Down to Earth extra

Issue 109 January 2022

NEWS FLASH...

- **Book a place on a Residential Field Trip in 2022!**
- **Three Winter Zoom courses to choose from!**
- **Eight new Virtual Day Schools to book!**

This can surely represent only one natural phenomenon - a landslide. A block this size must have fallen and as it did so it rotated. It's surrounded by other fallen blocks at all kinds of crazy angles.

The material is the Permian Oddicombe Breccia. This was deposited very rapidly on the edge of a basin probably in an alluvial fan. The location is Torquay's Oddicombe Beach.

(Image: Chris Darmon)

From the Editorial team...

As these words are being penned in the run up to Christmas, it's becoming increasingly clear that we are not going to end 2021 or begin 2022 in a good place. We are facing the reality that no amount of lockdown or draconian restrictions can actually halt the spread of the Omicron variant of Covid.

No sooner had the secretaries of geological societies completed their winter programmes when they are once again faced with the prospect of speakers having to make their appearance, not in person, but on Zoom or Teams. These platforms have been either a dream or a nightmare, dependent upon your perspective. Love them or hate them, they have allowed us to carry on learning and seeing our friends and colleagues.

Colin and Chris are still enjoying Zooming with our many learners and, thanks to Colin, we are now eyeing up the prospect of shooting and editing our own video clips for upcoming courses. The boom in online learning, is fuelling new products that are making technology easier and less expensive all the time.

Looking to the horizon and the end of the Winter period we still hope for the opportunity to once again step out into the field in the UK and in Ireland. Despite the bad news right now, we aren't in the same place as we were a year ago. The vast majority of older people are triple vaccinated and have the best possible protection against Omicron and any future new variant.

Here's to 2022, may it be a happy, peaceful and above all healthy one, for you all!

Chris Darmon & Colin Schofield
The Down to Earth editorial team

See pages 7-11 for the full spectrum of our 'real' and virtual events!

news update

Has the Cumbre Vieja volcano on La Palma stopped erupting, or is it taking a Christmas holiday?

After months of intensive activity there are signs that in the middle of December the eruption site at Cumbre Vieja on La Palma may be quiet. Is this just a pause or does it mark the end of the current round of activity?

This comes from VolcanoDiscovery.com:

"No new activity has been reported at the eruption site since it ceased on December 14th. Chances increase that the eruption is over, although this is far from certain. The calm allowed scientists to actually approach the crater to take gas measurements and film the craters from close up.

Whether the eruption has ended or not will depend on whether magma still stored in the reservoir beneath the surface is able to ascend or not, which in turn is likely depending on two main factors.

First, whether the shallow reservoir is being re-supplied by magma from the deeper source, which should become visible with the occurrence of deeper earthquakes - lately, these have been mostly absent, suggesting that supply from the deep source has ended.

Second, the ascent of magma from the shallow reservoir is driven by gasses dissolved in the magma and forming bubbles to increase volume and pressure and eventually make the magma rise to erupt as lava.

If, and this is maybe a likely scenario, most of the gasses have already left the system or if the remaining gasses can separate efficiently from

This is what scientists found when they got up close to the eruption site on December 15th. (Image: Involcano/Twitter)

the liquid (magma), and rise and de-gas at the vents and through the surface, the magma will slowly start cooling down and eventually crystallize over a very long period of time.

It is also very much possible that the current pause of the eruption leads to a blockage of the upper conduits, which disables the degassing process and generates conditions that could lead to sudden explosions and allowing probably smaller batches of remaining

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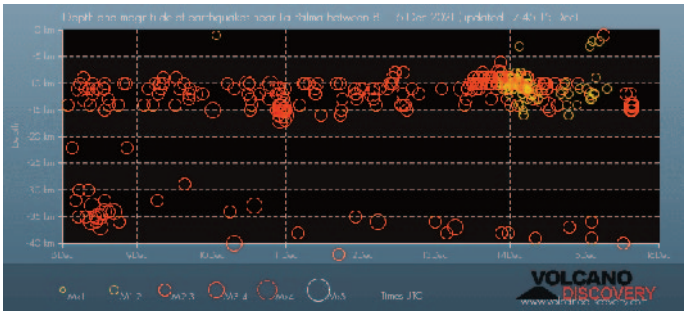


Depth vs time of quakes under La Palma
(Image: Volcano Discovery)

All was pretty quiet at the eruption site on December 15th.
(Image: Canarian TV live Webcam)

magma to erupt in short phases of re-activation.

Nobody knows for now - the situation remains volatile and care should be taken to make any predictions of whether activity will resume or not."

Another large cliff fall on the North Norfolk Coast...

We're getting used to seeing sections of the North Norfolk coastline succumb to coastal erosion, and nothing, it seems, is putting a stop to it. Remember, that much of a coast is composed of very soft Quaternary sediments, some of which was pushed up against the earlier coastline during the Devensian.

