



Down to Earth *extra*

Issue 111 March 2022

NEWS FLASH...

- Book a place on a Residential Field Trip in 2022!
- Summer School confirmed!
- Winter Virtual Day Schools to book!



In the suburbs of Iceland's capital city Reykjavik, lies a 'geological gem' just off a major highway and below a filling station. Here, at Fossvogur is a km stretch of 3m high cliffs that tell of a dying glacier and fluvial sedimentation.

The rock, for that is what it is, is a sandstone that's completely devoid of quartz, because it was derived from the weathering and erosion of nearby basaltic material. It contains fossils of the same bivalve that's present on the beach today. Amazingly, it is just 10,500 years old!

From the Editorial team...

Have you noticed how your pattern of work has changed over the two years of the pandemic? Pre-Covid we presented our online learning, via printed materials. There was no actual involvement face-to-face with learners. Today, that mode of working has completely changed. Gone are the nine to five office hours and in has come a pattern of afternoon and evening Zoom sessions.

Like many of you, we've come to realise that we can engage with many more people, using Zoom than we ever could in face-to-face local classes and it's so much better than dry online learning with little human contact. We've even managed to teach people from around the world, including one who joined us from China on a regular Zoom meeting.

But there have also been other changes that have happened downstream as a consequence of using Zoom. One of these has been an increased use of library youtube footage. When you need a video to accompany a particular topic it's very much a matter of luck as to whether you strike gold or it's completely barren.

We're currently presenting the geology of the British Isles in 13 weekly Zoom sessions, and for some periods there are good videos, but for others, nobody seems to have done anything. Worse, some of the material that's visually just fine is geologically poor to say the least. Just like with social media, there's little or no filtering going on. Nobody seems to be fact checking what's being put up which means that an otherwise excellent tool is rendered next to useless. For all our sakes, please get it checked out before release. We need enthusiasts to film rocks, but if the information is correct, it's so much better!

*Chris Darmon & Colin Schofield
The Down to Earth editorial team*

See pages 7-10 for the full spectrum of our 'real' and virtual events!



news update

Mount Etna springs a surprise eruption that lasted just a couple of weeks...



Mount Etna in full eruption mode on February 21st. from Catania (Image: Radio. Touring webcam)

Mount Etna has consistently been Europe's most active volcano over many years. It began its latest eruption on February 10th. and by the 24th. it was effectively all over. However what happened in the intervening days is well worth recording.

It began on the evening of February 10th. with what is known as a paroxysmal phase in which there are numerous lava fountains which rise more than 500m into the air and an eruption column of finer ash extending several km into the atmosphere. Pyroclastic flows were seen down the SE and SW sides.

We went to VolcanoDiscovery.com for some excellent material:

February 10th.

"The observatory in Catania (INGV) reported that the explosive activity at the volcano's South East summit crater has been renewed last night.

Minor ash emissions have been rising from the crater, but from 01:30 local time today, volcanic tremor started to rise to average values. The activity intensified about 13:30 local time, accompanied by a strongly rising signal of volcanic tremor, located at 2800 m elevation, indicating rapid magma flux towards the surface.

At 14:32 local time, a new lava started overflowing the SE crater rim and has been emerging on the west-southwest slopes. Strombolian activity picked up and became stronger at the SE summit crater starting around 16:00 local time accompanied by periods of high amplitude tremor. The lava has continued to ooze out, kept the flow active and reached approx. 2900 m elevation.

At about 20:40 local time, a new lava-fountaining episode (classified as paroxysm) started at the SE summit crater producing a tall and dense ash and gas-rich plume that rose to estimated 10 km altitude drifting west.

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49 Station Road, Chapeltown, Sheffield S35 2XE**

**Editor: Chris Darmon
Assistant Editor: Colin Schofield**

**Tel: 0114 245 5746 • FAX: 0114 240 3405
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*Lava fountain from the SE crater seen from Nicolosi
(Image: INGV webcam)*

The strong paroxysm episode followed a sharp peak in tremor. The paroxysm activity culminated in (unusually, but common) three pumice-and-ash flows observed at 20:40, 21:19 and 21:26 local time travelling in the Valle del Bove direction. Pumice-and-ash flows are the result of column (or fountain) collapse.



