



# Down to Earth *extra*

Issue 76 April 2019

## SPOTLIGHT

- 2020 Residential Field Trips available to book!
- Still places on 2019 trips - bag a bargain!
- Join us on a day trip
- Vacancies on Summer School!

*This is what the Canary Isles look like when there's no development. The north coast of El Hierro beneath the El Golfo landslide with Quaternary basalts in the foreground.*  
(Photo: Chris Darmon)

## From the Editorial team...

They say that you're never too old to learn and we've been finding that out for ourselves during the past few weeks as we have been teaching 'World Geological Adventures' both face-to-face to adult learners and online! We've had some amazing adventures to places as far afield as China, the Canadian Rockies, the Himalayas, Cyprus, the Grand Canyon and for the last Unit, Montserrat.

As well as learning new things ourselves, we've also found all sorts of common patterns in rocks across the world. Events such as ice house world, the dawn of the Cambrian and the Cretaceous-Tertiary mass extinction stand out as truly global. We've also been struck by the sheer number of orogenies, some of which occur at times totally different to ours, yet all are testament to a tectonically active Earth. Most of our adventures have taken place at the margins of major continental shields or fragments of them. But one, the Grand Canyon stands out as an area where there has been only relatively minor tectonic uplift for more than 500 million years.

No wonder then that the Grand Canyon, this mile deep cleft in the Earth's surface is such an amazing monument to geological processes over an enormous span of time. Within its rocks we can clearly demonstrate all the principles of stratigraphy, and do so with our own eyes. There's the law of superposition, ordinal horizontality, lateral extension, strata identified by fossils, included fragments and cross cutting relationships. There are also plenty of gaps in recorded time, laid out for us with numerous unconformities and nonconformities. This is an outdoor classroom without equal. It's such a pity then that 6-day creationists chose to use this very place to rubbish everything that science has studied for more than 150 years.

As for us, we're happy to use our time to learn more about our amazing Earth, its rocks and its processes! We hope that you are too.

*Chris Darmon & Colin Schofield*

## All aboard for a 2020 residential field trips - all the details are here!



## news update

### Recent Chinese discovery helps us to tell a new supercontinent story...

Stories about new vertebrate discoveries seem to come thick and fast these days and especially when they come out of China. It seems that last year we missed telling you about one such discovery, that of *Lingwulong shenqi*. Now, *Down to Earth* reader Chris Rogers, has brought it to our attention.



*Lingwulong shenqi* is a neosauropod with a tale to tell us about the break-up of Pangaea. (Image: Zhang Zongda)

The latest discovery *Lingwulong shenqi* is of a long-necked neosauropod diplodocoid that lived in North China in the middle Jurassic, some 174 million years ago. In this case it's not just the dinosaur that of really special interest, but the insight that it gives us into the break-up of the supercontinent Pangaea. This is the first discovery of a diplodocoid in East Asia and it challenges our conventional thinking.

Lead researcher Professor Xv Xing, said: "The new discovery challenges conventional biogeographical ideas, and suggests that dispersal into East Asia occurred much earlier than expected. Moreover, the age of this new taxon indicates that many advanced sauropod lineages originated at least 15 million years earlier than previously realised, achieving a global distribution while Pangaea was still a coherent landmass."

Until now, the oldest neosauropod, dated at around 160 million years and they were confined to North America, Europe and eastern Africa. It's rare that a palaeontological find has such an impact on the wider science, but this one certainly has.

Another member of the research team Phil Mannion of London's

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Imperial College said: "Not only is it the oldest member [of this group], but it's the first ever from Asia. For a long time it was thought that neosauropods didn't get into Asia during the Jurassic."



