspective, though the last onshore eruption was in 1793. There was an offshore eruption in 2011/12. The geology is both protected and promoted as a UNESCO Geopark. Designated in 2015, the Geopark doesn't seem to enjoy some of the more lavish funding of some of its neighbours in mainland Europe.

What we saw and enjoyed was something much more akin to a British Geopark. There was clearly strong local community support and involvement. Around the island there was excellent information boards with English as one of the three languages used. There was an excellent, if somewhat small museum that was staffed by a very helpful lady who may well have been a volunteer. Yes, we felt at home in this kind of Geopark. Best of all, we were able to explore the island and take in the sites for ourselves in an unhindered and uncluttered way!

Chris Darmon & Colin Schofield

Take a look at our upcoming Day Trips and residential Field Trips!



news update

Now scientists discover that organisms were capable of movement at least 2.1 billion years ago...

An international group of scientists, including people from Cardiff University, have discovered a fossil in Gabon that they believe shows the earliest signs of movement in any organism. What is remarkable about the find is that it dates to 2.1 Ga.

According to the Cardiff University press release, the fossils suggest the existence of a cluster of single cells that came together to form a slug-like multicellular organism that moved through the mud in search of a more favourable environment. Significantly, the discovery pushes movement back more than 1.5 billion years from the previous 570 million years. At the same time it raises new questions regarding the history of life.



Signs of movement in an ancient organism.

In this new study, that was published in the *Proceedings of the National Academy of Sciences*, the team report finding trace fossils

representing movement of complex organisms that thrived 2.1 billion years ago in the Francevillan inland Sea.

A detailed 3D analysis using a non-destructive X-ray imaging technique, alongside geometrical and chemical dating, revealed that the new fossils belong to an organism that likely spent most of its time in oxygenated waters, and was therefore oxygen-dependent.

The fossils are preserved as tubular structures running through the rock in thin layers with a consistent diameter of a few millimetres. Located next to these tubular structures were fossilised microbial biofilms which, the researchers believe, acted as grazing grounds for the multicellular organisms.

Co-author of the study Dr Ernest Chi Fru, from Cardiff University's School of Earth and Ocean Sciences, said: "It is plausible that the organisms behind this phenomenon moved in search of nutrients and oxygen that were produced by bacteria mats on the seafloor-water interface.

"The results raise a number of fascinating questions about the history

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Easily recognisable as a movement trace in rocks of any age.

of life on Earth, and how and when organisms began to move. Was this a primitive biological innovation, a prelude to more perfected forms of locomotion seen around us today, or was this simply an experiment that was cut short?"

Thanks Auntie for some good geology...

Given the appalling lack of meaningful geological content in programmes such as *Coast*, it was great to see some 17 pages in the BBC *Countryfile* magazine devoted to geology. It came in the 'Great Days Out' section entitled "Lost Worlds".

It featured a diverse range of topics from locations scattered around the country, including: Mc Cullough's Tree on the Isle of Mull, Ammonite hunting at Charmouth, searching for Pingos in Norfolk, the tuning fork graptolites of Abereddy Bay, reefs and mammoths of the Manifold Valley in the Peak District and the bone caves of Inchnadamph. The feature ends with a section devoted to the UK's seven global geoparks.

Ironically, the features showed, through the use of excellent

photographs and lively text, just how engaging our rocks and landscape can be. It showed, far better than any words from people like me, just how engaging geology can be! So let's have more geology on programmes like *Countryfile* - please!

The mysterious mud that rose from the sea...

I love newspaper headlines, especially when the headline writer is able to encapsulate the story in the headline and get you to go on to and read the story! So when a *Down to Earth* reader passed me a story with the headline "Mysterious mud found on island that sprang from sea near Tonga", I just had to read on!

It turns out that NASA scientists have landed on one of the world's newest islands, and found that it was covered in a sticky mud! According to the newspaper report the NASA scientists were "desperate to visit the remote location, because scientists still have scant knowledge about how and why new islands form." Really, I thought we knew exactly how they form, isn't it all about submarine eruptions!