*Paroxysm episode at Etna during the recent eruption
(Image: Alberto Uccellatore)*

After the maximum amplitude of a seismic signal at 21:00 local time,

volcanic tremor started to decrease back to medium values. The fountaining activity ended, although the eruption column continues to dissipate to 8000 m height towards the west. The lava flow remains active and the front seems to have cooled at 2700 m elevation.”

Source: Istituto Nazionale di Geofisica e Vulcanologia volcano activity update 10 February 2022

Fast forward to February 21st. and an episode that made it onto national TV here in the UK.

Once again, here's what VolcanoDiscovery had to say:

“10 days since the lava-fountaining episode, known as paroxysm, from the volcano's New SE crater, another powerful paroxysm is started today and is now in full swing.

Lava fountains are shooting into the Sicilian sky for probably more than 1000 meters and a dark ash column is rising to estimated 10 km height, drifting east where heavy lapilli and ash fall are occurring. The activity started around 9 a.m. local time, when a thermal anomaly and soon after, weak strombolian activity were first observed at the New SE crater. At the same time, volcanic tremor started to increase. These are the typical short-term precursors for Etna's paroxysms.

By noon, the strombolian activity began to increase significantly, and quickly turned into lava fountaining by around 12.20 that generated a tall eruption column rising to approx. 10-11 km.

A lava flow started to erupt from the southern breach of the SE crater complex and has been travelling towards the SW, overlapping the

Geological Jigsaws make great gifts, whatever the season...

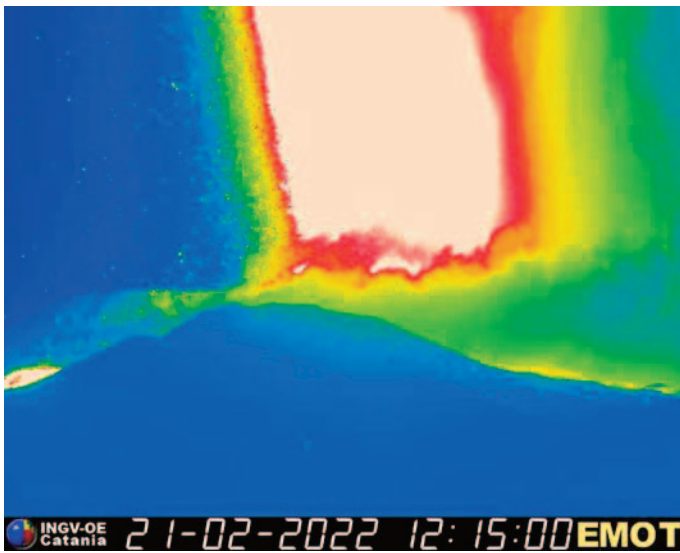
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Thermal image of the lava fountain (Image: INGV thermal webcam)

many previous flows from the paroxysmal episodes that have been occurring since February last year at the volcano.

At the time of this update, the activity is still increasing, but likely is near or at its peak."

Finally we come to February 23rd. and this is what Volcano Discovery has to say:

"The volcano observatory in Catania (INGV) reported that the latest paroxysm episode on 21 Feb ended. After the eruption ceased, the activity within the New SE crater showed signs of weak strombolian activity by passive emissions of steam and ash drifting towards the south.

The lava flow on the eastern flank of the New SE crater decreased its advance as it is in the progress of cooling. Volcanic tremors continue at medium-low levels."

It's the time period of events like these that really strikes home. It's highly likely that events such as these pepper the geological record and who would have thought that it takes a mere fortnight?

Largest pterosaur ever finally sees the light, five years after it was found on Skye...

A huge pterosaur, with a wingspan of some 2.5 metres, was spotted by PhD student Amelia Penny sticking out of the Jurassic strata on Staffin beach. She was actually looking for much smaller fossils at the time so couldn't believe her luck.