The scene in early December at Mundesley on the North Norfolk Coast. (Image: North Norfolk News)

The latest cliff failure occurred at Mundesley and is being blamed on \excessive groundwater'. After periods of little or no rainfall, the soft sediments dry out and then, if there is a short period of heavy rainfall, there is, in effect, an overfillings of any cracks and voids and collapse follows.

Even a casual observation of the available shots of the affected coastline, reveal a number of properties very close to the cliff edge. No wonder the occupants and others living nearby are extremely worried. Given that much of the coast is only protected by groins and some limited stretches of rock armour, this can only continue apace.

As is often the case, the immediate cause of the collapse comes not from the sea, but from behind in the cliffs themselves. Any measures to combat this, must therefore focus on improving the drainage within the cliff itself. It's like the celebrated cliff fall in Scarborough that caused the collapse of the Holbeck Hall Hotel in 1997.

That case became the subject of a long legal battle between the Hotel's owners and Scarborough Borough Council. In the end the Council won, on the basis that "the Council was not liable for the causes of the slip because it was not reasonably foreseeable."

It will be interesting to see whether any of the people affected by the recent cliff fall at Mundesley are compensated by insurers.

We know exactly when the dinosaurs went extinct...

We know that the dinosaurs (and most of the rest of the world's flora and fauna) became extinct some 66 million years ago, thanks to an

asteroid or similar body that impacted on the Yucatan Peninsula of Mexico. But now a new piece of research can give us far greater precision as to when precisely it happened.

A groundbreaking study led by researchers at Florida Atlantic University and an international team of scientists conclusively confirms the time of year of the catastrophic Chicxulub asteroid, responsible for the extinction of dinosaurs and 75 percent of life on Earth 66 million years ago. Springtime, the season of new beginnings, ended the 165-million-year reign of dinosaurs and changed the course of evolution on Earth.

Robert DePalma (left) and Anton Oleinik, Ph.D. at the site in North Dakota. (Image: Floria Atlantic University)

Results of the study, published in the journal ***Scientific Reports***, greatly enhances the ability to trace the first stages of damage to life on Earth. FAU's Robert DePalma, senior author and an adjunct professor in the Department of Geosciences, Charles E. Schmidt College of Science, and a doctoral student at the University of Manchester; and Anton Oleinik, Ph.D., second author and an associate professor, FAU's Department of Geosciences, contribute to a major scientific advancement in the ability to understand the massive impact that brought an end to the dinosaurs. The new evidence comes from a site in North Dakota.

"This unique site in North Dakota had yielded a wealth of new and exciting information. Field data collected at the site, after hard work that went into analysing it, provided us with new incredibly detailed insight of not only what happened at the Cretaceous-Palaeogene boundary, but also exactly when it happened," said Oleinik. "It is nothing short of amazing how multiple lines of independent evidence suggested so clearly what time of the year it was 66 million years ago when the asteroid hit the planet. One of the great things about science is that it allows us to look at seemingly well-known facts and events at different angles and with different precision, therefore advancing our knowledge and understanding of the natural world. It also proves that geology and paleontology is still a science of discovery, even in the 21st Century.

Much loved and highly respected - Dr Paul Olver dies...

Over the years, I've met many, many people in the geological work, but few came close to matching Paul Olver in terms of his knowledge, intellect and sheer humanity. In recent years, even when he was really ill he kept on working on various projects almost to the last.

Anyone who had been on a feld trip with Paul, has memories that will last them a lifetime. His sheer capacity for work couldn't be matched by people even half his age. Everything he got involved with became a passion for him. He will be missed, not just across the Midlands where he did a lot of his work, but throughout the country.

Paul came from a world where University academics shared their knowledge and enthusiasm for geology with the public at large, through Adult Education classes with organisations like the Workers Education Association (WEA). Paul would roll up his sleeves and carry his boxes of specimens to church halls around the country.

Paul was never somebody to blow his own trumpet, but this, from Paul's Linked In entry, says a lot:

"After completing my doctorate in geological science at Birmingham

This is the Paul Olver that many people will remember from his latter years. He aways had an open casual approach and a smile!

University, I joined Surrey County Council's adult education service as a tutor/organiser. During my 25 years service, l was eventually appointed as Deputy Principal at Waverley (S.W.Surrey) and then Principal at Mid-Surrey. I have taught in adult education for the whole of my teaching career specialising in ACCESS courses and joint work with sixth-form colleges and with universities.

From 1999 – 2006, I worked for Herefordshire Council as their Lifelong Learning Development Officer and co-ordinated a successful Grundtvig intergenerational learning project called TEDDY BEAR. This led me into work with the Federation of Stadium Communities and co-ordination of their Grundtvig LEGENDS project (2009 – 2011) which focussed on sport, health and well being as its main theme for intergenerational work.

