



# Down to Earth *extra*

Issue 78 June 2019

## SPOTLIGHT

- 2020 Residential Field Trips are booking up fast!
- Still places on Autumn 2019 trips
- Join us on a day trip - soon!
- Come to Southwest Scotland, June 28 - July 6 and save!

*Kiloran Bay on the Scottish Island of Colonsay. A Devonian lamprophyre dyke is seen to cut through a (?) Silurian volcanic breccia in a beach exposure.*  
(Photo: Chris Darmon)

## From the Editorial team...

We have just returned from another fabulous week of Scottish geology. On this, our latest Scottish adventure we visited the islands of Colonsay, Kerrera and Lismore, arguably three of the lesser known islands, despite having excellent, if different, geology. Colonsay hosts rocks from the Rhinns Complex, Lismore is Dalradian and Kerrera is largely Devonian.

We were joined on this trip with three American friends who came with us last year on a trip organised for the AWG (Association for Women Geoscientists) where they visited the Welsh Borderland and Southwest England. It's a real joy to have them with us as they are so enthusiastic in their fieldwork.

Trans-Atlantic conversations are always interesting as our perspectives, and often our geological terms, are different. To us it's a dolerite to Americans it's a diabase and there are lots more where the terminology isn't always aligned. That said, we have lots in common, especially when it comes to fears about global warming. If we're worried about what will happen to London, they have similar concerns when it comes to New York. Both cities would be challenged if the sea rose by a couple of metres.

There was one aspect of fieldwork which the Americans found very interesting, and it's something that we take for granted. Access to beaches is almost always an easy task across rural Britain. Our American friends were amazed that we could walk across what for them would be private land. Apparently geologists aren't at all welcome. They are seen as 'spies' who might be prying into the activities of a private land owner. So the next time we moan about a blocked footpath - it could be much worse!

*Chris Darmon & Colin Schofield*

*The Down to Earth extra Editorial team*

## Help us to fill a Southwest Scotland late cancellation - see page 4 for details!



## news update

### Prospector finds massive, 1.4 kg gold nugget in Western Australia...

A recent find of a gold nugget weighing a massive 1.4 kg is proof that you can still win big. The prospector was simply wandering around the goldfields of Kalgoorlie in Western Australia with his metal detector when he came across the massive nugget, which is worth around A\$100,000 at today's prices.

The prospector, who wants to remain anonymous, brought the nugget into *Finders Keepers Gold Prospecting* and owner Matt Cook said it was exciting to see such a big find, especially these days. "It's good to see people out there and finding nuggets like this," he said. "They're harder to find but they're still out there."



*A gold nugget in the palm of your hand! The 1.4 kg nugget found near Kalgoorlie, Western Australia. (Photo: Finders Keepers)*

Mr Cook said the prospector was walking around salt bush flats in the Kalgoorlie region when the detector began sounding and, after some

digging, the hefty piece of precious metal was uncovered.

He said nuggets of its size were found only a few times a year and were usually upturned by prospectors using heavy machinery, not metal detectors.

Mr Cook said many prospectors were out and about in the Goldfields trying their luck. "It's so busy — I can't remember a year like it," he said. With world prices at such a high level it's not surprising that there's a bit of a gold rush.

Smaller traces of gold are more common finds in the region, says Prof Sam Spearing, director of the Western Australia School of Mines at Curtin University.

Talking to BBC News, Prof. Spearing said: "Along with the mines around, a lot of people go around as prospectors on the weekend, as a hobby. Other people do it on a full-time basis," Prof. Spearing said.

"Most of the gold found is in the less than half an ounce category, but they do find them fairly frequently."

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## Is a new subduction zone forming off the coast of Portugal?

There are some things that you just don't expect to happen during your lifetime and an Atlantic Ocean subduction zone is one of those things! However new seafloor evidence seems to suggest that a plate is getting ready to peel off, around the coast of Portugal.