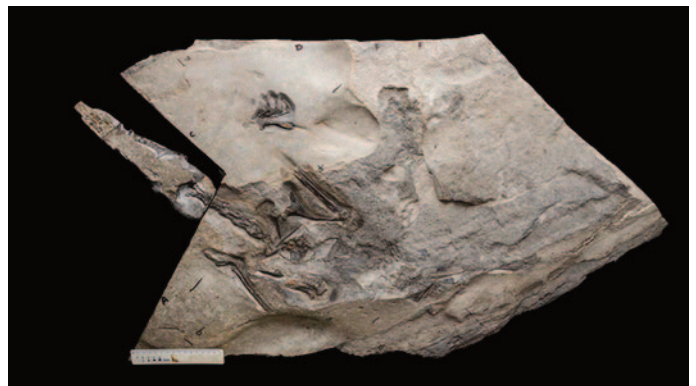
That was back in 2017 and since then the recovered block of rock has been worked on by researchers from the Hunterian Museum in Glasgow and the local Staffin Museum on Skye. The work has been carried out by PhD student Natalia Jagielska, working under the direction of well known palaeontologist Steve Brusatte.

The results of the studies have now been published in the journal **"Current Biology"**. The pterosaur has been identified as a new species and has been given the Gaelic name *Dearc sgiathanach* (pronounced Jark Ski-an-Ach), which translates as "winged reptile".



"Look what i've found", PhD student Amelia Penny points to the rock on Staffin beach that contained the pterosaur remains. (Image: Steve Brusatte)

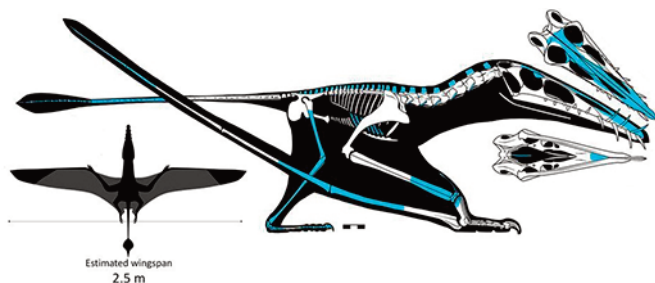
Natalia said: "Dearc is a fantastic example of why palaeontology will never cease to be astounding, Pterosaur fossils as complete as this are very rare. As flying animals, their bones are really light, just like today's birds. That makes them incredibly fragile and so they don't usually preserve as fossils."



This is the block of Jurassic limestone that contains the remains of a huge pterosaur, the largest ever found. (Image: Gregory Funston)

During work to conserve the fossil, that will eventually be displayed at the National Museum of Scotland in Edinburgh, scientists have concluded that *Dearc* had excellent eyesight.

Dr Nick Fraser of the National Museum of Scotland said: "It seems we had previously underestimated the size of pterosaurs in the Jurassic. While perhaps not as large as some of the giants of the Cretaceous (which were the size of small aeroplanes!) *Dearc* still



*A reconstruction of what Dearly would have looked like.
(Image: Natalia Jagielska)*

had a wingspan comparable with that of a Wandering Albatross, the largest flying bird in the world and not an animal to be readily trifled with.

Until now, the majority of key discoveries on Skye have been either isolated bones or articulated remains of smaller vertebrates. The announcement of the discovery of Dearly changes the picture and puts Skye on the map as one of the world's most important places for Middle Jurassic vertebrate fossils. As well as this remarkable fossil, it is also wonderful to see the Jurassic of Skye launch the careers of some of the next generation of palaeontologists.

Do you remember the meteorite that fell on Winchcombe?

Back in February of 2021 a fairly sizable chunk of a meteorite landed on the small Gloucestershire town of Winchcombe. We reported it at the time and were pleased to report that a sizeable chunk of it went on display at the Natural History Museum in London.



The 15g fragment of the Winchcombe meteorite that was up for sale at Christie's. (Image: Christie's)

However a smaller fragment, weighing some 15 grams was kept by some of the local people who found it. That has now gone up for sale at Christie's of London. The specialist meteorite sale was held on February 23rd. The pre-sale estimate was put at £50,000. In the end, it went for a much more modest, £22,300.

At the same sale, a dog kennel that had its roof punctured by a meteorite in April 2019 in Aguas Zarcas, Costa Rica, sold for \$44,100.



An expensive piece of real estate! This is the dog kennel that was hit by a meteorite fragment in Costa Rica in 2019. Luckily the only inhabitant wasn't harmed. (Image: Christie's)

Stop Press: Prof. Chris King dies after a short illness

As this issue closed for press we heard the sad news that Professor Chris King formerly of Keele University, had passed away after a short illness.