Moving on to the mud, the light coloured, sticky, clay-like mud continues to baffle them. According to NASA's Dr Dan Slayback: "I'm still a little baffled of where it is coming from. Because it's not ash."

Excuse me if, it's me being thick, but I would have thought that it's fairly obviously a deep sea siliceous ooze, probably akin to that produced by Radiolaria. Such material litters the deep ocean floor and could have been brought up by an eruption.

If you have any other ideas, we'd be pleased to hear from you. We may also pass them on to the NASA scientists!

Thank you Avalon U3A Group for encouraging us to advertise...

We always like to hear from you our readers and we were pleased to hear from Val Watson who runs the Avalon U3A group in North Somerset.



Show Dates

March 9 & 10
Exeter Racecourse, Devon

Rock, Gem 'n' Bead Show

March 16 & 17
Brighton Racecourse, East Sussex

Rock, Gem 'n' Bead Show

March 23 & 24
Cheltenham Racecourse, Glos.

Rock, Gem 'n' Bead Show

March 29 & 30
Bath Racecourse, Somerset

Rock, Gem 'n' Bead Show

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The advertisement that will go in the upcoming issue of 'Third Age Matters'.

In August of last year they ran a study day to the Jurassic Coast and managed to get a write up of it in the U3A's Sources magazine for February. Alongside the write up was a section on the Jurassic coast written by the U3A's national Geology advisers Ian and Ros Mercer.

All this should serve to encourage even more geology groups to form around the country under the banner of U3A. Sight of the article also encouraged us here at Down to Earth and we contacted the U3A about the possibility of running an advertisement for our field trips, day schools and even Down to Earth itself.

Whilst *Sources*, does not include advertising material, the U3A magazine *Third Age Matters* does. Accordingly we're taking a quarter page in the upcoming April issue and thought that you might like to see it. Whilst there are many U3A geology groups around the country who already know about us, there must also be places where no geology group currently exists. We want to hear from them in particular. Whilst we have our 'regulars', new people are both necessary and extremely welcome!

We've had fake news, now it's phony stones!

Isn't it good when so-called experts get caught out by a really good ruse? Archaeologists were apparently drawn to a newly discovered stone circle that was situated on farmland in rural Aberdeenshire. It was thought to be more than 4,000 years old.



The phony stone circle of Aberdeenshire, fooled many people. (Image: Courtesy of BBC)

Archaeologists from Historic Environment Scotland got involved, as did the local authority, Neil Ackerman of Aberdeenshire Council said: "This amazing new site adds to our knowledge of these unique monuments." Adding: "It is rare for these site to go unidentified for so long."

Now it turns out that despite the lichens growing on the stones, this 'stone circle' was in fact built by a former owner of the land about 20 years ago. Aberdeenshire Council has now stopped research on the site and Mr Ackerman is reported as saying: "It's disappointing to learn of this development, but it's still a fantastic location.

Unfortunately, the report, which appeared in *The Daily Mail* and other newspapers, was not dated April 1st!



Manaslu Trek and Tour, Nepal with Geology Focus Led by Dr Danny Clark-Lowes 19 October to 03 November 2019

Making a circuit around the world's eighth highest peak this trek, north-west of Kathmandu and taking us close to the Tibetan border, passes through fantastic mountain scenery and hidden Himalayan valleys, well away from the jeep tracks that are spoiling other trekking routes. The teahouses we will stay at have all been restored following earthquake damage in 2015. The tour, led by geologist Dr Danny Clark-Lowes, will give you a chance to see the spectacular Manaslu granite as well as a range of tectonic structures and high grade metamorphic facies. Come along and get an understanding of how these mountains were formed!
Dr Danny Clark-Lowes is a geologist, educated at Cambridge and London universities, and a mountaineer who has climbed in the Swiss Alps and in the Himalaya.



**Cost for tour is £2,200
excluding flights to and
from Kathmandu**

Contact:
Dr. Daniel D. Clark-Lowes FGS
HimalayanGeoTours
Oak Court, Silver Street,
Wiveliscombe, Somerset,
TA4 2PA U.K.

