



Down to Earth *extra*

Issue 86 February 2020

NEWS FLASH!

- Late vacancies on Portugal and Norway to fill!
- New local geology online course for everyone!

STILL AVAILABLE

- Winter online learning!
- 2020 day schools!

Surely this view must be amongst the finest in Britain. This is the Glencoul Thrust viewed during a boat trip on Loch Glencoul. The Cambrian sediments are overlain by the Lewisian and are separated by a major thrust plain. The hummocky ground at the top, defines the Lewisian landscape.

In May 2021, we'll once again be offering you the chance of a trip! (Photo: Chris Darmon)

From the Editorial team...

How well do you know the geology in your own backyard? Seriously, you may think that you live in a geological desert where there are no rock outcrops for miles, yet you will be amazed at what you can find when you really look.

Both of us have been looking at our local geology in Sheffield and Rochdale respectively and we've been pleasantly surprised by what we've found. As part of our Backyard geology course we gave people two challenges. The first was to find natural rocks or Quaternary sediments within 1km of their home and many succeeded, often to their surprise. The second was to find natural materials in the built environment, within 100m of their home. Once again there was a high degree of success.

It seems that in some areas, natural rock outcrops have become somewhat hidden by rampant vegetation, so this time of year is the best to go looking for your most local rocks. So where are the best places to go looking? Stream banks and beds are always going to be fruitful, especially on the outer bank of meanders, where there's often a cliff. Other places would be road cuttings or the sides of disused railway lines.

If you start to get desperate, you could start looking around tree roots and animal burrows! I once found a tiny trilobite in shale brought out by a rabbit in the Malvern Hills. Badger setts can be particularly rewarding. Then there are excavations by the utility companies. Not far from the Geosupplies office just such a hole rewarded me with a pile of coal. Needless to say, it was rapidly removed and sold to a school or college somewhere around the country!

The message is clear; now is the time to go out and look for geology in your own backyard. Have fun!

Chris Darmon & Colin Schofield

The Down to Earth extra Editorial team

See page 7 for what's available for you to study this Winter!



news update

Massive earthquakes in Turkey and the Caribbean...

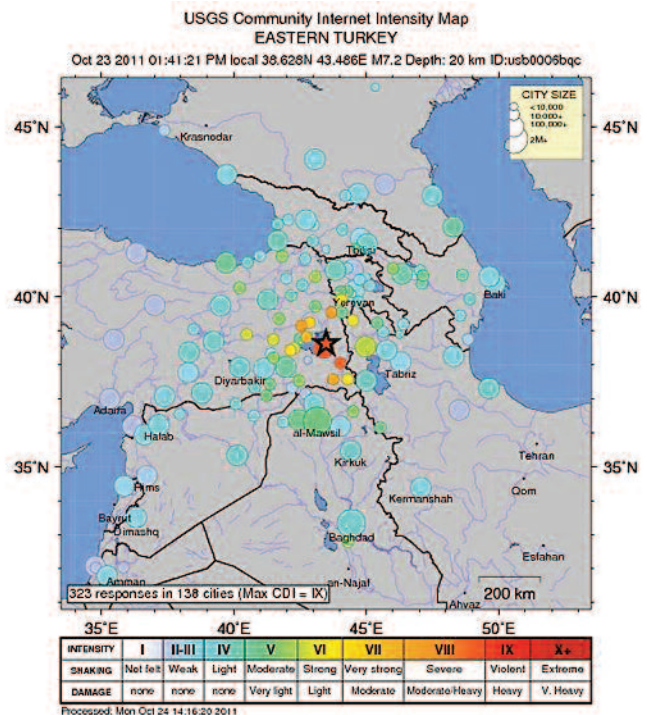
There have been two significant earthquakes in recent days, the first in Eastern Turkey on January 24th and the second in the sea off Jamaica on January 28th.