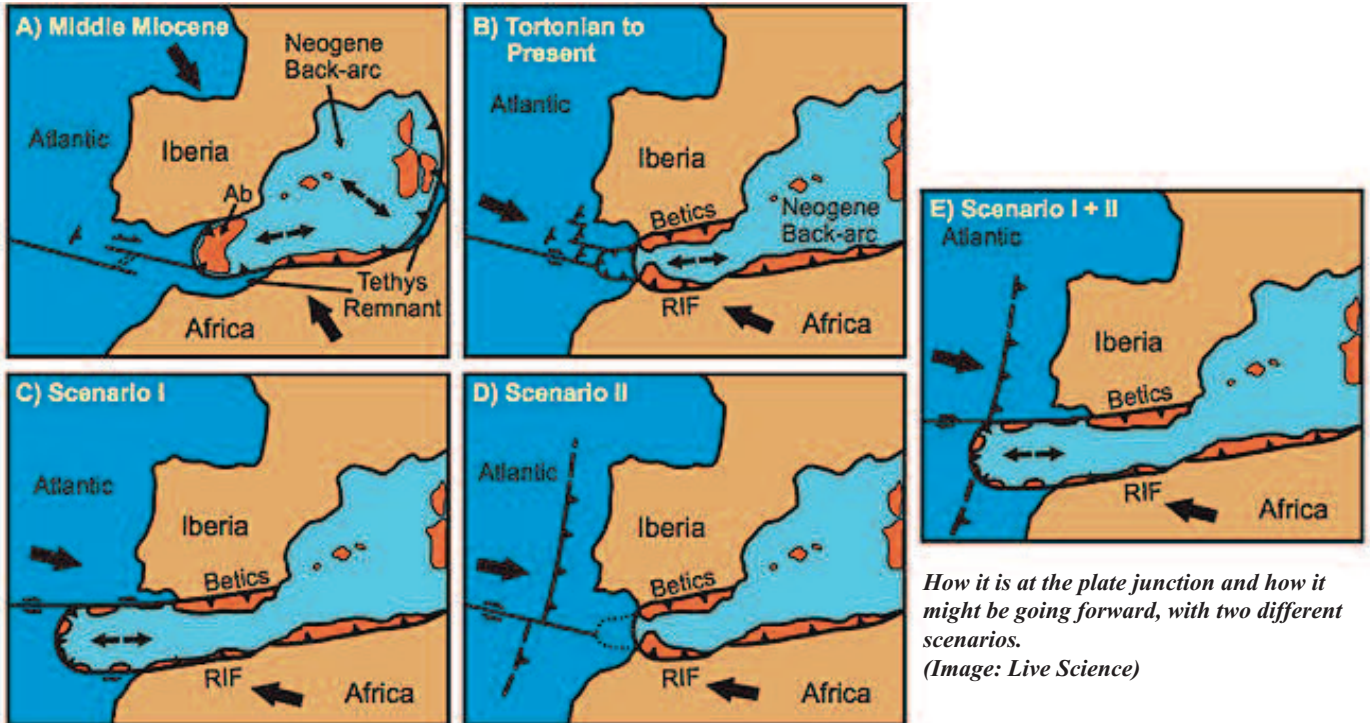
Researchers have long puzzled over a plain, featureless area off the coast of Portugal. The seemingly-boring area stood out in 1969 when it triggered a massive, 7.9 magnitude, earthquake that generated a tsunami. This was highly unusual — earthquakes don't just happen in random areas. Most often, they take place in tectonically active areas, at the edges of tectonic plates. The correlation is so good that if you'd look at a global map of large earthquakes, it looks like a map of

tectonic plates.

Now João Duarte, a marine geologist from the Instituto Dom Luiz at the University of Lisbon, thinks he knows why that earthquake occurred.. According to a recent study published by Duarte, the tectonic plate off Portugal's coast might be peeling away from its top.

Suspensions of a potential subduction-related peeling event started after the 1969 earthquake, but it wasn't until 2012 that researchers got a good view of the area, using seismic wave analysis.

In 2018, Chiara Civiero, a postdoctoral researcher at University of Lisbon's Instituto Dom Luiz, and her colleagues published a high-resolution peek into Earth in this region, and confirmed the discovery of the unusual blob.



*How it is at the plate junction and how it might be going forward, with two different scenarios.  
(Image: Live Science)*



## Show Dates

June 1 & 2 Rock, Gem 'n' Bead Show  
**Kempton Park Racecourse, Sunbury on Thames**

June 15 & 16 Rock, Gem 'n' Bead Show  
**Chepstow Racecourse, Monmouthshire**

**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>**

July 6 & 7 Rock, Gem 'n' Bead Show  
**Edinburgh Academy**

July 20 & 21 Rock, Gem 'n' Bead Show  
**Newcastle Racecourse**

Now, Duarte has found new evidence to support this theory in a seemingly innocuous geological layer, one which allows water to percolate (infiltrate) through. This water transforms the minerals inside the plate, transforming them into softer minerals, producing just enough weakness to allow the bottom of the plate to peel away.