**Bones of the neosauropod, as they were found in northern China.**  
(Image: Xu Xing)

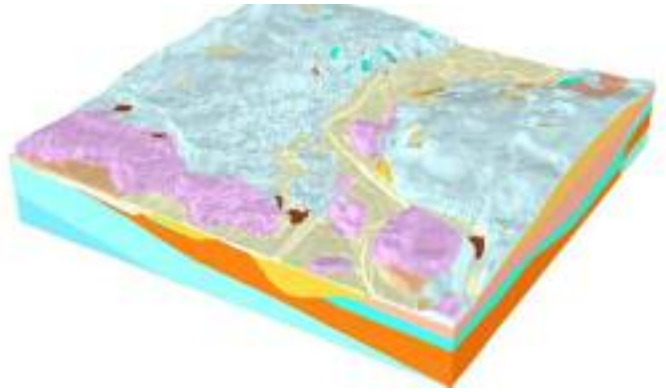
Other scientists, including Dr Cecilia Apaldetti of the National University of San Juan in Argentina, have cited the discovery of yet more evidence for adaptability of dinosaurs. She said: "This new sauropod *Lingwulong* and the recent *Ingentia* - related to the origin of Sauropoda - reveal that dinosaurs had an unusual ability to innovate anatomically from the beginning of their evolution. This allowed them to dominate and prevail in almost any terrestrial ecosystem for millions of years. This 'anatomical versatility' was probably one of the evolutionary keys that led them to be one of the most successful vertebrates in the history of life on earth."

*The research was published in the Journal Nature Communications.*

### BGS models Ripon's sink holes in 3-D...

The small North Yorkshire city of Ripon sits on top a bed of gypsum, a mineral that is moderately soluble in water, especially over a long

period of time. As such it's probably the most prone to a phenomena that is an engineer's and planner's dread - sinkholes.



**The BGS 3-D map that will help us to manage Ripon's sinkholes.**  
(Image: BGS)

In an attempt to help the city's planners, British Geological Survey has developed a 3-D model. The model, which will be available to the public, potential developers and planners, will help better manage the issues associated with gypsum dissolution and sinkhole propagation in Ripon.

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## Show Dates

March 29 & 30      Rock, Gem 'n' Bead Show  
**Bath Racecourse, Somerset**

April 13 & 14      Rock, Gem 'n' Bead Show  
**Chelmsford City Racecourse, Essex**

**All shows are indoors with refreshments & ample free parking**

**All shows are open:      10am - 5pm Saturday  
    10am - 4pm Sunday**

**Admission (one entrance fee covers the whole weekend):**

**Kempton Park: adults £5.50, seniors £3.00**

**All other shows: adults £4.50, seniors £2.00**

**All shows: children 8-16 £1.00, under 8's free**

**Rock and Gem Ltd., 27 Common Hill, Steeple Ashton,  
 BA14 6EE Tel: 01380 871835 • <http://www.rockngem.co.uk>**

April 27 & 28      Rock, Gem 'n' Bead Show  
**Newark Showground, Nottinghamshire**

May 18 & 19      Rock, Gem 'n' Bead Show  
**Nantwich Civic Hall, Cheshire**



A typical sinkhole; this one appeared in nearby Sutton Howgrave. (Image: BGS)

The BGS hope it will help both geologists and non-geologists understand the distribution of soluble rocks in the sub-surface, as the model will show the distribution of boreholes and can be used to target the areas of greatest geological uncertainty.

British Geological Survey Vanessa Banks said: "It will be available for specifying the depth and types of ground investigation that might be required. The model will also be used to host ongoing research with respect to non-intrusive geophysical techniques to profile the sub-surface, modelling the hydrogeology of the subsurface, and

classifying the ground in terms of its geotechnical properties."

The project started in 2017 using Natural Environment Research Council Urgency Grant funding after a sinkhole opened up in the city and has been extended using funding from the BGS's Shallow Geohazards and Risk project/ Engineering Geology and Infrastructure programme.

Research has been undertaken collaboratively with Harrogate Borough Council, who last month said they might need to source its own liability insurance for sinkholes for a new swimming pool. Work is currently ongoing to finalise the tool and it should be ready for release next year.