First, the Turkish event:

The 2020 Elazığ earthquake occurred at 20:55 local time on 24th January in Turkey. The magnitude of the earthquake was determined to be 6.7. The earthquake's epicentre was close to the town of Sivrice in Elazığ province and felt in the neighbouring provinces of Diyarbakır, Malatya and Adıyaman, and the neighbouring countries of



There was widespread damage close to the epicentre of the earthquake. (Image: middleeastmonitor.com)



Down to Earth extra is designed & published by Geo Supplies Ltd.,
49 Station Road, Chapeltown, Sheffield S35 2XE

Editor: Chris Darmon
Assistant Editor: Colin Schofield

Tel: 0114 245 5746 • FAX: 0114 240 3405
Subscribe for FREE: downtoearth@geosupplies.co.uk

Material is © Geo Supplies Ltd. 2020
You are welcome to share DtoE extra with others in your group and reproduce items contained here, provided you acknowledge the source.

Armenia, Syria and Iran. Kandilli Observatory reported the magnitude of the earthquake as 6.5. At the time of writing a total of 41 people were killed and more than 1,600 were injured.

Within the earthquake zone there was widespread destruction of buildings and infrastructure, but this is a thinly populated area, hence the low death toll. Rescuers fear that no more people will be pulled alive from the rubble.

Most of Turkey lies on the Anatolian Plate, which is being forced westwards by the collision between the Arabian Plate and the Eurasian Plate. This westward movement is accommodated by two large strike-slip fault zones, the east-west trending dextral North Anatolian Fault in the north of the country and the SW-NE trending sinistral East Anatolian Fault towards the south-east. Movement on these two faults has been responsible for many large and damaging earthquakes historically. The most recent major earthquakes on the East Anatolian Fault were the 2003 Bingöl earthquake and the 2010 Elâzığ earthquake.

This is based on material from Wikipedia.

Turning to the magnitude 7.7 earthquake in the Caribbean:

A powerful magnitude 7.7 earthquake struck in the Caribbean Sea between Jamaica and Cuba on January 28th, causing tremors from Mexico to Florida. No casualties have so far been reported.

The quake's epicenter was 117 km northwest of the Jamaican town of Lucea and just south of Cub. It occurred at a depth of 10 km according to the USGS.

The quake was felt across much of the island of Jamaica, lasting for several seconds, the Kingston-based Jamaica Observer newspaper reported. Offices were evacuated as far away as Miami in Florida.

In Cuba's capital Havana, residents were evacuated out of buildings when the city was shaken by the earthquake, which was also felt in Guantanamo, Santiago de Cuba and Cienfuegos.

It briefly triggered tsunami alarms, with the International Tsunami Information Center (ITC) issued an initial warning, though this was later lifted.

The area is one with complex tectonics, with several faults capable of complex movement. Tuesday's massive 7.7 magnitude earthquake just south of Cuba and north of Jamaica comes on the heels of the 6.4 magnitude quake that hit Puerto Rico and the U.S. Virgin Islands earlier this month.

And while it's tempting to see the quakes as part of an interconnected swarm, that's not necessarily the case, experts say.

"There is no correlation between them," said Julie Dutton, a geophysicist with the USGS. "The Caribbean has plates moving in different directions that contribute to it being highly seismic. ... But Puerto Rico is pretty far away from this earthquake and we don't consider the two related."

Read more here: <https://www.miamiherald.com/news/nation-world/world/americas/article239734498.html#storylink=cpy>

Sirius Minerals to be bought out by mining giant Anglo American...

In *DtoE 109* we led with news that Sirius Minerals was in desperate need of further finance as it sought to develop a major polyhalite mine deep beneath the North Yorkshire Moors near Whitby. Now comes news that the Company has been acquired for a total of £405 million by US mining giant Anglo American.

The buyout, when it's completed, will potentially safeguard thousands of jobs at the Yorkshire mining project and ensure that the mine can open within the next two to three years.

