



Down to Earth *extra*

Issue 72 December 2018

SPOTLIGHT

- All of 2019 now booking with new locations available!
- Summer School 2019 open for booking!
- Winter Day Schools now booking!

Here today, but gone tomorrow. This is a fine Quaternary section at Happisburgh, North Norfolk. It was cut by storms in early 2018 and will be gone shortly.
Photo: Chris Darmon)

From the Editor...

When I penned the editorial for the last *DtoE extra* I was about to go on our last residential field trip of 2018 to the North Norfolk Coast. It was a fabulous trip and a reminder, if ever one was needed, that large parts of our coastline are incredibly fragile. We were able to see at first hand the damage caused by the storms of the last winter.

Since the Norfolk trip, I've had the experience, I won't call it a pleasure, of a triple heart bypass operation! I was admitted to Sheffield's Northern General Hospital on October 30th and had my operation the next day. At the time of writing I'm three weeks post-operative and beginning to return to my computer, at least part time!

The enforced rest, whilst being essential, is also good in other ways. It has given me the opportunity to see things in perspective. First and foremost, I can see how incredibly lucky I am with the people that surround me my partner Arthur and my work colleagues, Len, Colin, Simon and Dan. They have managed to keep the show on the road and ensure that you our customers don't really notice my absence. Secondly, the huge geo-community that is *Down to Earth* has felt like a warm blanket around my shoulders, providing me with kindness and encouragement whenever I felt at a low ebb.

Finally, what do I see with my 'new perspectives'? Two things emerge. Whatever the outcome of our exit from the EU these are challenging times for the UK and we are all going to notice the changes. Globally, climate change and its consequences are with us right now. It's hard to see how we can escape the consequences in the years to come. Yes, I'm back! Thanks for your help. I'm looking forward to seeing some of you in the New Year! In the meantime, have a great Christmas.

Chris Darmon

Down to Earth extra Editor

Come and join us on the Isle of Jersey for Easter 2019!



news update

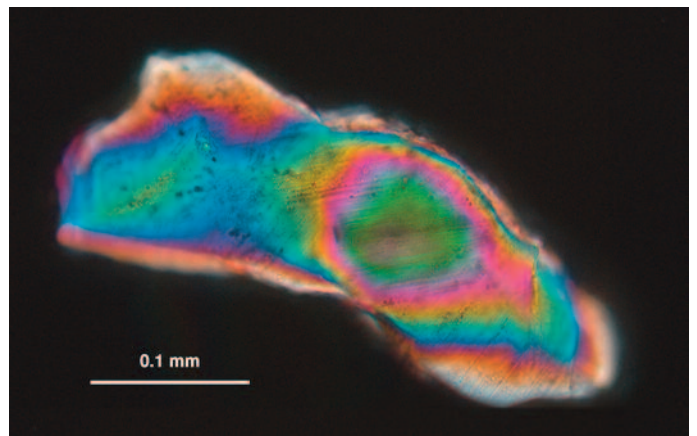
Giant impact crater discovered beneath Greenland's ice sheet...

An international team of scientists based at the Centre for GeoGenetics at the Natural History Museum of Denmark, University of Denmark, under Professor Kurt Kjær have made a remarkable discovery, beneath the Greenland ice cap. Here they have located a meteorite



A reconstruction of the Hiawatha meteorite impact. (Image: Carl Christian Tofte)

impact crater, measuring some 31 km diameter and 7 km deep. It's the first time that such a crater has been found beneath ice anywhere



Quartz grains with planar deformation features, typically associated with meteorite impact sites.

(Photo: Natural History Museum of Denmark)

on the Earth's surface. The crater was formed when a, iron meteorite of around 1 km diameter smashed into northern Greenland.

The crater is very well preserved, which has led to the suggestion that

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. 2018
You are welcome to share DtoE extra with others in your group and reproduce items contained here, provided you acknowledge the source.



The impact site, on the NW coastline of Greenland.

it is probably quite young, around 3 million years old. The impact would have been softened by the presence of ice. It could be as young as 12,000 years.

The team first discovered the crater when they examined maps of the sub-ice topographic surface produced by NASA using the latest remote techniques. Since then they've followed this up with good old fashioned fieldwork to collect the necessary evidence to convince their scientific colleagues.

It didn't take the field team long to locate evidence for the tell tale shocked quartz that provides vital evidence for an impact site. Professor Nicollaj Larsen from Arrhus University was satisfied that he had the evidence needed for a violent impact in the quite recent past.