Chris started out as a fine teacher of geology in the Manchester area before moving to Keele University where he passed on his great enthusiasm for geology and Earth science to a generation of future teachers. He will be greatly missed by so many people.

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in-house

We are still experiencing problems with the supply of Suunto compasses...

We reported in the last issue that there were issues around the sale of the Finnish manufacturer of compass products.

The very latest that we have heard from the UK agents is that there are still ongoing problems.. It is also pretty certain that when they do once again become available, they will be at a much higher price.

If you're in the market for a compass clino, do talk to us.

The Suunto MC2 compass clinometer has been a firm favourite of geology students over many years.



We've secured the final copies of a great Yorkshire book...

We recently heard from Alison Tymon who told us: "The West Yorkshire Geology Trust were left with a number of copies of a booklet – 'Riches of the Earth' – after a project with Pennine Prospects was completed. We used to use outlets in the area of the sandstone and coal quarrying/mining research, like Todmorden, Hebden Bridge and Haworth, but that is much more difficult now that Tourist Information offices are not open as much and we have no WYGT activists who live in those areas at present."

I'm pleased to say that we have secured these stock and will be making it available shortly - watch this space!

It's a great book to use as an introduction to the geology of the Pennines!



New Lake District book...

We're pleased to announce the arrival of a new title from Crowood Press!

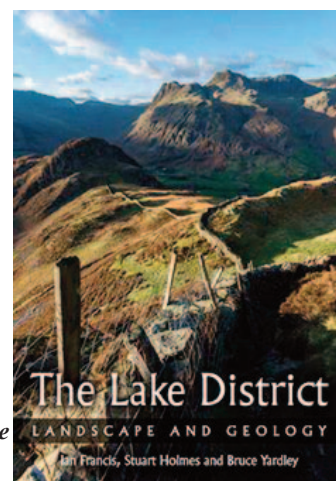
Hot on the heels of Tony Waltham's "Peak District" comes this book on the Lake District.

We firmly expect it to be a bestseller!

The price, including postage in the UK - is £20.00

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Extra March 2022



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'Earth science learning for all'

There's still time to book a 2022 Residential Field Trip - but hurry!



This is the Permian 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 are now experiencing an upturn in demand for places on field trips for later this year.

Don't miss out on the opportunity to join us. Why not put some sun on your back in North Cornwall this April, or join us on the Moray coast of Scotland in July?

For the very latest information on 2022 vacancies, you can email us as at:
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We have exciting plans for 2023 with La Palma (February) and Iceland (March/April) on the agenda for visits!

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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

Please note: Everyone booking will be required to have completed a Covid-19 vaccination programme in good time and to be 'fit to travel'.

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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



Participants 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...

We're really looking forward to the coming season of field trips, commencing with North Cornwall in early April. Bookings are looking good with a number of trips either full or very nearly so. We want to confirm hotel bookings as soon as possible so urge you to make contact now if you are wanting to join us.

We are pleased to confirm that our popular Summer School will be running this August based at the University of Worcester. With lots of single rooms, everyone is welcome!

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.

Advance announcement - watch out for the return of our ever popular trips to Iceland for the early part of 2023! 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

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different rocks, minerals and fossils. For this trip, flights to and from Cork are recommended. *(Very few places remaining.)*

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-July 2

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.)*

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 it's 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.)*

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

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.

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

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:
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A cartoon illustration of a man in a yellow shirt and blue pants, and a dog, both appearing to be in a playful or dancing pose.

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.

Day Trips...

We're pleased to bring back a few of our ever popular day trips for 2022. These normally commence around 11.00 in the morning and end around 16.00 in the afternoon. Walking distances are moderate and should be within everyone's capabilities.

The cost is £10.00 per person. Currently we are ready to accept bookings on the trips shown below.

April 18 Easter Monday, Rocks of Charnwood Forest

Charnwood Forest in Northwest Leicestershire is a great place to study igneous and metamorphic rocks of the Precambrian. During this day we'll visit several different places and may also see a fossil. Don't worry that it's a Bank Holiday, we'll be avoiding the crowds!