The Woodsmith Mine is set to be the world's largest mine for polyhalite, a naturally occurring fertiliser which is used in agriculture. Contracts for bulk supply of the material had been signed with China and several African countries.



Show Dates

February 15 & 16
Lyndhurst Community Hall, Hampshire

February 22 & 23
Pavilions of Harrogate, North Yorkshire

February 29 & March 1
Kempton Park Racecourse, Sunbury on Thames

March 7 & 8
Exeter Racecourse, Devon

March 14 & 15
Brighton Racecourse, Brighton, East Sussex

March 21 & 22
Cheltenham Racecourse, Cheltenham,

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>**



The Woodsmith Mine site, was until very recently, a hive of activity (Photo: Sirius Minerals)

In a statement, Sirius's board, advised by JP Morgan, said that it considers the takeover offer to be "fair and reasonable" and said directors believe the deal terms are "in the best interests of Sirius shareholders as a whole." Shareholders will now be required to vote on the proposed transaction at a general meeting.

"Anglo American's recommended offer provides greater certainty for Sirius' Shareholders, employees and wider stakeholders, while bringing the prospects for the development of this potential Tier 1 Project closer to reality," said Anglo chief executive Mark Cutifani.

"We intend to bring Anglo American's financial, technical and product marketing resources and capabilities to the development of the project, which of course would be expected to unlock a significant and sustained associated employment and economic stimulus for the local area."

Under the terms of the agreed deal, Anglo American is buying the company for 5.5p per share in a cash-only bid. This represents a sharp loss for the thousands of small investors, many of them local people around the Whitby area. That said, there will be relief that the project looks like it is secure in the long term.

Meanwhile, Israeli Chemicals, operators of the existing mine at Boulby near Staithes are set to reach 700,000 tonnes of polyhalite this year. They recently switched production from potash.



THE RUSSELL SOCIETY

**Interested in British minerals?
Why not join us?**

www.russellsoc.org



to find out about our:

- Field Trips
- Journal
- Newsletter
- Social Events

Please mention Down to Earth
when contacting us

Calcite with chalcopyrite
Cloud Hill Quarry
Leicestershire

Peterloo monument unveiled to mark the 200th anniversary of the famous massacre...

A new stone monument to mark the 200th anniversary of the famous Peterloo Massacre was unveiled in Manchester City Centre last August. The ceremony was low-key as there was some controversy about its accessibility for disabled people. The stone monument, has been designed by Turner Prize winning artist Jeremy Deller and consists of a series of concentric circles constructed using contrasting stone types. It's a 2m high "hill" constructed of concentric steps made from stone sourced from all regions of the UK and other parts of the former British empire.

It's situated near St Peter's Square and close to what was in 1819 St Peter's field, where a crowd of several thousand people were demonstrating for parliamentary reform. They were charged by the cavalry and 18 people were killed with hundreds more injured.



The monument will surely attract geologists from around the country. (Image: twitter.com)

Scientists find 'conclusive evidence' that asteroid did cause the K/T extinction event...

The events around the time of the Cretaceous Tertiary boundary some 66 million years ago have been the subject of lots of research and more than a little controversy. This was the most severe mass extinction after the Permian/Triassic boundary was never in doubt with the dinosaurs being the highest iconic group to perish. What has

YORKSHIRE MINERAL & FOSSIL FAIR

18th April 2020

10am to 5pm

The Market House, Hawes, North Yorkshire DL8 3QN



For further information
contact Don Edwards -

don.edwards@talktalk.net
+44-(0)1433 620304
www.petrifactioneer.com/TMFF

A REAL COLLECTOR'S FAIR!

Fluorite on Quartz
West Pastures Mine
Stanhope, Durham

been much discussed is whether it was caused by mass outpourings of lava such as those in the Deccan Plateau of India, or an asteroid impact at Yucatan in Mexico.