Ironically, the crater would not have been discovered were it not for ongoing research into the changing face of Greenland's ice in the light of current climatic change. But with the discovery of such a large crater come the obvious questions around the climatic changes that the impact may have generated.

The first thing that the scientists need to do now is to accurately date the impact. Only then will they be able to move on to try and assess how such an impact affected the climate and life on our planet.



The location of the Hiawatha impact crater on the margin of the ice sheet in NW Greenland.

(Photo: Natural History Museum of Denmark)

The Crystal Palace dinosaurs need our help...

*Over the years the historic dinosaur models that are sited in Sydenham Park have been given space in the pages of **Down to Earth**. Aside from the Natural History Museum's 'Dippy' they are probably our most famous historic dinosaurs. Now, it seems they are in desperate need of our support, according to Professor Adrian Lister of The Natural History Museum.*

"I'm writing to ask for your help in preserving and making accessible a major attraction in south London. The Crystal Palace Dinosaurs are a series of some 30 life-size models of dinosaurs and other prehistoric creatures in Crystal Palace Park. As well as attracting thousands of



Show Dates

January 19 & 20 Rock, Gem 'n' Bead Show
The Hop Farm, Paddock Wood, Tonbridge, Kwn

January 26 & 27 Rock, Gem 'n' Bead Show
Chepstow Racecourse, Monmouthshire

February 16 & 17 Rock, Gem 'n' Bead Show
Pavilions of Harrogate, North Yorkshire

March 2 & 3 Rock, Gem 'n' Bead Show
Kempton Park Racecourse, Sunbury on Thames, Middx.

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>

visitors a year, they have great historical importance as they date from the 1850, were designed by Sir Richard Owen and were the world's first life-size reconstructions of dinosaurs.



Two of the magnificent Crystal Palace dinosaurs – currently visible only from a distance and after 180 years exposed to the elements, urgently in need of conservation

The Friends of Crystal Palace Dinosaurs is a charity whose mission is to enhance public access to these national treasures, and also to ensure their ongoing conservation. Many of the models are located on an island in an artificial lake within the park. They are thereby isolated and our urgent current need is to build a bridge that will allow us to take up to 1,200 adults and children a year onto the island, as well as allowing us to undertake urgent conservation work. The bridge has already been designed by award-winning architects Tonkin Liu, and we are now seeking to raise £76,000 to build it. For this we have an active crowd-funding campaign that is now just over half-way to its target, including a £30,000 pledge from the Mayor of London. We urgently need donations before the deadline of 17th December to ensure that the bridge is built and the dinosaurs' future secured."

for more information, go to:

<https://cpdinosaurs.org/>
https://en.wikipedia.org/wiki/Crystal_Palace_Dinosaurs

To make a pledge go to:

<https://www.spacehive.com/bridges-to-the-crystal-palace-dinosaurs>

Iceland's Katla volcano is emitting 'globally significant' amounts of CO₂, say scientists...

Iceland's Katla volcano is currently inactive and is covered by ice, but it's far from benign when it comes to emissions of the greenhouse gas, carbon dioxide.

Researchers flew a sensor laden aircraft over Katla at low altitudes three times during 2016 and 2017. At some points, CO₂ levels were some 8% higher than normal. The origin of the gas is thought to be related to meltwaters that are enriched in dissolved gas.

Based on the teams modelling, Katla is emitting somewhere 12 and 14,000 metric tonnes of carbon dioxide each day. This is several times higher than the previous estimate for all of Iceland's volcanoes.

The research was published in Geophysical Research letters.

My precious ammonites...

It's always good to hear from our readers, and especially when they tell us of something that they've done to celebrate our fossil heritage. This came from reader John Clark in Grimsby.

I have had 5 of these ammonite pendants specially made for my wife, daughters and grand daughters. They were made from recycled silver by Katie who runs a tiny jewellery shop in Cleethorpes. It is called 'Salt and Silver'. She makes casts of shells and recycles jewellery.

If *Down to Earth* readers are interested I know that Katie would be very helpful. I've even allowed her to keep my ammonite mould."



Katie@saltandsilverjewellery.co.uk
Telephone 07801 980976.

Volcanic Experiences tel. 01527 832 578

Experience some of the most spectacular sights nature has to offer!