I currently also work as a part-time tutor for the WEA in the West Midlands delivering a wide variety of courses and one-day workshops in both geology and astronomy. I am an experienced geology field trip leader in both the UK and Europe. Recent excursions for the Geologists' Association have been to the Italian Volcanoes and an introduction to the Geology of France.

I am a trustee for the Herefordshire & Worcestershire Earth Heritage Trust where I specialise in developing European environmental projects. I am also currently a member of the Council of the Geologists' Association and lead their Membership Team."

Paul, you will be greatly missed!

Chris Darmon, Editor

Ichthyosaur vertebrae are found on Kettleness beach...

For at least 200 years, collectors have been recovering the remains of marine reptiles from the Lower Jurassic strata of the coast around Whitby. In the frenzy of such finds they are often referred to as 'dinosaurs' by journalists, especially in the local press and online.

The latest Discovery has been made by 26-year old local man, Liam Langley on the beach at Kettleness to the west of Whitby. The large nodule contain nine vertebrae, which were still articulated.

Liam, who has been using time off between stints of working from home to collect fossils, said: "This month I found a large rock on the beach with the remains of a 180 million-year-old sea creature called an ichthyosaur that was swimming in the seas at the same time as dinosaurs were on land. It contains nine articulated backbones from the extinct sea creature. I dragged the large rock back from the rope access beach at Kettleness all the way to Runswick Bay. "

Liam Langley with his precious nodule, close to where he found it (Image: Forgotten Fossils)

He added: "I didn't initially split the rock open. It was a large block stuck in the sand at Kettleness and the ichthyosaur bones were protruding out of the very top. I had it professionally prepared by Mark Hawkes at Stone Treasures who cut the block down to size with a polished finish.

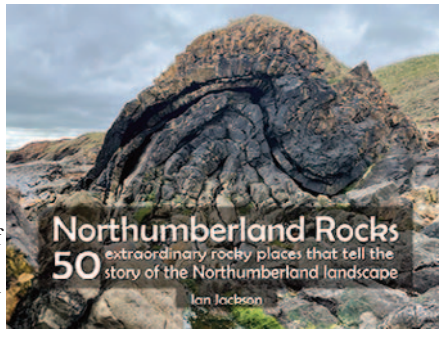
Liam shared his find on his TikTok account and other online platforms.

You can follow him online at www.tiktok.com/@forgottenfossils, www.youtube.com/forgottenfossils or www.instagram.com/forgottenfossils

And finally, a new book on Northumberland...

Over the past couple of years we've been blessed by a great book on Northumberland, courtesy of Alnwick U3A. Now the Northumberland Wildlife Trust is celebrating it's 50th Anniversary with a brand new book.

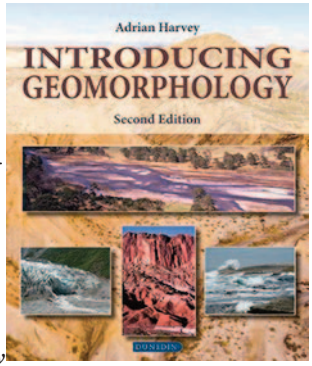
Entitled ***"Northumberland Rocks"*** it covers 50 extraordinary rocky places that tell the story of the Northumberland landscape. Written by local geologist Ian Jackson, it's 114 pages of excellent photographs and text that tell the story of this great area.



Available from Geo Supplies Ltd, "Northumberland Rocks" is priced at £11.00 including postage. www.geosupplies.co.uk or ring us on: 0114 2455746

in-house

If Geomorphology is a closed book to you, why not open this one?



During manty of our recent Zoom sessions, Colin Schofield has been opening the eyes of our learners to some of really interesting things that can be drawn from a reading of the landscape. This is over and above what can be learned from reading the rocks .

There are very few books about the sicnence of Geomorphology, but a new edition of Adrian Harvey's "Introducing Gemoorphology" is now available. Amazingl,y this Dunedin totle is still just £11.00 including postage wthin the UK.

Still available - Bag an Estwing geological hammer bargain this New Year...

Thanks to the cancellation of an export order, we've got some excess stocks of the popular Estwing E322P Geological pick that we want to clear at a new low price! These USA made rock picks are the 'Rolls Royce' of geological hammers that feature a comfortable vinyl grip and one-piece steel shaft.

One can be yours for just £48.95 including carriage within the UK.

Alternatively you can pick one up from our shop and save a further £2.00!

Once they're gone, they're gone!

Magnetic Rocks jigsaw, is the new kid on the jigsaw block!

We got our first copy, thanks to a mistake by a packer at BGS! It wasn't a William Smith or a UK Bedrock jigsaw, it was the brand new, just released, magnetic rocks!

Yes, you can now spend hours and hours puzzling over this amazing and colourful map that will drive you mad!

It costs just £24.95 for the 1000-piece puzzle.

Prices include postage in the UK - go to our website:
www.geosupplies.co.uk
Or ring us on 0114 245 5746

get Down to Earth regularly...

