



Cambridgeshire
Geological Society

Cambridgeshire Geological Society

Chairman: Dr. Reg Nicholls

Newsletter : Autumn 2022

EDITORIAL: *Dr. Colin Canfield.*



Examining the spectacular chevron-folding in the Carboniferous strata at Millook Haven, north Cornwall, during the excellent GA field meeting, held 30th April - 1st May, led by Dr. Jonathan Turner. This was almost the only point during the weekend when it wasn't raining however. Ed.

A Plea to Members from the New Editor.

For any society or organisation, the principal advantage of accepting a new member on to the committee is that he or she will often make a rash commitment which wiser and more experienced members have long eschewed. Imagine my consternation therefore, having volunteered to edit this newsletter, and with a minimum of four pages to fill, then to be told that virtually the only contributors were Reg and Chris!

The publication of a newsletter, I think one can say without fear of contradiction, is rather dependent on there being news to publish, the clue being cunningly hidden in the name. **PLEASE**, therefore, do make sure you write up and send me reports of any of your geological doings as they occur, be they visits attended, talks heard, books read, or any vaguely interesting snippets picked up. My e-mail address is secpc@talktalk.net. An interesting newsletter requires a wide and varied content.

Many thanks. Ed.



This means

BOOK REVIEW: *Reg Nicholls.*

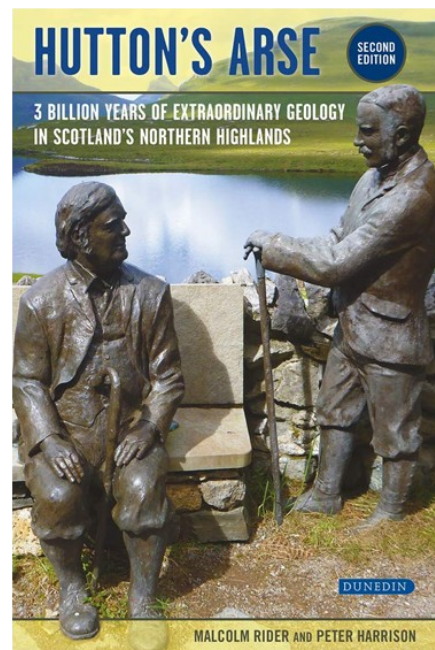
Hutton's Arse by Malcolm Rider and Peter Harrison 2nd Ed published by Dunedin

ISBN 9781780460932

If you are a fan of the geology and scenery of the North West Highlands of Scotland, then this book is for you. It begins at the beginning of the Earth and covers with separate chapters the various earth-forming events in the area. Apart from the Lewisian Gneiss, the Tertiary Volcanic province and the red Torridonian, it has a chapter on the Moine Thrust and the development through time in the ideas as to what it actually is, dealing with many of the characters involved.

There is a chapter on the Ice Age and the lasting effect it has had on the current landscape as well as the Devonian Fish Beds of the north.

I found this book packed with information and detail and also pretty readable. If you want to find out what Hutton's backside has to do with it – you need to read to the end!



Deadline for the receipt of contributions for the January Newsletter:

Christmas Day in the morning.

REVIEW OF THE TALK GIVEN TO THE SOCIETY ON 12TH SEPTEMBER 2022: Reg Nicholls.

Regional Perspectives on Chalcophile Metal Contents from Volcanoes in Java, Indonesia, by Dr. Nicholas D. Barber.

The inaugural talk in our new venue was given by the recently graduated Dr Nick Barber from the Department of Earth Sciences, Cambridge. Although the large hall with its modern facilities was well appreciated by the 28 strong audience, we took a few minutes to figure out the AVA – but still managed to start on time! Our thanks are due to Jeff and Paul who provided the pre-talk refreshments.

Nick began his talk by showing an example of metallization nearer home – in Cornwall. The demand for Lithium for battery storage has made mining for it in Cornwall economic and he described one novel way of accumulating the metal with little surface infrastructure.