Volcanic Experiences 2019

Small group tours to areas of superb geological interest

Sicily & the Aeolian islands ~ May 16th to 23rd
 (includes visits to Etna, Vulcano and Stromboli)

Iceland: Myvatn & the active North ~ September 4th to 11th

Sorrento & the Bay of Naples area (Vesuvius & Pompeii)
 ~ October 26th - November 2nd

Special tailor-made tours also arranged for local groups, schools and colleges

For further details contact Alan Clewlow on 01527-832578

Volcanic Experiences Ltd.
19 Manor Court Road, Bromsgrove, Worcs. B60 3NW

www.volcanic-experiences.co.uk



Alan Clewlow

Winter Day Schools

We are pleased to announce a new programme of day schools this Winter. These courses normally run from 10.30 to 4.00 and always involve lots of hands on practical work. They are suitable for people with a range of geological knowledge, including beginners. A discount of £5.00 per person is available for holders of Club Class and groups of 6 or more people.

Saturday, January 26

St Pancras YHA, Euston Road, Central London

"All that glitters is not gold" is a lively look at minerals through the medium of some nice specimens and photographs. Suitable for beginners as well as experienced people. **£45.00 including lunch.**

Saturday, February 2

Commercial Union building in central Newcastle upon Tyne

"Fossils for everyone" - a great mixture of practical hands on with specimens and some real fossils, some great images and also some sound basic teaching. Fossils aren't just for the super keen palaeontologist, they are for everyone!

£25.00 including light refreshments

Wednesday, February 6

Lapworth Museum, University of Birmingham

"All the time in the world" - a look at the vast expanse of geological time. How do we know the age of rocks? How is time divided up?

Who were the people behind geological time?

£20.00 including light refreshments.



*Devizes
Conservative
Club*

Wednesday, February 20

Conservative Club, Devizes, Wiltshire

"Geological Jigsaws" - our brand new fun day comes to Wiltshire - join in the fun of our latest mind-bending exercise involving specimens, pictures and a map, all designed to stretch your knowledge! **£35.00 including lunch buffet.**

Saturday, March 9

The Commercial, Chapeltown, Sheffield

"Every picture tells a geological story 2" - a repeat of our popular day school, using 30 brand new images, accompanied by some super specimens. This is always good fun as you seek to match up the specimens to the images. Some are easy but others will stretch you! **£35.00 including a 'Commie' buffet lunch.**

Wednesday, March 13

Lea Valley YHA, Cheshunt, Hertfordshire

"All the time in the world" - takes a long look at geological time and how we divide it up, through the medium of selected geological

locations, specimens and maps. We'll also learn about some of the pioneers of our subject. **£35.00 including lunch.**



Saturday, March 23

The Bridges Centre, Monmouth

"Every picture tells a geological story" - our popular hands on session with geological pictures and specimens. They all tell a story and the fun is interpreting them and matching the specimens and pictures. Suitable for all. **£35.00 including lunch.**

January 2019 distance learning courses

For this coming Winter we are running one brand new course entitled "Around the world in 10 great geological stories".

We'll also be offering the following courses in the "How the Earth works" and "Time Traveller's Britain: Part 1" as supported self study course on Moodle, our easy to access learning platform.

"Around the world in 10 great geological stories" is a 10-week course that will take a look at some of the world's finest geology. It begins with a look at Iceland and how our interpretation has radically changed in the last few years. Also covered are: The Channel Isles, The Himalayas, fabulous fossils from China, Cyprus, The Grand Canyon, The Rockies and Montserrat.

Cost: £75.00 by Moodle/Email or £100.00 by post.

"How the Earth works" is a 10-week course that examines the fundamental workings of our planet. What it is made of, what volcanoes and volcanic rocks tell us about the composition of the continents and ocean floors. Above all, it takes you through the various discoveries that eventually led to the formulation of plate tectonics theory and the impact that has had on our understanding.

Cost: £75.00 by Moodle/Email, or £100.00 by post.

"Time Traveller's Britain Part 1" is a 10-week course that takes a close look at some of the British Isles most treasured bits of geology, along with some of the giants of Earth science. Included in Part 1 of the course are: James Hutton, The Isle of Raasay, Mary Anning, the Highland Controversy, Roderick Murchison and County Antrim.

Cost: £75.00 by Moodle/Email, or £100.00 by post.

Finally, for those of you looking for a beginners' course in geology, we're delighted to be able to inform you that our popular 'Steps towards the rock face' course is now available 'on demand', at any time of the year. It allows you to access the materials at any time for a period of 6 months on our Moodle site, or to receive them in printed form.