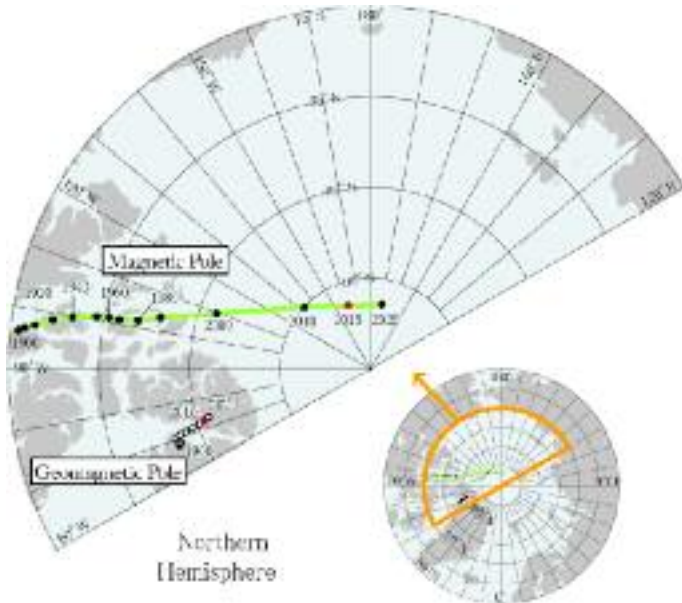
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The magnetic North Pole is heading for Siberia - fast!

No, this isn't another piece of fake news, the magnetic North Pole really is on the move! After several centuries when it drifted somewhat aimlessly around northern Canada, it now seems to be heading towards Siberia.

It is now moving at a rate that's some ten times what it was 50 years ago, about 50 km a year. So fast has the movement been that it has forced the early release of new navigation charts.



*The shifting North Magnetic Pole.
(Image: ZME Science)*

The cause remains something of a mystery, but is thought to be due to a narrow stream somewhat like a jet stream that tracks back to the Earth's liquid outer core. This is not affecting the South Pole anywhere near as much.

Meantime, the Earth's magnetic field continues to weaken, causing some to suggest that we may be heading towards a magnetic reversal event. Such reversals occur periodically and some say that we are overdue such an event.

One newspaper article even carried the news that there's a part of the South Atlantic that has already reversed. That was news to me!

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Fracking: scientists call for a review of seismic limits...

Quadrilla, operators of Britain's only operational fracking site at Preston New Road, near, Blackpool have welcomed a review of the seismic limit that is currently applied to their activities. Under current regulations, they are obliged to stop drilling for a period of 18 hours, every time they induce an earthquake above 0.5 magnitude.

Now researchers from BGS say that these 'traffic light' regulations should be reviewed. In particular, they suggest that raising the lower limit to 1.5 magnitude would pose little or no risk to property.

The current lower limit of 0.5 is leading to fairly regular stoppages for the energy firm Quadrilla. Local people meanwhile, have not reported any seismic events, nor has there been any damage to property in the immediate area. Additional traffic seems to be, along with noise, seem to be the main local concerns.

Antarctic meteorite hunt brings in 36 space rocks...

For the first time, there's been a British-led expedition to gather meteorites in the Antarctic. Manchester University's Dr Katherine Joy together with British Antarctic Survey guide Julie Baum spent four weeks in the field and recovered 36 samples of space rocks. They were working close to the Shackleton Mountains and spent their time running across the ice in skidoos.

The meteorites ranged from tiny flecks to some that were as big as a melon. The Antarctic sees the biggest concentration of meteorite fragments on the face of the Earth.

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Winter Day Schools

A reminder of our programme of Winter Day Schools. There are just a few dates remaining for this year.

These courses normally run from 11.00 to 4.00 and always involve lots of hands on practical work. They are suitable for people with a range of geological knowledge, including beginners. A discount of £5.00 per person is available for holders of Club Class and groups of 6 or more people.