He then proceeded to describe how most elements have an affinity for being present in ore bodies as:
 Lithophile – held directly in rocks often as oxides;
 Siderophile – appearing as iron compounds;
 Chalcophiles – appearing in association with sulphur;
 Atmophiles – appearing as noble gases.

He then took us to his study area in Java where the subductions along the complex plate margins, give rise to metallization emanating from the subterranean magmas. The effect of the type of crust being subducted on the types of ore bodies was discussed as well as the presence of water in the magmas.

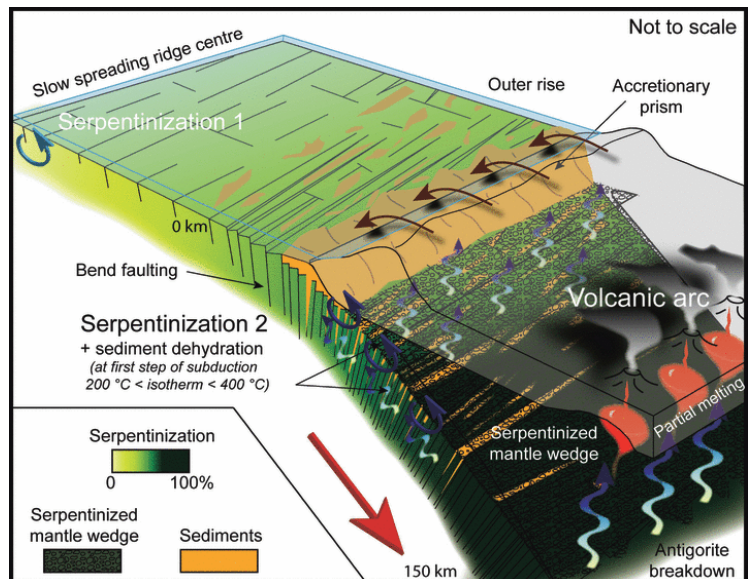
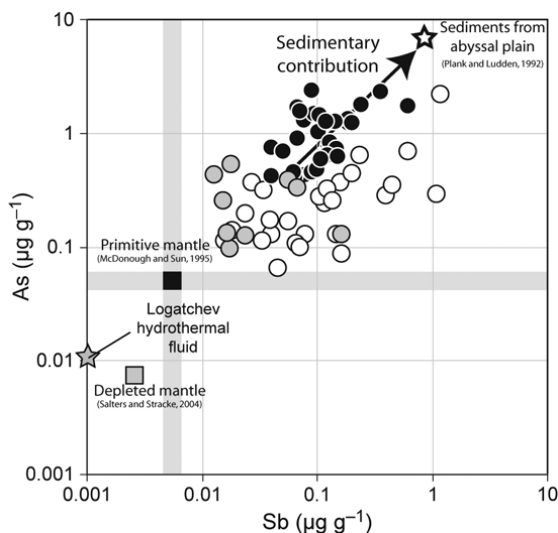
Terra Nova

doi: 10.1111/j.1365-3121.2011.00995.x

Serpentinites act as sponges for fluid-mobile elements in abyssal and subduction zone environments

Fabien Deschamps,^{1,2} Stéphane Guillot,¹ Marguerite Godard,² Muriel Andreani³ and Kéiko Hattori⁴

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The talk ended with Nick giving his thoughts on future research which he hopes to carry out on these ore deposits when he moves to McGill University in Canada.

REPORT OF THE MEETING OF THE BRITISH ASSOCIATION (GEOLOGICAL SECTION) courtesy of the Fife Journal, Thursday, October 10th 1844.

(The editor regrets that there seems to have been some unaccountable delay in bringing this important item of geological news to his attention.)