### Now ICL tells the world that polyhalite is good for the planet...

Over a period of several years - it seems like a decade - we've been keeping you informed about the work going on beneath North Yorkshire to establish a new multi-million pound polyhalite mine. But we have also been mindful that there's an existing mine, at Boulby near Staithes.

Most recently we told you that Israeli Chemicals Ltd (ICL) would be stopping the mining of potash and would instead be mining polyhalite as it sought to market this new fertilizer around the world.

*Down to Earth* reader Mavis Gill, sent us in a newspaper story about a new study that reveals that polyhalite is far more environmentally friendly than other fertilizers. Now isn't that a surprise!

### GEOLOGY - ISLE OF ARRAN UNDERSTANDING THE EARTH



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### 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

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## Spring Day Trips are here...

*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.*

**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*



*Kenilworth Castle*

**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 Wetherby, Yorkshire**

In a change of venue (we were going to Boston Spa and then were informed that the permissive river path had closed) we have moved instead to Wetherby, where we can also study Permian strata. Ironically, the picture we used last time (and this) is of the Cadeby Formation at Wetherby! Sorry for the change, but we are sure that you will understand - thanks to Alison Tynon for letting us know.

*Meeting: Wilderness car park, Wetherby (GR: SE 404480) at 11.00, standard prices*



*Permian limestones beside the River Wharfe at Wetherby*

**Wednesday, May 29**

### **Rocks & landscapes of Lud's Church, Staffordshire**

No this isn't a church, it's a landscape feature and it's a place that we haven't been to for years. Come and see some fine Carboniferous grit stone rocks and scenery and an amazing landslip.

*Meeting: Gradbach Youth Hostel, (GR: SJ 996661) at 11.00 standard prices*

## **We've still got some vacancies for 2019...**

*From time to time we get late cancellations and we always like to fill the places, because we can then refund most of the money they've paid. At the same time, you get a tidy saving on the brochure price.*

### **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 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. *There's a single and also a double/twin available on this trip.*

### **The Far North of Scotland, May 31-June 8**

If you've never been to John 'O Groats, now's your chance! Amazing rocks and superb cliffs with a great variety of different sites.

*We have a double room vacancy on this trip.*

*Ask us about our Autumn trips or go to the website:*

*[www.geosupplies.co.uk](http://www.geosupplies.co.uk)*

## **You can book for 2020 - NOW!**

*Over the next four pages are details of all our trips for 2020. Brochures will be appearing soon on our website, but you can book NOW!*

*We sent this out a few days ago to just a few people and we already have nearly 20 bookings, so we advise you to act as soon as possible especially if you are looking for a single room. Read on and see what we have in store...*



## Our Residential Field Trip Programme for 2020



The majestic Black Cullins of the Isle of Skye  
(Photo: Chris Darmon)

We're so excited by our 2020 Residential Field Trip Programme that we've decided to release details of all the trips at the same time. This will allow you to plan your year, well in advance. We look forward to seeing you somewhere in 2020!

We've got a mix of new and old locations with, what we hope, is something for everyone. We have our first visit to a fabulous geopark in Portugal, along with a repeat of our 2019 sell-out Norwegian trip. We've a long awaited Shetland Isles trip, as well as our first ever trips to the Yorkshire Dales and the Forest of Dean.

At this stage, some trips are awaiting final details, but all can be booked - see further information under individual trip headings in this brochure.

For further details, visit the website or  
Tel: 0114 2455746  
Email: [downtoearth@geosupplies.co.uk](mailto:downtoearth@geosupplies.co.uk)

### The complete 2020 field trip programme...

- Terras de Cavaleiros, Portugal - March 13-20\*
- Norway revisited - March 27 - April 5\*
- Raasay & Skye - April 25 - May 2\*
- Eigg & Rum - May 3-12\*
- Dingle Peninsula - May 31 - June 7\*
- Shetland Isles - June 20-27\*
- Western Lake District - July 4-11\*
- Summer School - July 25 - August 1
- Pembrokeshire - September 1-8\*
- Isle of Arran - September 14-21\*
- Forest of Dean - September 27 - October 1
- The Yorkshire Dales - October 6-11
- The Malvern Hills - October 23-28\*

Trips marked \* have brochures that can be viewed on our website: [www.geosupplies.co.uk](http://www.geosupplies.co.uk)  
We look forward to hearing from you!