Now an international team led by Professor Paul Wilson of Southampton University claims they have conclusive evidence that "It was the asteroid 'wot dun it'!" The paper, published in the journal *Science*, cites evidence from drill cores recovered from the North Atlantic seafloor, where muds containing large numbers of Foraminifera were examined. They revealed changes in temperature and sea chemistry caused by the volcanic eruptions were done and dusted some 200,000 years or so before the impact event. The impact exactly matched the date of the extinctions.

Find out more at the UCL website:

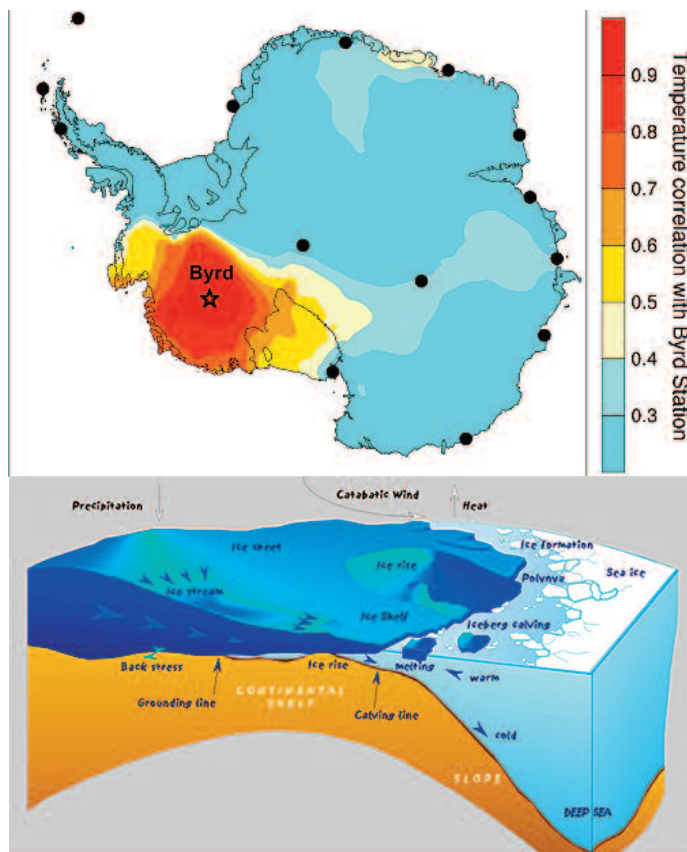
<https://www.ucl.ac.uk/news/2020/jan/asteroid-impact-not-volcanic-eruptions-killed-dinosaurs>

Rapid melting of the West Antarctica ice shelf is the latest evidence of global warming...

A new scientific expedition has been made to the so-called 'doomsday' Thwaites glacier on Antarctica's western shelf.

The glacier appears to be melting at an ever increasing rate with the threat that it will lead to major rises in global sea levels. As part of the research, the glacier has been drilled for the first time with scientists then able to make a detailed analysis of the cores.

There is particular alarm that the glacier is in danger of collapse as it isn't resting on rock but on meltwater. The fear is that a major slice of the western part of the ice sheet will simply slide into the surrounding floating ice fields.



(Image credits: top, phys.org, bottom resilience.org)

From our East Anglian correspondent...

Winter storms are continuing to take their toll on the North Norfolk coast, *DtoE* reader **Richard Mann** reports that there has been a further large cliff collapse at Trimmingham, caused by heavy overnight rain on January 6th. This new collapse adds to a series of events occurring since last Summer, with at least three reported events to my knowledge at Sidestrand and Trimmingham concerning cliff collapse and one reporting the tide removing the Bacton shore sand replacement. The latest collapse at Trimmingham looks larger than the last one, and the line of slip clearly was a linear extension to a much earlier set of landslips that must have occurred before 2019.