*For further information or to enrol, go to: www.geosupplies.co.uk
Or for more information email: downtoearth@geosupplies.co.uk*

We've still got some great locations available for 2019 field trips...

El Hierro & Tenerife, February 23-March 2

We can accommodate a maximum of 5 more people on this Winter trip to the sunshine of the Canary Islands. El Hierro is the least developed of the islands, and it's also the place where there has been the most recent volcanic eruption! With the island a UNESCO protected natural habitat, this is somewhere to come and sample!

Spend Easter in Jersey, Channel Isles April 20-27

Come and spend Easter with us on the fabulous Island of Jersey! Come and enjoy a bit of French geology! There's a basement of igneous and metamorphic rocks that date back 2 billion years, along with some more recent sedimentary formations.

The scenery, along with the beaches make for an excellent backdrop to our studies. Add in a good quality, family run hotel, and the hoped for warm weather that is so characteristic of the Channel Isles and we are set for a great week! If you want to join us - make that booking without delay!



A lovely part of Jersey's dramatic shoreline

Eastern Lakes and Howgill Fells, June 11-16

The title of this trip says it all - you are sandwiched between the Lake District in the west and the Yorkshire Dales in the East and right there in the middle lies our base at Shap Wells and the nearby Howgill Fells.

The Shap Wells Hotel has been welcoming geologists for more than a hundred years, including some of the people who mapped the area. It provides us with the perfect base from which to explore the local area.

Summer School, Derbyshire Peak District, July 20-27

For our third annual Summer School we're heading for Britain's first National Peak in the beautiful Peak District of Derbyshire. Our base, in the village of Calver, is Cliff College where we will be well looked after in en suite single (and a few twin) rooms.

During a packed week we'll be taking in a superb limestone cavern in Buxton, an ancient copper mine in the Manifold Valley and a world heritage bone case in Nottinghamshire - just to name a few! We'll also have a programme of indoor talks and activities for the evenings, as well as a choice of field excursions on several days. Now all we need is for YOU to make a booking!

The Northumberland Coast, September 22-27

Come and join us as we visit a new section of the Northumberland Coast, this time the section from Seahouses down to Sunderland. You'll be able to see fine sections in the Great Whin Sill as well as sedimentary rocks from the Carboniferous and the Permian.

This is an area where you can come to expect the unexpected as we take you to see some excellent rocks and some fine structures. Top of the list are the cannonball limestones of Seaham, where there will definitely be more questions than answers!

The beautiful Llyn Peninsula, October

The remote Llyn Peninsula sits between Anglesey in the west and Snowdonia in the east, but its geology is different to both places. Come and enjoy great Welsh hospitality and excellent rocks and scenery.

We can offer you serpentines, basalt pillow lavas, granodiorites as well as slates and some really exotic rocks, the like of which you may not have seen before! All of this on a fine stretch of coastline that's completely unspoilt. This trip is already proving to be popular, so book up early so you're not disappointed.

Brochures for all these trips can now be viewed on our website:

www.geosupplies.co.uk

To obtain a booking form for any of the above trips, please contact us by email: downtoearth@geosupplies.co.uk or telephone us on 0114 2455746

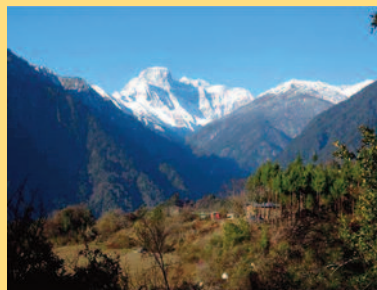


Bhutan Trek & Tour with Geology Focus Led by Dr Danny Clark-Lowes 23 March to 07 April 2019

Taking the Jomolhari Trek in the northwest mountains of Bhutan, this tour, led by geologist Dr Danny Clark-Lowes, will take you through spectacular Himalayan mountain scenery and give you 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 £3,400 excluding flights to and from Kathmandu.



Contact:

*Dr. Daniel D. Clark-Lowes FGS
HimalayanGeoTours
Oak Court, Silver Street,
Wiveliscombe, Somerset,
TA4 2PA U.K.*

**Facebook Page: www.facebook.com/clarklowesdd/
Telephone: 01984 624528 • Mobile: 07980 897270
d.clarklowes@nubianconsulting.co.uk**

All of our 2019 residential trips are now on sale!