# Residential field trips 2020

**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 mainly comprise 15-20 people. Overseas trips are usually larger.*
- *We usually use 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.*
- *Most residential trips should have the use of either a small coach or minibus.*
- *Dates shown in this brochure are the start and finish dates. If you still have any questions or queries, don't hesitate to email us at: [downtoearth@geosupplies.co.uk](mailto:downtoearth@geosupplies.co.uk) or tel: 0114 245 5746*

## Important Booking Information

*We hope that after reading through this brochure you'll want to make a booking, or two! For most trips, you can view a more comprehensive brochure on our website: [www.geosupplies.co.uk](http://www.geosupplies.co.uk)*

*To make a booking you'll need to get hold of a booking form and pay the required deposit. Email: [downtoearth@geosupplies.co.uk](mailto:downtoearth@geosupplies.co.uk) In case of difficulty with email, you can also ring us on 0114 245 5746 and we can mail out printed documents to you. Where brochures aren't currently available, you can make a provisional booking with a £100 per person per trip, fully refundable payment. This can be converted to a firm booking once the trip is confirmed.*

## The complete 2020 field trip programme...

### March 13-20 (7-nights)

#### Terras de Cavaleiros Geopark, Portugal

For many years, we've been spending a week on one of the Canary Isles, or Madeira, but we fancied a change and thought that you would like a visit to one of the Iberian mainland Geoparks.



*Algar Waterfall in the Terras de Cavaleiros Geopark*

The Terras de Cavaleiros Geopark is situated in Northern Portugal, about 100 miles from Porto airport. There are Friday flights from several UK airports to and from Porto. The Geopark staff are looking

forward to showing us their geological treasures and will be guiding us around. It promises to be a great trip!

In the 700 sq km of the Geopark are rocks that span the last 500 million years. Some 42 geosites have been identified that cover a wide range of different rock types from both continental and oceanic crust. The area contains some excellent thrusts, granites and metamorphic basement that's had a complex structural history. There's also a cover of much younger sedimentary rocks.

**Price: £1195.00 per person based on a twin/double room or £1395.00 per person for a single room.**

**Brochure available - BOOK NOW!**

### March 27 - April 5 (9-nights)

#### Norway: land of fjords, rocks & landscapes

Our first trip to Norway in April of this year was so popular that we had to turn people away! Accordingly we are returning again with a very similar programme.

During this 9-night trip, you'll fly into Bergen where you'll see something of this exciting city and its fine setting before travelling to Flam by train and then two nights in a real fjord with a cruise. We then travel via the amazing Flam railway and the scenic Bergen-Oslo line to Skien where we'll spend four field days in the Gea Norvegica Geopark, being guided by geologists from the geopark.



*Siljan, one of the gems of the geopark*

The geopark contains a wide range of rocks that span more than a billion years. There's a metamorphic basement, a Lower Palaeozoic sequence that includes fossiliferous limestones, a fine sequence of igneous rocks including the famous larvikite and even Carboniferous red sandstones. Add in fabulous glacial scenery for a complete Norwegian experience! All this and some great hotels that offer traditional, Norwegian hospitality and good food! Once again, we expect this trip to be popular and book up fast.

**Price: £1650.00 per person based on a twin/double room or £1950.00 per person for a single room.**

**Brochure available - BOOK NOW!**

### April 25 - May 2 (7-nights)

#### The Scottish Isles of Raasay & Skye

Raasay lies just off the much larger island of Skye. It has been described as a geologist's paradise! At just 11 miles from north to south and a maximum of 4 miles east to west, it's small enough to explore in some detail. Within this area lie rocks as diverse as the



Lewisian Gneiss, the Torridonian Sandstone and an amazing sequence of fossiliferous sediments. Add in a fair sprinkling of Tertiary igneous rocks, with more on Skye and we've got the makings of a great week!