Dramatic aerial shot of the cliff collapse at Trimmingham. (Image: North Norfolk News)

GEOLOGY -ISLE OF ARRAN

Understanding The Earth



LOCHRANZA CENTRE CIC

Arran Geopark

Why not escape to Arran this summer & learn about its fascinating Geology with like minded people?

SATURDAY 18th July 2020

6 nights full board accommodation in twin or single rooms.
Transport provided. 5 days of guided walks including some of Arran's classic locations.

TO BOOK:

Email: info@lochranzacentre.co.uk

www.lochranzacentre.co.uk

www.facebook.com/lochranzacentre

CALL: 01770830637



Geology that does not cost the earth

£449.00 per person

Massive book and map event is still on!
At least 10% off all books and BGS maps, plus a clearance event with discounts of 50% or more!
(Available to callers at the shop only)

Several of you have already paid us a visit and gone away with a number of publications. Why don't you pay us a visit during February? You will be most welcome!

Over the past couple of years we've accumulated lots of local publications, some of which are now out of print. We want to clear these along with other books and maps, at discounts of 50% or more, so that we can make space for new titles. We invite you to come and browse!

In addition, we're also giving discounts of at least 10% off regular stock. This includes all BGS books and maps. Many of these are titles not discounted by Amazon!

Available to personal callers only until February 29th. 2020.

See opposite for shop opening hours.
We look forward to seeing you!

William Smith is the new kid on the jigsaw block!

If you enjoyed completing the bedrock geology map of the UK and Ireland as a 1000 piece jigsaw, we've got a second treat for you!

The BGS have produced another 1000 piece jigsaw, this time of William Smith's 1820 Geological Map of England and Wales to celebrate the maps bicentenary.

"In 1820 a New Geological Map of England and Wales, with the Inland Navigations; Exhibiting the Districts of Coal and other Sites of Mineral Tonnage."

W Smith, Engineer.

There are two box sizes, Standard and Letterbox, including a reduced size (248 mm x 327 mm) folded copy of the map to act as a guide.

1000 piece jigsaw finished size 50 x 66 cm (20 x 26"). Made from 100% recycled board.



*Both cost £19.99
 (plus postage and
 are. available from
 Geosupplies.*

*If you order both
 jigsaws, you can
 save £2.00 - just
 £43.90 the pair!*

Order today!

**Our price
 £22.95**

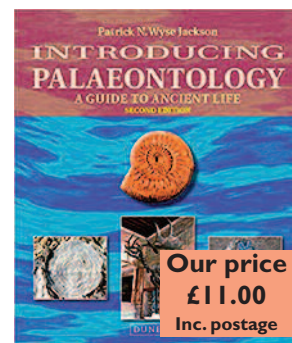
New books for this issue...

Title: Scotland's Mountain Landscapes - a geomorphological perspective
Author: Colin Ballantyne
Publisher: Dunedin Press
ISBN: 978 178046 079 6
Format: Hardback
Cost: £28.00
Level: Adult & general interest
My rating: *****



From our recent review: "This is the first popular book to have focussed on the geomorphology and there's no one better placed to write such a book than Colin Ballantyne."

Title: Introducing Palaeontology A guide to ancient life Second Edition
Author: Patrick Wyse Jackson
Publisher: Dunedin Press
ISBN: 978 1 78046 083 3
Format: Softback
Cost: £9.99
Level: Student & general interest
My rating: *****



"The first edition was a classic, now this revised edition, is even better! This brings palaeontology to life!"

Title: The Rise and Fall of the Dinosaurs
Author: Steve Brusatte
Publisher: Picador
ISBN: 978 1 509 83009 1
Format: Softback
Cost: £9.99
Level: Adult general interest
My rating: *****



Down to Earth readers welcome! **Just 5 minutes off M1 Jn 35 N. Sheffield**

**Book
 & Map
 Sale
 now
 on!**



**Book
 & Map
 Sale
 now
 on!**

GEO SUPPLIES LTD.