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.

You can subscribe now for the remainder of 2021 and 2022 for just £16.00 for printed copies or £10.00 for it as pdf files, direct to your email. To subscribe, go to: www.geosupplies.co.uk or ring us on 0114 245 5746.

Down to Earth is published quarterly. Take out an e-subscription now for 2022 for just £10.00 anywhere in the world, or £16.00 for printed copies in the UK. We'll send you the next 4 printed issues, to the end of 2022 and 4 back issues. Additionally, all subscribers will get DtoE extra FREE each month. If you'd like back issues of printed copies, you can get a parcel of these for just £25.00 extra.

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Down to Earth

'Earth science learning for all'

Book now for our 2022 programme of residential trips

This is the Triassic Hopeman Sandstone near Lossiemouth on the coast of Moray and Nairn. It's just one of many memorable sites that we will visit in July 2022. (Image: Chris Darmon)

We have worked hard to ensure that, as far as we can see, the advertised programme for 2022 will run as planned.

With air schedules slowly returning to something like pre-pandemic levels, we think that the Dingle trip will also be fine, with people flying to Cork airport.

We have had to pay particular attention to pricing for 2022 as several trips that we previously advertised for 2020/1 are still to run. Price rises have become inevitable given pressures in the sector. We have kept these increases to the absolute minimum.

Several trips are approaching being full at this time, so act now to secure your place.
To view a brochure, go to our to website at: www.geosupplies.co.uk or Tel: 0114 245 5746
Booking forms are only available direct from us.
Email: downtoearth@geosupplies.co.uk

The 2022 programme - the full list

- North Cornwall - April 2-9
- Raasay & Skye - April 21-28
- Northwest Highlands - April 29-May 6
- Dingle Peninsula - May 18-25
- Mull & Ardnamurchan - June 4-11
- Pembrokeshire - June 25-July 2
- Northeast Scotland - July 20-27
- Worcester Summer School - August 13-20
- Berwick & the Borders - September 1-8
- Minehead, Somerset - September 14-21
- Malvern Hills - September 28-October 2
- Yorkshire Coast - October 10-15

Full refund, if we, or you, have to cancel due to Covid-19. Everyone booking will be required to have completed a Covid-19 vaccination programme in good time and to be 'fit to travel'.

Brouse online at www.geosupplies.co.uk or ring us on 0114 245 5746
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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.***
- ***During the current period, even if we have a minibus you will be able to use your own car if you wish.***
- ***Dates shown in this listing 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 or tel: 0114 245 5746

P***articipants on the South Devon trip at Start Point in October 2021. Colin Schofield is the one wearing the sun glasses and the hat.***

The 2022 Residential Trip programme...

Since June 2021 we've been running our residential field trips largely as before, but at the same time taking every precaution to prevent the spread of Coronavirus. We continue to insist that everyone who joins us must have undertaken a programme of at least two vaccinations unless they are medically exempt. In addition, we recommend the wearing of masks in confined spaces and in accordance with the rules of the various UK nations.

For 2022 we are hoping to return to making use of a hired minibus driven by our own Colin Schofield. However, if you wish to use your own car you are welcome to do so. For the time being, we are keeping things simple and, aside from a trip to Ireland, will not be running any overseas trips. These will hopefully resume in 2023.

Please remember that some of these trips have been advertised previously and are therefore already nearly full. If you are looking for a single room, these will be in short supply on most trips. The message is to book early to avoid disappointment!

NEW! North Cornwall, April 2-9
This trip, which is based at the Cliff Hotel in Bude, takes in the varied geology and fabulous scenery of North Cornwall. Rocks of Devonian and Carboniferous age have been superbly folded and faulted in the Variscan Orogeny. We'll be taking in places such as the Delabole Slate Quarry, Tintagel and the amazing cliffs of Hartland Quay. Add in some of the granite around the north of Dartmoor and we have a great trip in store for you.

Raasay & Skye April 21-28
The island of Raasay is situated just off Skye and is a geologists' paradise with rocks ranging from the Lewisian to the Tertiary with Torridonian, and fossiliferous Triassic and Jurassic rocks in between. All this on an island that's 4 miles across and 11 miles long. We also spend two full days on Skye in what will be a truly memorable trip. *(Very few remaining places available.)*

Northwest Highlands of Scotland April 29-May 6
Based at the famous Inchnadamph Hotel in Assynt, this trip takes in some of the UK's finest geological sites in the Moine Thrust and other classic places. We journey to the 'multi-coloured rock stop', Smoo Cave and beautiful Achmelvich on the coast. See our oldest rocks and get to grips with the processes that were in place nearly 3 billion years ago. *(Few places remaining on this trip.)*

Dingle Peninsula, Ireland May 18-25
The west coast of Ireland is amongst the most beautiful in the whole of the British Isles and we want to share it with you! See amazing folds in the rocks of the Lower Palaeozoic and also a great variety of different rocks, minerals and fossils. For this trip, flights to and from Cork are recommended. *(Very few places remaining.)*