“Now we are 100-percent sure it’s there,” Duarte told *National Geographic*. Other researchers found that above this deep body, which stretches 155 miles below the surface, tiny quakes seemed to tremble. Of course, work is still needed to confirm the find, but Duarte is confident.

“It’s a big statement,” Duarte says of the conclusions, acknowledging that he and his team still have work to do. “Maybe this is not the solution to all the problems. But I think we have something new here.”

There are huge implications for the entire area, dependent upon which way it now goes. The diagram on the previous page, illustrates two different courses and also a combination of the two. Perhaps the days when the Atlantic system ruled the Earth’s tectonics are beginning to draw to an end. That said, don’t hold your breath!

*The study was presented at the European Geosciences Union meeting.*

*Down to Earth extra is grateful to [www.zmescience.com](http://www.zmescience.com) for much of the text of this item.*



**Manaslu Trek and Tour, Nepal with Geology Focus  
Led by Dr Danny Clark-Lowes  
19 October to 06 November 2019  
(Note: this is now a 19-day trip)**

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  
Indus Experiences are recommended for a good service when  
purchasing flights.**



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## Rockwatch trips and outings for kids this Summer...

*Rockwatch* is the club for budding geologists, fossil hunters and dinosaur lovers! Based at the Geologists’ Association, *Rockwatch* is able to enlist the help and support of expert geologists on its Summer outings.

*Here’s the Summer programme - just contact the GA, or book through the website: [www.rockwatch.org.uk](http://www.rockwatch.org.uk)*

### *June 9 Lickey Hills Day, West Midlands*

Explore this classic site using the latest technology via an app. You’ll be taking part in a ‘voyage of discovery’, exploring deep time.

### *June 29 Walton on the Naze, Essex*

Join Susan Brown, and Ros and Ian Mercer on a classic fossil collecting expedition to this famous site.

### *July 13-14 South Wales Weekend*

Based in Cardiff this weekend will take a close look at some of the geology of South Wales. Lots of rocks and fossil are just waiting to be discovered!

### *July 20 Yorkshire Coast field trip*

A bit of a difference to the normal Jurassic, we’ll be spending the day at Skipsea Withlow, exploring the Quaternary, collecting lots of different rocks, thanks to the Ice Ages and there may even be some rare fossils!

### *July 27-31 Field trip to Fife, Scotland with Angus Miller*

Based in the lovely coastal village of Crail, this field trip takes in all that’s best about Fife Geology. There are just so many different rocks to be found! Imagine that you’re inside a volcano and at the bottom of a muddy sea!

### *July 29 - August 2 The Jurassic Coast of Dorset & East Devon*

Our annual trip to this world famous area. We’ll be seeing evidence for past changes in sea level as we collect some great fossils.

### *August 6 Activity day at Ware Museum.*

*For more information go to:*

*[www.rockwatch.org.uk](http://www.rockwatch.org.uk)*

## Fancy a trip to Ailsa Craig? Southwest Scotland June 28 - July 6

**Due to a late cancellation, we are able to accommodate either two people in a double room or a single person for a bargain price!**

**Save £300.00 on the cost of the double, now just £845.00 per person**

**Save £150.00 on the cost of the single, now just £945.00**

**See details at: [www.geosupplies.co.uk](http://www.geosupplies.co.uk)  
Email: [downtoearth@geosupplies.co.uk](mailto:downtoearth@geosupplies.co.uk)  
Tel: 0114 245 5746**

## Summer Day Trips are here...

*Come and join us, we've saved a place for you! The standard price is £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.*

*To book for any Day Trip go to: [www.geosupplies.co.uk](http://www.geosupplies.co.uk) and enter the online shop.*

*Alternatively, ring us on: 0114 245 5746*

### 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 gritstone rocks and scenery and an amazing landslip. If time permits, we'll also see something of the nearby Roaches.

*Meeting: Public car park near Gradbach Mill at 11.00 standard prices*

### Thursday, June 13

#### **Rocks & landscape of the Sedgwick Trail, Yorkshire Dales**

This trail was created in 1985 in celebration of Adam Sedgwick, the geological pioneer and son of the vicar of Dent. The trail shows a series of outcrops of Carboniferous Limestone to the east of the Pennine Fault. To the west there's a dramatic change in the valley as we enter a landscape made in much older rocks. A great place to study geology in the field.