Saturday, March 9

The Commercial, Chapeltown, Sheffield

“Every picture tells a geological story 2” - a repeat of our popular day school, using 30 brand new images, accompanied by some super specimens. This is always good fun as you seek to match up the specimens to the images. Some are easy but others will stretch you! £35.00 including a ‘Commie’ buffet lunch.

Wednesday, March 13

Lea Valley YHA, Cheshunt, Hertfordshire

“All the time in the world” - takes a long look at geological time and how we divide it up, through the medium of selected geological locations, specimens and maps. We’ll also learn about some of the pioneers of our subject. £35.00 including lunch.

Saturday, March 23

The Bridges Centre, Monmouth

“Every picture tells a geological story” - our popular hands on session with geological pictures and specimens. They all tell a story and the fun is interpreting them and matching the specimens and pictures. Suitable for all. £35.00 including lunch.

To book for any Day School go to: www.geosupplies.co.uk or ring us on: 0114 245 5746

Day Schools take a break now until the Autumn of 2019. We’ll be revealing our programme of day trips for the intervening period in our March issue of Down to Earth extra.

We hope to see you on one of our events soon!

“Steps towards the rock face” our course for beginners is always available...

For those of you looking for a beginners’ course in geology, we’re delighted to be able to inform you that our popular ‘Steps towards the rock face’ course is now available ‘on demand’, at any time of the year. The course provides a basic grounding in many aspects of geology, from rocks to fossils, minerals to how the earth works. Each of the 10 units covers a different aspect of geology in a lively and easy to understand way. You are then pointed towards areas for self study that will add further to your knowledge.

It allows you to access the materials at any time for a period of 6 months on our Moodle site, or to receive them in printed form. With a basic price of £75.00 you cannot miss out!

*For further information or to enrol, go to: www.geosupplies.co.uk
Or for more information email: downtoearth@geosupplies.co.uk*

Spring Day Trips are coming...

Our Spring programme of day trips will commence in late March. For 2019 we are continuing the two price levels we introduced in 2018, in an attempt to make more trips viable, whilst at the same time seeking to offer good value for money. Day trips are suitable for all levels of knowledge, unless shown otherwise.

The standard price will be £15.00 per person, with some trips at the lower rate of £10.00 per person. All trips offer a £3.00 discount for holders of Club Class, students under 19 and groups of 5 or more people booked together.

Saturday, March 16

Rocks & Landscapes of Penistone Hill, Haworth, W. Yorkshire

This is a well laid out geological trail of some 4 km taking in public paths and tracks around the hilly ground to the west of Haworth village. Along the trail you’ll encounter several former building stone quarries in the sandstones of the Upper Carboniferous. The same rocks have provided brick clays and even a little coal. There are stunning landscape views and excellent sedimentary structures.

Meeting: Haworth Church on Main Street, at 10.30, standard prices



Rocks on Penistone Hill, Haworth

Wednesday, March 27

Rocks, landscapes and mines of the Porter Valley, Sheffield

The Porter Valley is one of Sheffield’s ‘green fingers’ - a delightful walk along one of the city’s smaller rivers. From the earliest times of human habitation the River Porter has been harnessed to power water mills for a host of different purposes. Perhaps the most famous were some of the earliest iron forges. Along the way you’ll be able to see a collection of natural and man made rock exposures. You’ll also learn to read the landscape for faults and changes in rock types. Finally there are the remains of several mines and quarries.

Meeting: Forge Dam cafe at 10.30, standard prices

Wednesday, April 17

Geology & building stones walk around Old Kenilworth, Warwickshire

Some areas of our country abound with excellent building stones with freestone blocks and roofing material. Yet in other areas builders struggled to find anything with which to build using local materials. That’s where bricks and tiles came into their own. But, as you will see, people were very inventive and others had the money to bring in exotic materials from far away. Join as we stroll through Old Kenilworth looking at the buildings and determining the geology beneath our feet.

Meeting: Kenilworth Castle car park at 12.00, lower rate prices

Saturday, May 4

Geology & landscape around St Davids

This is an opportunity to examine Ordovician sediments and igneous rocks in a fabulous coastal setting close to the tiny city of St. Davids. There are numerous headlands and bays along this stretch of the coastal footpath. We go as far as St Davids Head where we can examine quartz gabbros. A real treat is in store!