49 Station Road, Chapeltown S35 2XE
Tel: 0114 245 5746 • www.geosupplies.co.uk
Open: Mon-Fri 8.30-5.00, Sat. 9.00-2.00

Callers always make savings!

Winter Day Schools are here...

During February and March we'll once again be running a programme of Day Schools in venues around the country. This Winter our Day School venues will be Sheffield, North London, Devizes, Birmingham and Newcastle. If you've not joined us on one of these before, you will be especially welcome. It's enjoyable and informal learning for all!

Wednesday, February 19, Cheshunt, North London

Rockstars, a celebration of famous rocks

There are some rocks that everyone has heard of, like Portland Stone or Shap Granite and 'local heroes' like Hertfordshire Puddingstone. But why are they famous, what makes them so special? We'll be examining some famous rocks in a practical session and then learning more about them in a lively teaching session during this day of two parts. Included in the price is a hot lunch and hot drinks.

Meeting: YHA Lee Valley, Cheshunt, Herts. at 10.30 Cost: £35.00



Wednesday, February 26, Devizes, Wiltshire

The Geology of the British Isles in a day

Come and join us on the journey of a lifetime! It begins more than 3 billion years ago with parts of an ancient continent in what is now Northwest Scotland and ends with the final glacial retreat around 10,000 years ago. Along the way we'll encounter violent volcanoes in Charnwood Forest, dense equatorial forest in South Wales, come face to face with giant dinosaurs on the Isle of Wight and experience one of the world's largest volcanoes on the Isle of Skye. Welcome to what is the geological past of the British Isles! Take part in practical work, and enjoy a video presentation - hang on to your seat, it's going to be a bumpy ride! Full buffet lunch and hot drinks during the day.

Meeting: Devizes Conservative Club at 10.30 Cost £35.00

Saturday, February 29, Chapeltown, Sheffield

The amazing world of minerals

Minerals are simply the Earth's chemical compounds. Many are beautiful, some are valuable, without them we would have nothing. This day looks at all aspects of minerals, their chemistry, their classification and their many uses. There will be plenty of hands on practical work with some fine specimens to enjoy, as well as some lively teaching time. This is a day for anyone with any interest in learning more about minerals. Hot and cold buffet meal provided, plus hot drinks during the day.

Meeting: Commercial Inn, Station Road, Chapeltown Cost: £35.00

Wednesday, March 4 Birmingham

The amazing world of minerals

See Chapeltown above for details of this course. As we are at the Lapworth Museum we'll be able to enjoy some of their fine specimens as part of the practical session. At this venue only hot drinks and biscuits are available.

Meeting: Lapworth Museum, Birmingham University at 10.30
Cost £20.00

Saturday, March 7, Central Newcastle upon Tyne

How the Earth works, new views of an old planet

An exciting day that starts with an examination of our planet through its rocks and minerals and then moves on to peer inside to see how it is constructed, before moving on to examine how our understanding of how it works has changed radically in the last 100 years. Includes some practical hands-on rock work and also lots of handouts!

At this venue, only hot drinks and biscuits are included in the price.

Meeting: Commercial Union building, Newcastle upon Tyne at 10.30 Cost £25.00

Spring Day Trips...

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 and enter the online shop. Alternatively ring us on: 0114 245 5746

Wednesday April 8

Horton in Ribblesdale

Meeting: Horton in Ribblesdale Station at 10.45

Monday, April 13

Charnwood Forest

Meeting: Morley Quarry, Shepshed at 10.30

Saturday, April 18

Rocks & Minerals of the Llangollen area

Meeting: Minerva Country Park at 11.00

Wednesday, April 22

Aust Cliff, Gloucestershire

Meeting: Aust Cliff car park at 11.00


Wednesday, May 27

Rocks of the White Peak, Derbyshire


Meeting: tbc at 10.30

Geology Field Trips Led By


Dr Danny Clark-Lowes




2020 - Geology Field Trip to Annapurna Nepal




2021 - Geology Field Trip to Morocco



2021 - Geology Field Trip to Jordan



INDUS experiences
JOURNEYS OF DISCOVERY



Call 020 8901 7320 or email: holidays@indus experiences.co.uk



Our Residential Field Trip Programme for 2020



Why not hop aboard our 'geobus' and go wherever it takes you?
(Photo: Chris Darmon)