We'll be based on Raasay, staying all week in Raasay House where we'll enjoy comfortable rooms and good food. Two days will be spent exploring the geology of northern and southern Skye.

**Price: From £1195.00 per person based on a twin/double room or £1395.00 per person for a single room.**

**Brochure available - BOOK NOW!**

## May 3-12 (9-nights)

### The Scottish Isles of Eigg & Rum

These two islands are situated in the Inner Hebrides and are just a short ferry journey from Mallaig or Arisaig. Geologically, the islands are surprisingly different. Eigg has a sequence of Jurassic sediments with occasional dykes and the most impressive Sgurr. This is a Tertiary lava flow which forms a prominent feature. Rum, on the other hand, is home to Britain's finest ultrabasic Tertiary rocks, along with a basement that includes Torridonian and Devonian sediments, along with Jurassic rocks. The Rum Cullin is almost 3000 feet high and is most impressive.

Accommodation on Eigg is in one of two serviced guest houses. On Rum, there's only very limited serviced accommodation, but there's an excellent modern, well equipped self catering bunk house.

**Price: £1395.00 per person based on a twin/double room with serviced accommodation on Rum and Eigg, £1195.00 if self catering on Rum. Ask about single accommodation possibilities.**

**Brochure available - BOOK NOW!**

## May 30 - June 7 (7-nights)

### The Dingle Peninsula of County Kerry, Ireland

The west of Ireland is a very special part of the country and whilst there's the fabulously beautiful Ring of Kerry, there's also the less well known Dingle Peninsula just to the north. Geologically, Dingle has so much to offer, but until now there was no excursion guide to the area to help visitors to uncover its many secret delights.



*Slea Head, Dingle*

This trip is a celebration of the publication of a modern geological map and an excursion guide and we hope to be shown around by

Brian Williams, one of the joint authors. Staying in Dingle Town we'll be exploring as many parts of the peninsula as time allows. Take in fabulous Slea Head, the harbour at Dunquin and the Great Blasket Isles. This is Palaeozoic rocks and Quaternary glacial landscapes at their very best.

**Price: £1195.00 per person based on a twin/double room or £1395.00 per person for a single room.**

**Brochure available - BOOK NOW!**

## June 20-27 (7-nights)

### The Shetland Isles revisited

Over a period of more than 30 years Chris has visited Shetland on numerous occasions. But there's one island, Papa Stour, that we've never visited with a *Down to Earth* group. That's because it's off the coast of the Walls Peninsula and only has a limited ferry service.



*Papa Stour's fabulous coastline of basalts and rhyolites.*

Now, with the completion of renovation works at the St Magnus Bay hotel in Hillswick, we can do a Shetland visit that includes this fabulous island with its European Heritage Coastline. We'll also be taking in the beautiful northern tip of mainland around Fetherland and also have a day on the island of Unst.

Join us on this mid-summer's week as we celebrate the best that Shetland has to offer! We are confident that this trip will fill up fast.

**Price: £1395.00 per person based on a twin/double room or £1595.00 per person for a single room.**

**Brochure available - BOOK NOW!**

## July 4-11 (7-nights)

### Western Lake District

These days, the central parts of the Lake District are something of a honeypot when it comes to tourism. It can cost more than ten pounds a day just to park your car and footpaths seem like motorways at times. However there are parts of the National Park that are less busy and where there's still some great geology.

For this week we are returning to Summergrove Halls on the edge of Whitehaven from where we can access places like St Bees Head, Eskdale, Keswick, the Skiddaw Granite, Threlkeld and Honister. In



fact we can bring you some of the very best that the Lake District has to offer and it's amongst our cheapest trips of 2020.

**Price: £925.00 per person based on double room or £995.00 per person for a single room. Unlimited single rooms available!**  
**Brochure available - BOOK NOW!**

### **August 1 (7-nights) Summer School in the Cotswolds**

Every year we run a very special week that we call our Summer School and this year we've chosen the Royal Agricultural University in Cirencester in the Cotswolds as our base.