Meeting: Whitesands Bay car park, West of St Davids at 11.00, standard prices

Wednesday, May 22

Rocks & landscapes of Boston Spa, Yorkshire

We rarely offer trips that cover itineraries in the Permian rocks, so this is something a little different. The walk is alongside the River Wharfe and there are numerous river cliffs to be seen. You'll find evidence that this was a major route for meltwaters at the close of the last glaciation.

Meeting: Millennium Gardens car park, Boston Spa at 11.00, standard prices



Permian limestones beside the River Wharfe at Boston Spa

More trips will be listed in the April and May issues, including some in the South of England - we promise! We are always open to your suggestions for field trips and visits, contact us at: downtoearth@geosupplies.co.uk

We've still got some great locations available for 2019 field trips...

Spend Easter in Jersey, Channel Isles April 20-27

Come and spend Easter with us on the fabulous Island of Jersey! Come and enjoy a bit of French geology! There's a basement of igneous and metamorphic rocks that date back 2 billion years, along with some more recent sedimentary formations. The scenery, along with the beaches make for an excellent backdrop to our studies. Add in a good quality, family run hotel, and the hoped for warm weather that is so characteristic of the Channel Isles and we are set for a great week! If you want to join us - make that booking without delay!

There's a single or double available due to a late cancellation.

Eastern Lakes and Howgill Fells, June 11-16

The title of this trips says it all - you are sandwiched between the Lake District in the west and the Yorkshire Dales in the East and right there in the middle lies our base at Shap Wells and the nearby Howgill Fells. The Shap Wells Hotel has been welcoming geologists for more than a

hundred years, including some of the people who mapped the area. It provides us with the perfect base from which to explore the local area.

We can still take an additional 2-4 people on this trip.

Summer School, Derbyshire Peak District, July 20-27

For our third annual Summer School we're heading for Britain's first National Peak in the beautiful Peak District of Derbyshire. Our base, in the village of Calver, is Cliff College where we will be well looked after in en suite single (and a few twin) rooms. During a packed week we'll be taking in a superb limestone cavern in Buxton, an ancient copper mine in the Manifold Valley and a world heritage bone cave in Nottinghamshire - just to name a few! We'll also have a programme of indoor talks and activities for the evenings, as well as a choice of field excursions on several days. Now all we need is for YOU to make a booking!



Mam Tor in the heart of the Peak District National Park.

Southeast Cornwall, September 7-14

This is the perfect place to spend an early Autumn week! Remarkably, this is our first visit to what is an almost forgotten part of the beautiful county of Cornwall. The week is based in the Premier Inn in the town of Liskeard which can be easily reached by train from many parts of the country. We'll be visiting places like Polperro and Polruan, granites and china clay around St Austell, minerals around Callington and even going underground at Morewellham Quay.

Take a look at the brochure online or send for a copy NOW!

Take a look at the rest of the Autumn programme...

The Northumberland Coast, September 22-27

The Llyn Peninsula, North Wales, October 11-16

The Hastings Area, October 22-27

Brochures for all these trips can now be viewed on our website: www.geosupplies.co.uk

To obtain a booking form for any of the above trips, please contact us by email: downtoearth@geosupplies.co.uk or telephone us on 0114 2455746

What is happening in 2020?

We are looking at running 12 or 13 residential field trips in 2020, including our first ever trip to mainland Portugal in March. There will also be a repeat trip to Norway in April, along with trips to Raasay and Skye, Eigg and Rum, Shetland, Pembrokeshire, Arran, the Dingle Peninsula of Ireland, the Lake District, the Forest of Dean and the Yorkshire Dales.

Watch out in the April DtoE extra for the 'great reveal'!



Down to Earth

'Earth science learning for all'

The learning zone

Come and join our third Summer School...

**Peak District Summer School
July 20-27 2019**

Reef limestone at the National Stone Centre
Inset - The rural setting of Cliff College



The Peak District - geology and landscape at its best!