In your face geology at Mingary Pier, Ardnamurchan

NEW! Mull & Ardnamurchan June 4-11
This trip is based in the beautiful Mull village of Tobermory. We will spend much of the week studying the rocks of Mull, including taking in a trip to the island of Staffa (weather permitting). We'll also spend two full days on the Ardnamurchan Peninsula where we will be able to see Jurassic sediments with fossils, along with excellent igneous rocks from the Tertiary. Back on Mull we'll also take in the rocks of Iona and places like Calgary and Dervaig. This promises to be a great trip, full of varied geology and scenery. All this and a comfortable, modern hotel, who could ask for more!

Pembrokeshire June 25-July2
We've been trying to return to this, one of our favourite areas, for two years! This trip is based at the Premier Inn in Haverfordwest enabling us to travel to all the best sites in Pembrokeshire, and allowing you to travel by train to the field area. We'll be taking geological sites at Marloes, St Davids, Broadhaven and Saundersfoot, to name but a few. This is Palaeozoic geology at its best, all folded and faulted in the Variscan Orogeny. *(Few places remaining on this trip.)*

NEW! Northeast Scotland July 20-27
This trip examines the coastline of Moray and Nairn, along with some of the inland outcrops. It's known to geologists as the 'kingdom of Dalradia' because its dominated by the metamorphic rocks of the Dalradian formation. That said, we'll also see sediments from the Old and New Red Sandstones and even a little Jurassic. Come and explore an area of Scotland that lies between Inverness and Peterhead, we promise that you will not be disappointed!

University of Worcester Summer School August 13-20
Our annual summer school is beginning to feel a bit like the Tokyo Olympics! We first tried to run it in 2020 and then the University could not accommodate us this year, so we've gone for 2022! We are sure that it will have been worth the wait as we bring you a varied programme of field visits across the Midlands and Welsh Borders, from our bases in Worcester. Accommodation at the University is mainly in en-suite single rooms. *(We have a number of bookings already in place, but can accommodate more.)*

NEW! Berwick & the Borders September 1-8
This trip includes a visit to the 'holy grail of geological time' at Siccar Point and lots of other amazing places. From our base at the comfortable Castle Hotel, we'll be taking in both coastal and inland locations from Northumberland and Berwickshire. Marvel at folded Carboniferous sediments at Scremerston, the granite scenery of Cheviot and volcanics at St Abbs. In short, there's something for everyone on this week..

Lundy Island, home to the eponymous Tertiary granite

NEW! Minehead, Somerset September 14-21
The coast of North Somerset is the 'other' Jurassic Coast with similar geology to that of Dorset, but without the crowds! We'll be taking in the Devonian rocks of Lynmouth and the landscape of the Exmoor National Park. Weather permitting, we'll also take a day trip to the fabulous Island of Lundy in the Bristol Channel where you can examine a Tertiary granite.

NEW! Malvern Hills September 28-October 2
Great Malvern is world famous for its spring water that flows from fissures in the Precambrian rock of the hills made famous by Elgar. Aside from these ancient igneous rocks there are also nearby exposures of Lower Palaeozoic limestones along with sediments from the Carboniferous and Permo-Trias. We'll also be including a trip along the Severn Valley railway to view Coal Measures and dunes.

Chalk cliffs and raised beach caves at Flamborough Head

NEW! The Yorkshire Coast October 10-15
This trip is based at the small North Yorkshire village of Hunmanby, just to the south of Filey. From our comfortable guest house base, we'll get to see Jurassic and Cretaceous rocks from Scarborough down to Flamborough. We'll also take in the fine Quaternary cliffs of Holderness and the unique inland scenery that is the Yorkshire Wolds. A great way to round off the 2022 field season!

You can view brochures for all of our trips at our website: www.geosupplies.co.uk

Booking forms are only available from us at: downtoearth@geosupplies.co.uk. or ring us on 0114 245 5746

Don't worry, we don't bite!

All our educational classes and courses are friendly, informal and open to all.

Come and join us!
If you have any questions - please ask us.

Come & join us on a Zoom Virtual Day School or Course this Winter...

With Winter now upon us, we're once again holding Zoom sessions on a regular basis. Starting in January, we're offering three live Zoom courses and eight 'Virtual Day Schools'. We're all still learning and having fun together in the new virtual world!

The Geology of the British Isles in 13 hours!

Yes, 13 weekly Zoom sessions cover the geological history of our country from start to finish. Monday afternoons or evenings - your choice.

How the Earth Works - from the Earth to plate tectonics

This amazing story is told in 11 weekly Zoom sessions, held on Thursday afternoons or evenings - your choice.

Rocks from the pressure cooker - Metamorphic rocks & processes

This 10-week course has fortnightly Zoom tutorials on Wednesday.