As well as our usual field trips, we also offer a programme that includes indoor elements, such as evening talks and practical classes. There's excellent geology within easy reach of our base that will allow us to visit some superb Jurassic localities as well as a little further away, the Malvern Hills, May Hill and the geo-village of Martley.

**Price: £975.00 per person based on double room or £1050.00 per person for a single room. Unlimited single rooms available!**  
**Brochure not yet available - PROVISIONALLY BOOK NOW!**

### **September 1-8 (7-nights) Pembrokeshire, South Wales**

It's more than 5 years since we last visited Pembrokeshire so there should be many of you out there who have yet to join us in this great part of Wales. With rocks ranging in age from the Precambrian to the Carboniferous and with amazing structures stretching for miles along the coast, this is a must!



*Admiring the rocks of the Pembrokeshire coast.  
(Photo: Doreen von Seenus)*

From our base near Haverfordwest, we'll be able to take in many of the classic localities of Pembrokeshire including Abereiddy Bay with its superb graptolites, Saundersfoot and Marloes Bay. All this and some breathtaking coastal scenery.

**Price: £1095.00 per person based on double room or £1195.00 per person for a single room.**  
**Brochure available - BOOK NOW!**

### **September 14-21 (7-nights) The Scottish Isle of Arran**

There was a time when almost every UK geology undergraduate had to visit Arran on a field trip. Sadly, it doesn't have the draw that it used to, but the geology is still excellent. We'll be taking in the best of what the island has to offer from our comfortable base at the Kinloch Hotel at Blackwaterfoot on the west coast.

Whilst Arran is best known perhaps for its fine granite hills, there are

also rocks from a wide range of ages beginning with the metamorphics of the Dalradian and then going on to sediments from the Lower Palaeozoic, Devonian, Carboniferous and Permo-Trias. In short there's something for everybody on this island of contrasts.

**Price: £995.00 per person based on double room or £1050.00 per person for a single room.**  
**Brochure available - BOOK NOW!**

### **September 27 - October 1 (5-nights) The Forest of Dean & Wye Valley**

This is an area that we haven't previously visited for a residential field trip, though we have done several day trips to the area. Now over this extended period we can explore so much more of this fascinating area.

The Forest of Dean is perhaps best known for its tiny coal mines still operated by the local 'free miners'. We hope to visit one of these collieries. There are excellent Devonian and Carboniferous rocks across the area with amazing scenery. We'll also take in the Jurassic and Triassic rocks of Aust Cliff and the Carboniferous limestone scenery of the magnificent Wye Valley.

**Guide price: £795.00 per person based on double room or £895.00 per person for a single room.**  
**Brochure not yet available - PROVISIONALLY BOOK NOW!**

### **October 6-11 (5-nights) The Yorkshire Dales**

This is another first for us in 2020 as we've never stayed in the Yorkshire Dales. From our bases at Gargrave, near Skipton, we'll be able to take in Malham Cove, the Waterfall Walk at Ingleton, the ancient rocks of Horton-in-Ribblesdale as well as the minerals of Grassington Moor. We'll even cross over into Lancashire to enjoy the limestones of Clitheroe.

**Guide price: £695.00 per person based on double room or £850.00 per person for a single room.**  
**Brochure not yet available - PROVISIONALLY BOOK NOW!**

### **October 23-28 (5-nights) The Malvern Hills**

We end our year of residential field trips with a return visit to the Malvern Hills which sit on the Worcestershire-Herefordshire border and which form the heart of the Abberley and Malvern Hills Geopark. They offer a wide range of rock types mainly late Precambrian in age with altered intrusive rocks, volcanics and metamorphics. Nearby are sediments from the Cambrian, Ordovician and Silurian, some of which are fossiliferous. A little further away are younger rocks that range in age from the Devonian to the Jurassic.