It was surely no accident that the Peak District was designated as our first National Park more than 50 years ago. Within the counties of Derbyshire, Staffordshire, Cheshire and South Yorkshire lie some of our finest rocks and scenery. So we are delighted to have secured accommodation at Cliff College, Calver, Derbyshire for our Third Summer School.

From our base at Calver which is on a regular bus route from the nearest railhead at Chesterfield, we expect to visit a wide range of geosites including: The National Stone Centre, Creswell Crags, Nottinghamshire (a World heritage site for Quaternary bones), The National Coal Mining Museum, Poole's Cavern and Ecton Copper Mine - to name just a few! Within a radius of 50 miles we can see a wide range of igneous and sedimentary rocks as well as collect minerals and fossils. There really is something for just about everyone!

We will be accommodated in single en-suite student bedrooms (there are a few double and twins available) and all our catering needs will be met in the College. We will also provide evening activities and a limited daytime indoor programme. Whilst there is no alcohol allowed on College premises, there's an excellent real-ale pub at the bottom of the drive!

Chris Darmon, Colin Schofield & Eileen Fraser
Your Summer School team

View brochure at: www.geosupplies.co.uk
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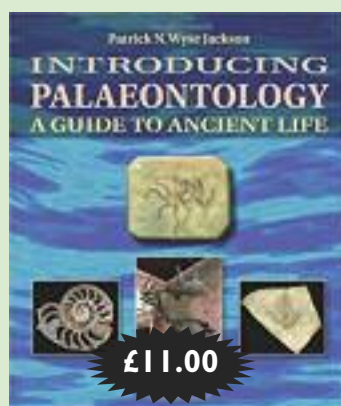
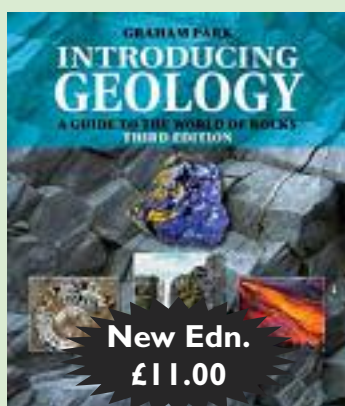
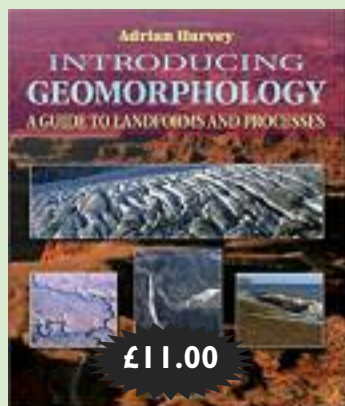


Featured books February - April

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 April 2019, provided that stocks are available. Please note, all prices include UK postage.

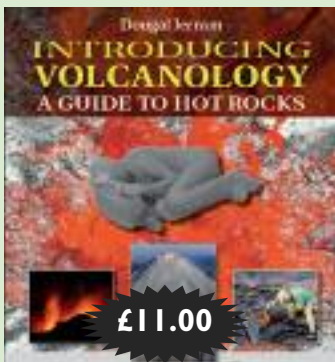
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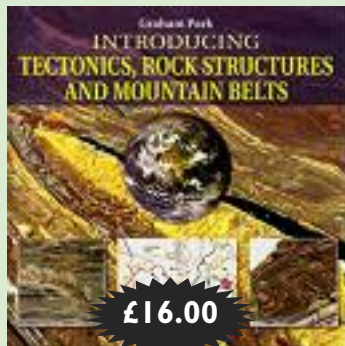
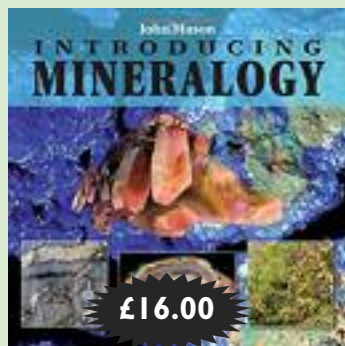
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