LATEST NEWS: Due to illness related cancellations, we now have a couple of vacancies on the Portugal and Raasay trips - contact us if you want to come!

We can also accommodate several more people on our trip to Norway. If you haven't been then this is a **MUST!** If you book for a group of at least four people we can offer you an attractive discount!

The Summer School, at the University of Worcester in August, now has 25 people booked - remember that there are plenty of single rooms available. We have vacancies on all of our Autumn trips, including Pembrokeshire and Arran, Forest of Dean and the Yorkshire Dales.

For further details, visit the website or
Tel: 0114 2455746.

Booking forms are only available direct from us.
Email: 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 - August 15-22
- 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 * are now fully booked.*

We look forward to hearing from you!

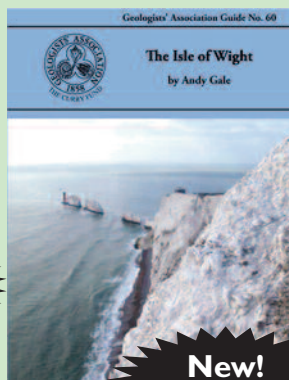


Featured books February - April

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 the month shown above, provided that stocks are available. Please note, all prices include UK postage.

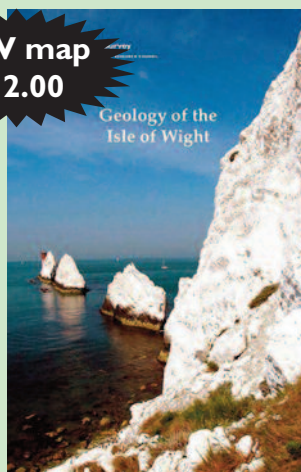


New!
£18.95

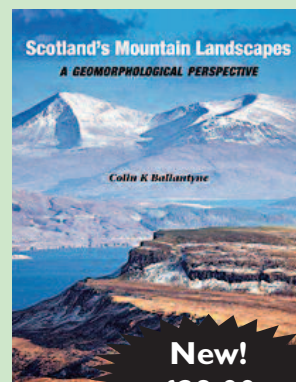


New!
£14.00

LOW map
£12.00



**Buy the book and
map for £23.00!**

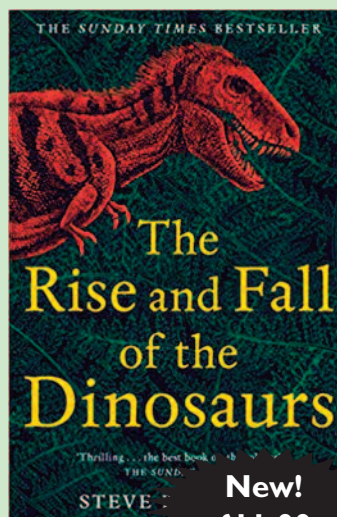


New!
£28.00

**William Smith 1815 map of England & Wales
1,000 piece jigsaw - includes a folded copy of the
map!**



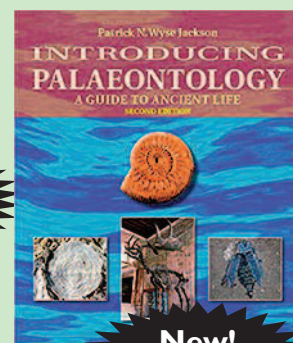
New!
£22.95



New!
£11.00



New!
£15.00



New!
£11.00

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