There really is something for everyone on this trip. It's a great place to go if you haven't done much field geology before. That said, even the most seasoned field geologist would get lots out of this trip!

**Price: £750.00 per person based on double room or £850.00 per person for a single room.**  
**Brochure available - BOOK NOW!**

**If, after reading this you feel inspired to come and join us, act now...**

*Where brochures are shown as available, these can be viewed on our website: [www.geosupplies.co.uk](http://www.geosupplies.co.uk) shortly, or they can be sent by email. To obtain a booking form for any of these trips, please contact us by email: [downtoearth@geosupplies.co.uk](mailto:downtoearth@geosupplies.co.uk) or telephone us on: 0114 245 5746.*

*Remember that you can make a provisional booking for any of the other trips pending confirmation of the details.*



**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](http://www.geosupplies.co.uk)**  
**Get a booking form: [downtoearth@geosupplies.co.uk](mailto:downtoearth@geosupplies.co.uk)**

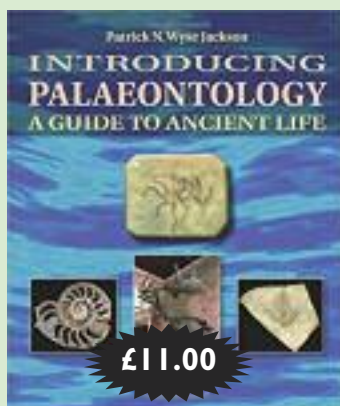
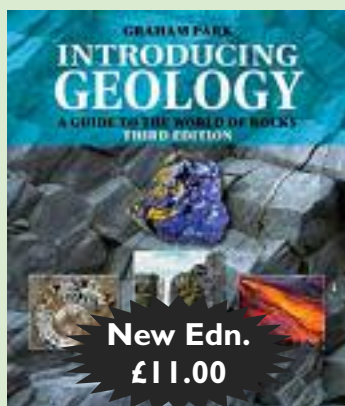
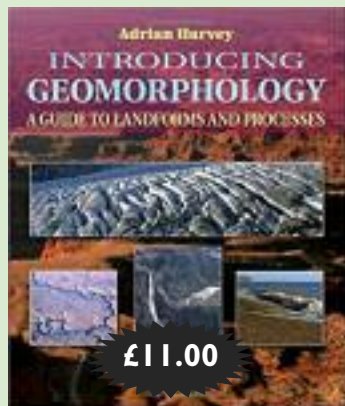


# Featured books February - April

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.

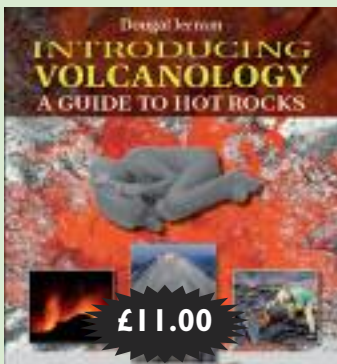
**We're focussing exclusively on the excellent Earth Science books published by Dunedin. Enjoy these special prices for a limited period of time!**

## The foundations...



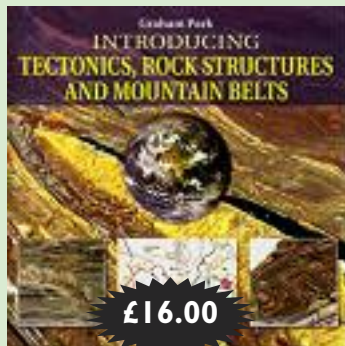
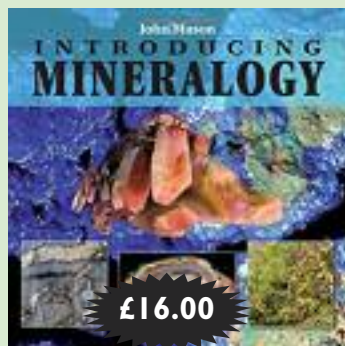
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## Introducing rocks...



**Buy all 3 titles for £38.00**

## Not forgetting...



**Buy all 3 titles for £42.00**

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