New venues revealed for the Autumn period!



The unstable cliffs of Lower Cretaceous, Hastings Beds at Hastings

We've now released all of our 2019 programme for you to book with the addition of a Peak District Summer School in July and a great Autumn line up.

September sees us breaking new ground in Southeast Cornwall and on the Northumberland Coast. In October, we're taking in the Hastings area, and the Llyn Peninsula.

Apart from the Summer School, single rooms are limited so early booking is advised. At the moment, we have availability on all trips, but this can change very quickly!

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

Tel: 0114 2455746

Email: downtoearth@geosupplies.co.uk

The complete 2019 field trip programme...

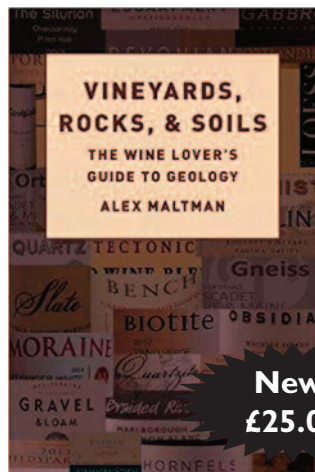
- El Hierro - February 23 - March 2
- Jersey, Channel Islands - April 20-27
- Oban & Colonsay - May 11-19 - sorry full
- The far north of Scotland - May 31 - June 8
- Eastern Lakes & Howgill Fells - June 11-16
- Southwest Scotland - June 28 - July 6
- Summer School, Peak District - July 20-27
- Southeast Cornwall - September 7-14
- 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
We look forward to hearing from you!

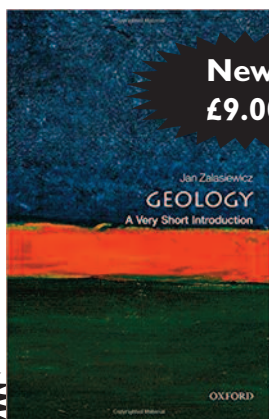


Books make excellent Christmas presents

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 2019, provided that stocks are available. Please note, all prices include UK postage.



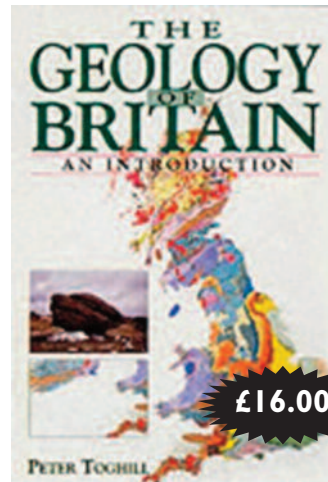
New!
£25.00



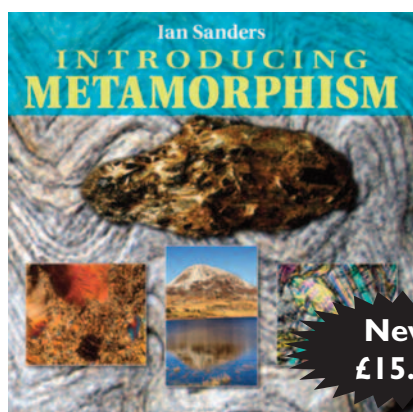
New!
£9.00



New!
£10..99



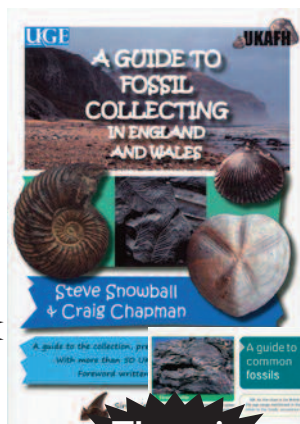
£16.00



New!
£15.00



Good read!
£29.00
hardback

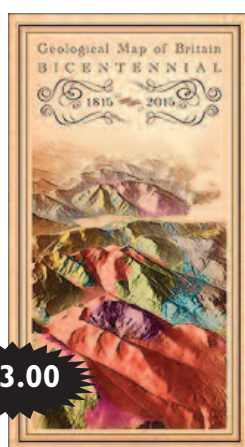


The pair
£22.00

"The William Smith collection" - facsimile of the 1815 map, and the accompanying memoir, plus a modern map in the style of Smith...



Nice buy!
£25.00
the pair



£13.00



Buy all three for
£35.00
and save!

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