*Meeting: Longstone Common (A684) 9km east of Sedbergh at 10.30 standard prices*

### Friday, June 14

#### **Dufton & Cross Fell**

The Cross Fell inlier is an area of Lower Palaeozoic rocks that occur in between some of the major Pennine faults. Amongst the varied rocks are limestones and rhyolite. On this day we'll take a look at some of them and also walk up from Dufton towards High Cup Nick to see the remains of the local lead and barytes mineral mining.

Places are limited - book now!

*Meeting: Dufton car park at 10.30, standard prices*

### Wednesday, June 19

#### **Chafford Gorges Nature Reserve, Essex**

This is one of Essex's finest geological sites that has been created in a series of three former chalk quarries. It's a great place to get up close and personal with the chalk and to really study it closely. It's also a great place to enjoy the countryside and see wild flowers, birds and even small mammals. There's also Chafford Hundreds railway station within walking distance.

*Meeting: Chafford Gorges car park at 11.30, standard prices*

### Sunday, June 30

#### **Moffatdale & Dobs Linn, Southern Uplands**

Charles Lapworth spent several years as a young teacher studying the rocks of a small stream section in lonely Moffatdale. He was to determine the rocks succession using graptolites and to change radically our view of the structure of the Southern Uplands, no longer a thick successions but a thinner one repeatedly folded. We'll also see some amazing structures and Scotland's highest waterfall.

*Meeting: Grey Mare's Tale car park (NT) at 11.00, standard prices*

### Thursday, July 4

#### **Ballantrae & Downan Point, Ayrshire**

There's superb variety on this day trip with basaltic pillow lavas, serpentine, jasper and even some Permian sandstone. Add in some amazing folds and this will be a day to remember

*Meeting: Ballantrae Harbour at 10.30, standard prices*

### Tuesday, July 23

#### **Creswell Crags & Permian rocks of Nottinghamshire**

Creswell Crags is a World Heritage Site for its Quaternary bone caves. It's also an excellent place to kick off a day of Permian rock sites in the area. Come and see some mysterious rocks!

*Meeting: Creswell Crags car park at 10.30, standard prices*

### Thursday, July 25

#### **National Stone Centre, Wirksworth**

Come and explore this small area, where the Dark Peak meets the White Peak, where both fossils and minerals can be found. There's easy walking and rocks a-plenty all within a couple of miles of the National Stone Centre.

*Meeting: National Stone Centre car park at 10.30, standard prices*

### Wednesday, July 31

#### **Mundays Hills Quarry, Leighton Buzzard, Bedfordshire**

Exposures in the soft Woburn Sands are rare, but this quarry has excellent faces that show really good sedimentary structures. There are also some fossils to be seen. As this is a working quarry, boots and safety helmets are required

*Meeting: To be confirmed at 11.30, standard prices*



**Become a Club Class  
or Club Class Duo  
member for 2019**

**CLUB  
CLASS**

**We are once again offering 'Club Class' for 2019. Don't forget you can choose between a 'solo' and a 'duo', which allows a second person discounted rates on day field trips and day schools, provided the named member also attends. The discount on Day Schools has also increased to £5.00 per person.**

- Join any geological day trip in 2019 and save £3.00 on standard prices
- Save £5.00 on the advertised price of any day school
- Take out any **Down to Earth** subscription renewal or new subscription and save £2.00 on the advertised price
- Enrol for any **Down to Earth** distance learning or face-to-face course in 2019 and save £5.00 on the full advertised price.
- Save 10% on books and maps from BGS when ordered from Geo Supplies - only available to callers or telephone orders.
- Additional offers that we may make available from time to time.

#### **Terms & Conditions**

- The benefits are only available to the named 'Club Class' member.
- Holders of 'duo' can claim discount rates for a second person on day schools, day trips or face-to-face classes.
- It is the 'Club Class' member's responsibility to draw to our attention that fact that you are entitled to any discounts at the time of payment.
- Club Class cannot be used in conjunction with any other offer to obtain multiple discounts on a product or service and neither can it be used retrospectively for something already booked, or purchased.

**To enrol for 'Club Class' for just £10.00 or Club Class Duo for £15.00, go to: [www.geosupplies.co.uk](http://www.geosupplies.co.uk) or ring us on: 0114 245 5746**

*To book go to: [www.geosupplies.co.uk](http://www.geosupplies.co.uk)  
or ring us on 0114 245 5746*



## 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!



# Come & join us on an Autumn 2019 Residential Field Trip



Beds of Lower Cretaceous Hastings Beds, Cliff End, Fairlight Cove. (Photo: Wild Hastings Wordpress.com)

We've still got some vacancies on our exciting Autumn 2019 residential field trips. So it's still not too late to make your booking. We welcome all, who are interested in rocks and the landscape to join us. Our trips are informal, friendly and informative. We look forward to hearing from YOU!