Winter Virtual Day Schools on the following Wednesdays

- Extinction! The big 5 of the fossil record (January 5)
- The North Atlantic Igneous Province (January 19)
- Limestones of the UK (February 2)
- Silicate minerals make rocks (February 9)
- Metamorphism & metamorphic rocks (February 16)
- Black Diamonds - the coalfields of the UK (March 2)
- The geology & landscape of Yorkshire (March 16)
- Torridonian, Old Red & New Red - the continental sandstones of the UK (March 30)

Virtual Day Schools are offered at the bargain price of £20.00 each or £25.00 if you would like printed papers.

Everyone is welcome on a Down to Earth learning experience!

Enrol online at www.geosupplies.co.uk or ring us on 0114 245 5746
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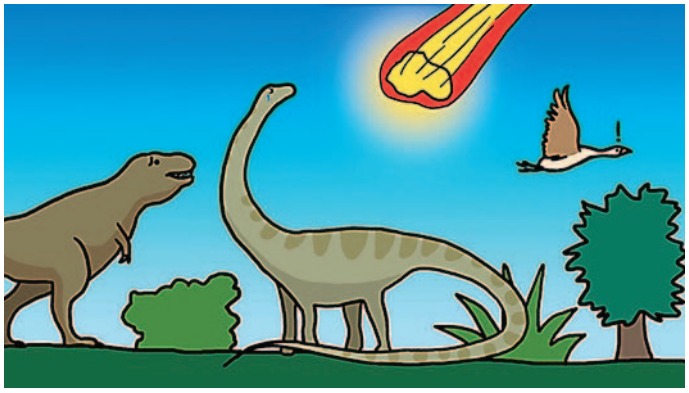
Welcome to our virtual world!
Virtual Day Schools

Our popular Day School format, transcribed into a virtual format, with some lively topics for you to enjoy! Individual day schools cost £20.00 each. Printed background papers cost an additional £5.00 per day school. Day schools begin at 10.30 and involve three Zoom sessions of about 45 minutes each with time for you to carry out your own guided study in between.

You can book online at: www.geosupplies.co.uk

January 5 Extinction! The big 5 of the fossil record
The fossil record is littered with extinctions, but there have been five major such events in the Phanerozoic. During this action packed day we'll be examining these events and learning about the many and varied reasons for them. Some are understood much better than others. Expect our friends the dinosaurs to put in an appearance!



January 19 The North Atlantic Igneous Province
It began about 63 million years ago with a supervolcano on the Isle of Skye and gave us volcanoes and igneous intrusions as far south as Lundy in the Bristol Channel. One dyke that originated on Mull got as far as the North Yorkshire Moors! We examine this amazing volcanic episode, one of the largest in the Phanerozoic, its causes and the legacy it has left us.

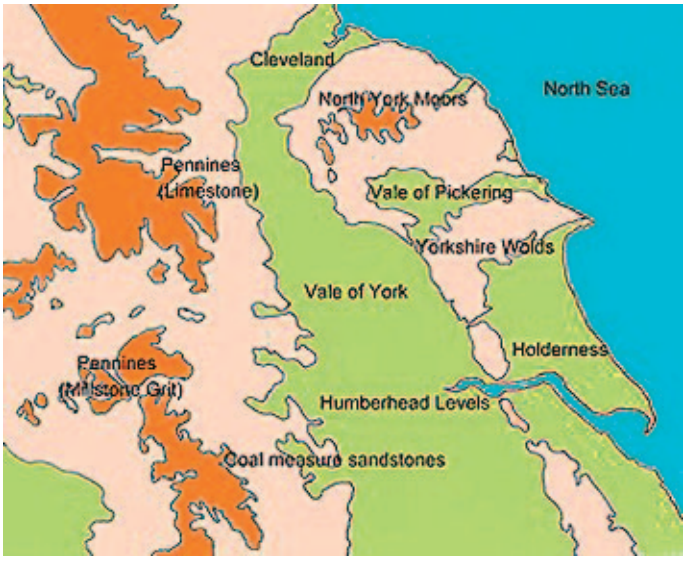
February 2 Limestones of the UK
They are amongst our most treasured assets. Limestones have been used in so many ways for hundreds of years, and they occur across the length and breadth of our country from the Northwest Highlands of Scotland to the South Down of Sussex and to Torquay. They range in age from the Cambrian to the Tertiary, yet all rae the products of mainly shallow tropical seas. In this day we'll learn more about what limestones are and how they form, and what they tell us about our geological journey through time.

February 9 Silicate minerals make rocks
Next to Carbon, Silicon is able to make the most chemical compounds, so it's no coincidence that Silicon forms the basis of most rock forming minerals and also artificial intelligence. This day will take the lid off silicates and explore how they define not only igneous rocks, but also metamorphics and sedimentary types. Don't let a bit of basic chemistry frighten you!