Meeting: Markfield, Altar Stones at 11.00



The Silurian basement rocks at Horton in Ribblesdale are valuable roadstone. (Image: Yorkshire Dales National Park)

May 11 Wednesday, Horton in Ribblesdale, North Yorkshire

For this trip you can travel on the scenic Settle-Carlisle railway if you wish as we examine the local rocks and scenery. Our story begins with the Silurian greywacke sandstones and then moves on to the Carboniferous limestones and the overlying Yoredale series that form the magnificent local peaks. Finally we've the glacial drumlins that litter the valley to think about.

Meeting: Horton in Ribblesdale railway station at 11.00

June 1 Wednesday, The Lickey Hills country park

This lovely site is on the south western edge of the City of Birmingham and is something of a favourite of ours. It's a great place to discover the relationship between the underlying geology and the landscape and topography of the local area.

The Lickey Hills were visited by Charles Lapworth with his students from Mason College (later Birmingham University) in the 1880s and you will discover that there's a curious connection with him to this day.

Meeting: Outside the visitors' centre at Lickey Hills Country Park at 11.00

To enrol onto these Day Trips, 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

Welcome to our virtual world! Virtual Day Schools

There's still time to join one of our Virtual Day Schools! Our popular Day School format, transcribed from the face-to-face into the virtual, with some lively topics for you to enjoy. 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.

Our Virtual Day Schools cost £20.00 each or £25.00 if you want the background materials in printed form.

You can book online at: www.geosupplies.co.uk or ring us on 0114 245 5746

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

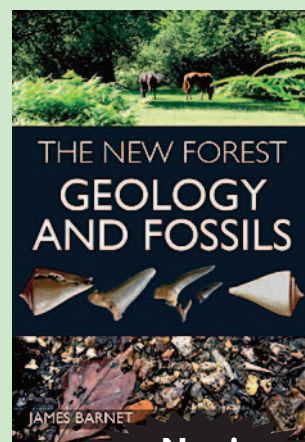
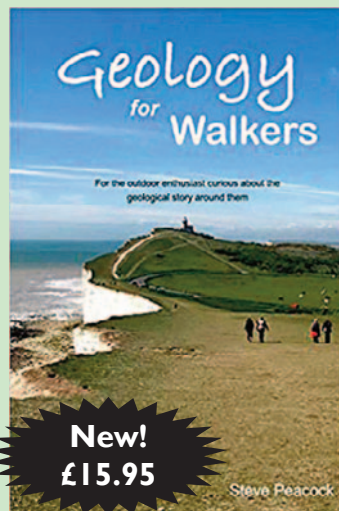
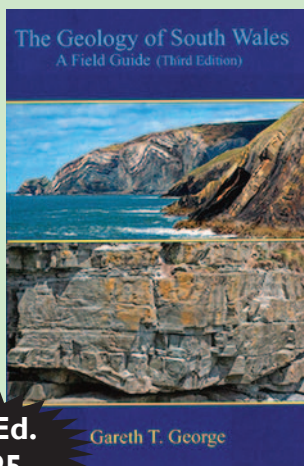
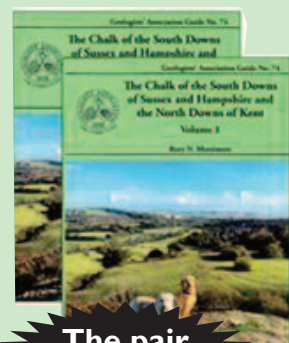
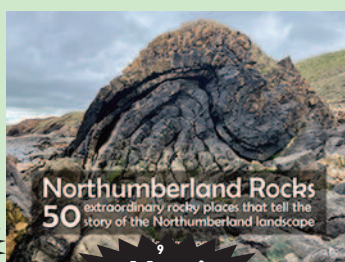
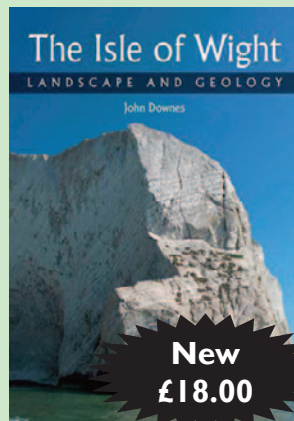
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