If you are looking for a single room, these are very limited and may not be available at all on some of the trips.

Brochures for all of the trips can be viewed on our website: [www.geosupplies.co.uk](http://www.geosupplies.co.uk)

To enquire, or get a booking form, you can contact us as follows:

Tel: 0114 2455746

Email: [downtoearth@geosupplies.co.uk](mailto:downtoearth@geosupplies.co.uk)

## Autumn 2019 field trip programme...

It's not too late to join us - but book soon!

- South Cornwall - September 5-12  
N.B. New dates
- Northumberland Coast - September 22-27
- Llyn Peninsula - October 12-17
- Hastings Coast, Sussex - October 22-27

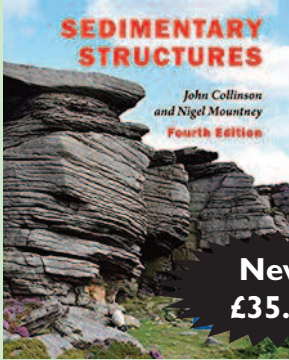
You can view brochures for all of these trips at our website: [www.geosupplies.co.uk](http://www.geosupplies.co.uk)

We look forward to hearing from you!

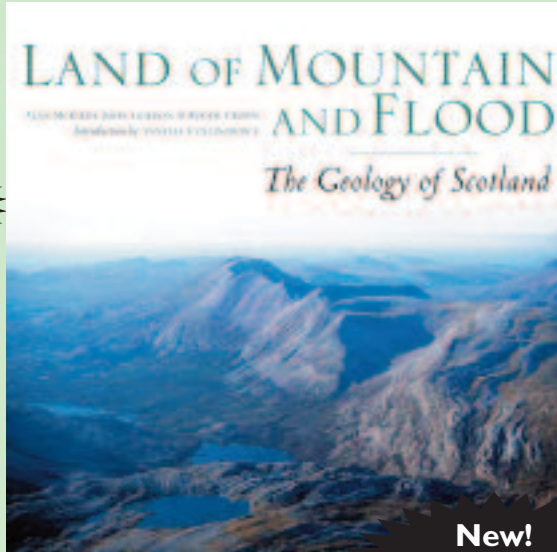


# Featured books May - July

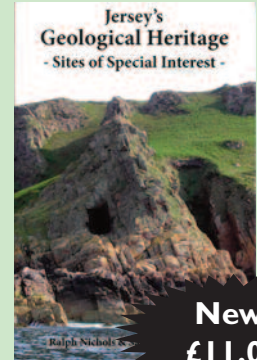
In each issue we are pleased to be able to introduce you to a range of featured books. Where they are being offered at reduced prices, these will be current to the end of the month shown above, provided that stocks are available. Please note, all prices include UK postage.



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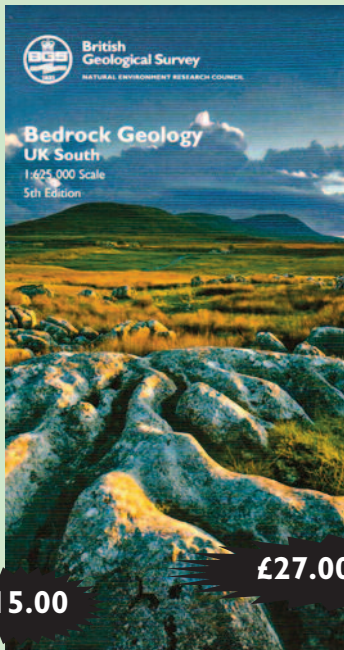
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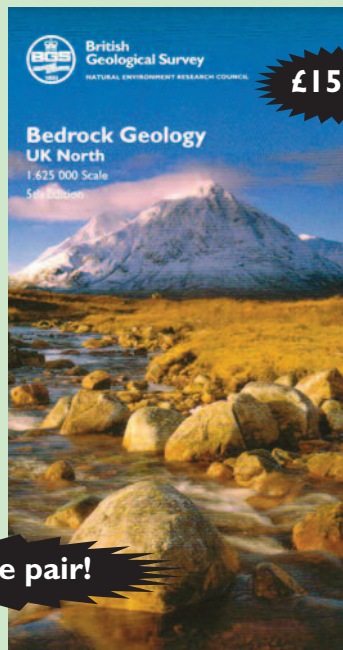
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