February 16 Metamorphism & metamorphic rocks
Of the three classes of rocks, metamorphics are the least understood. In this day school we'll debunk these rocks and show how to understand and appreciate them. By the end of the day we hope that you not only know more about them, but also that metamorphic rocks will be your favourites!

March 2 Black Diamonds the coalfields of the UK
During the nineteenth and the first half of the twentieth centuries, the UK was one of the world's largest producers of coal. We exported it around the globe from numerous places around our coastline. In this day we'll be exploring how that coal formed, and where and how it was mined. Today we view coal as an evil substance that has been a major contributor to global warming, but back in the day it was seen as a saviour to industrial prosperity.

March 16 The geology & landscape of Yorkshire
Yorkshire is a large county with a geology that stretches back to the Silurian and along the way includes rocks from the Carboniferous, Permian, Triassic, Jurassic, Cretaceous, Tertiary and Quaternary. Come with us on this rich and varied journey through the geology of 'God's own county'!



March 30 Torridonian, Old Red & New Red - the continental sandstones of the UK
Through the long geological history of the UK, there have only ever been three really important and thick continental sandstones, the Torridonian, the Old Red Sandstone of the Devonian and the New Red Sandstone of the Permian and Triassic. In this unusual day school we'll take a look at each of these formations. We'll examine their shared characteristics and the environments in which they formed.

Our Virtual Day Schools cost £20.00 each or £25.00 if you want the background materials in printed form. Alternatively, you can book all eight day schools for £140.00.

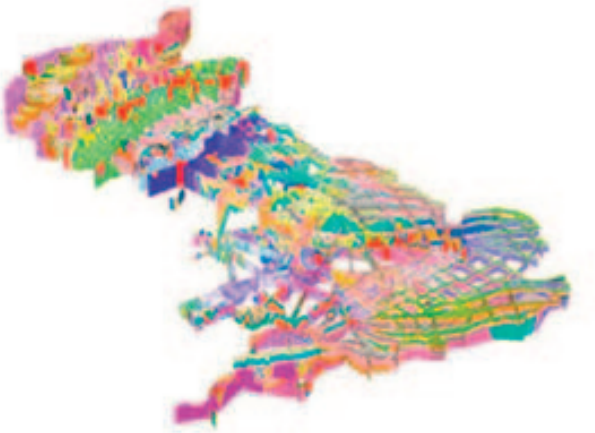
Winter Zoom Courses

We've got some exciting plans Winter as we begin a new season of Zoom sessions. Remember that you can join us in our weekly Zoom sessions at the alloted times, or you can choose to have printed background papers and access the audio at a time to suit yourself. Expect our usual informal approach and style that welcomes each and every one of you!

You are invited to enrol on these courses NOW! They commence in the week beginning January 17th (or 10th in the case of British Isles).

To enrol onto the course, or to find out more, go to our website, and enter the online shop: www.geosupplies.co.uk or ring us on 0114 245 5746

If you have any questions email: downtoearth@geosupplies.co.uk



Computer simulation of the geology of the British Isles (Image: BGS)

The Geology of the British Isles in 13-hours!
(13-weeks) ***Starts January 10***

One of the first distance learning courses that we did was *The Geology of the British Isles*. Many people have embarked on this journey since then, but now, for the first time, we're bringing it to you live!

Chris is looking forward to sharing the British Isles' journey through time in 13 hour long Zoom sessions. Each session will be brought alive through the use of YouTube videos and photographs, augmented by Chris's stories and Colins material on Moodle. We want this to be the best course ever, aided and abetted by your own participation.

Cost: *Thirteen hour-long Zoom sessions with electronic background papers £60.00 for one person or £85.00 for 2-people studying together. Printed background papers cost an additional £25.00. Zoom sessions on Mondays at 2.00 and 7.00 pm (you choose)*

How the Earth works - from flat Earth to plate tectonics!
(11-weeks) ***Starts January 12***

To understand the planet on which we all live, we really need to understand the processes that operate upon it. Put simply, it can be thought of as a machine and as such it has a means of working! Over 10-weeks we'll unpack our planet and show you how, over the years, we have come to understand much about those complex processes. It culminated with what many call a revolution - plate tectonics. You'll meet some amazing scientists along the way and sometimes take a step backwards before a new discovery takes us forward again.

Cost: *Eleven hour-long Zoom sessions with electronic background papers £50.00 for one person or £70.00 for 2-people studying together. Printed background papers cost an additional £20.00. Zoom sessions are on Thursdays at 2.00pm or 7.00 pm (it's your choice).*

Metamorphic rocks in the field showing obvious banding (Image: www.reference.com)

Metamorphic Rocks - rocks from the pressure cooker
(10-weeks) ***Starts January 13***

This course has previously been offered as a basic distance learning course only. Now we are able to bring it to you with fortnightly Zoom tutorial sessions. The course is arranged in a way that covers all the basic elements of metamorphic rocks. It takes you through how metamorphic rocks form, the textures the rocks exhibit and the minerals that make them up. You'll learn about contact, regional and dynamic metamorphism and how we classify these enigmatic rocks.

Cost: *Five hour-long Zoom sessions with electronic course units and tasks £40.00 for one person or £60.00 for 2-people studying together. Printed background papers cost an additional £20.00. Zoom sessions on alternate Wednesdays at 7 pm*

Steps towards the rock face - the complete course for beginners
(11-weeks) ***Starts at a date to suit you***

More than 150 people have taken part in this course since we first launched it more than five years ago. We are now able to offer it as an 'off the peg' course for to start and finish whenever you want. It covers a wide spectrum of basic materials on rocks, minerals and fossils and much more besides. This course has been specifically designed with adult learners in mind. It does not require you to submit homework and you can do it electronically or by post to suit your requirements.

Cost: *£50.00 by Moodle/Email, or £75.00 by post with printed papers. There are no Zoom meetings with this course and tutorial help is available by email. You can start this course at any time to suit your requirements.*

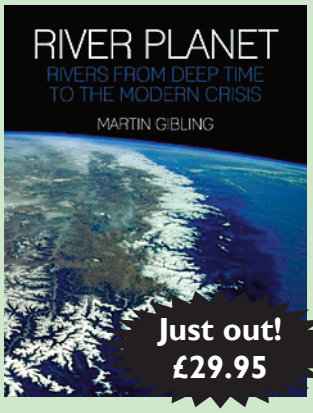
To enrol on any course go to our website: www.geosupplies.co.uk or email us at: downtoearth@geosupplies.co.uk

'Earth science learning for all'

GEO Featured books for January 2022

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 January 2022 provided that stocks are available. Please note, all prices include UK postage.

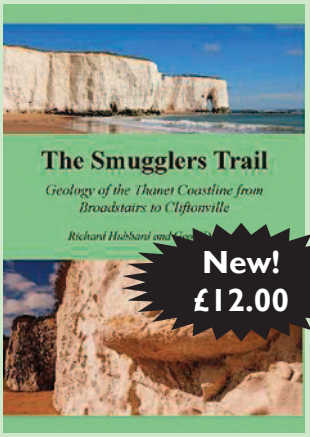
New £18.00



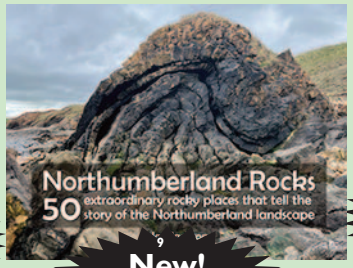
Just out! £29.95

New £18.00

New! £19.00



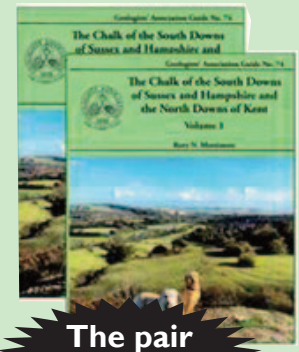
New! £12.00



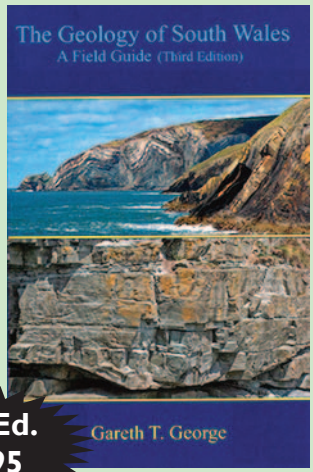
New! £11.50

Superb! £20.00

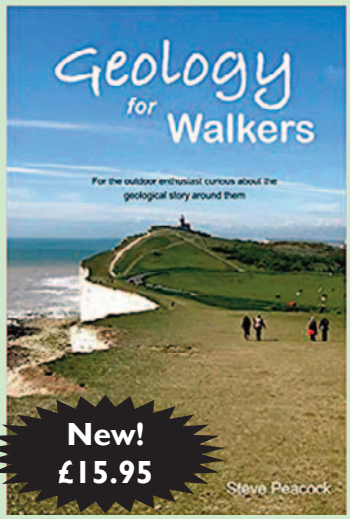
Great gift! £42.50



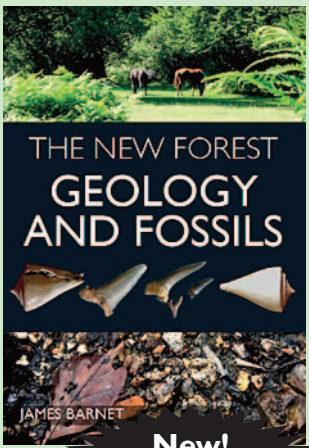
The pair £30.00



New Ed. £22.95



New! £15.95



New! £18.00

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