The meeting of [the British] Association appears to have revived this year, at York, all its popular interest. The attendance of savans [sic] has been good. Among the more prominent names we notice those of Professor Liebig, Professor Owen, Colonel Sabine, Dr. Scoresby, Professor Sedgwick, Professor Forbes, the Chevalier Schomburgk, Mr. George Stevenson, Mr. Lyall, Professor Matteucci, the Earl of Rosse, the Marquis of Northampton, Earl Fitzwilliam, Mr. Everett, Captain Maconochie, Dr. Hodgkin; with many others well known in science. The proceedings of Friday derived all the interest belonging to sharp oral controversy; arising out of a paper read by the Dean of York in the Geological Section entitled "Critical Remarks on certain Passages of Dr. Buckland's Bridgewater Treatise". The Dean directed his observations entirely to Dr. Buckland's theory of cosmogony; and he attempted to reconcile observed geological facts with the Mosaic account of the creation. The theory he wished to substitute for that propounded by Dr. Buckland was one that would, he thought, reconcile the whole observed phenomena with the account of Moses, that the world was created within a comparatively short period. he supposed the earth, and the air and the waters of the earth, to have been created at one time, and thickly stocked with inhabitants; that by the action of volcanoes on land and under the sea, and by a great and sudden flood of water over the land, the upper strata were deposited, and the animals then living were destroyed, and thrown together in masses so as to form the strata of fossil organic remains now found in various parts of the world.

Professor Sedgwick undertook to reply to the dean of York's objections; Dr. Buckland being prevented from attending the meeting by a sudden domestic calamity. The Professor's reply occupied an hour and a-half; and it was a most slashing, uncompromising, and almost annihilating speech. He commenced by apologising on behalf of the Council for their having allowed such a paper as the dean of York's to be read. The principal object of the British Association, he observed, was the discovery of facts whereon theories might be based; but it was altogether foreign to their plan to discuss mere hypotheses, without any facts to support them, such as

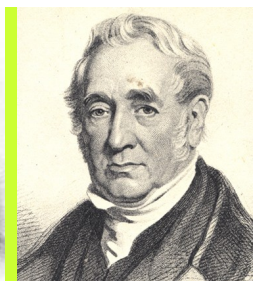
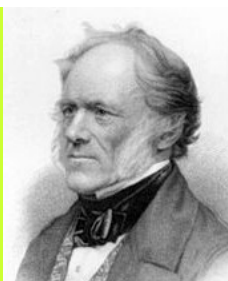
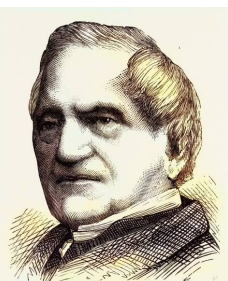
that of the Dean's. An exception, however, had been made in his case, partly from the position he holds, and more especially from the general feeling entertained on the subject of cosmogony, and the desire which many individuals possessed of seeing the facts of geology reconciled with the Mosaic account of the creation. The dean of York's hypothesis was not only unsupported by facts. but it was in direct opposition to them; and it showed that he was utterly unacquainted with the elements of the science. The reverend professor then proceeded to state many of the phenomena of geology, to prove the utter impossibility of the work of creation having been completed within the limited period supposed by the Dean. In making this assault on the dean of York's theory, the reverend Professor was not sparing in disparaging expressions. He spoke of the inconveniences of allowing "addle-pated" individuals to occupy the time of the Association with their crude speculations; he said the dean had shown himself to be quite ignorant of the facts; that he should have come there to learn, and not to presume to teach geological truths; and that such indigested notions were merely "tales for the nursery", and not fitted for a scientific assembly.

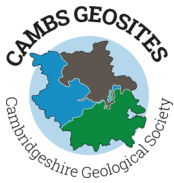
The Dean of York published his paper in the afternoon, under the invidious title of "The Bible Defended against the British Association". The Dean even carried the controversy into the pulpit; and the understanding that he would do so drew as crowded audience to the Minster on Sunday. He took for his text the third chapter of the first epistle to the Corinthians, the nineteenth verse, "The wisdom of this world is foolishness"; and on this sentiment he enlarged, showing that the tendency of worldly knowledge is to render "pigmy man" wise in his own conceit, and to produce infidelity. The sermon was a very good one, and was delivered with much eloquence; and, putting aside the circumstances under which it was delivered, would have been generally approved. Professor Sedgwick sat near the pulpit; and though there were no personal allusions in the discourse, yet the significant glances and smiles of the congregation showed their application of expressions to the members of the Association.



Pictured, left to right:

1. Rt. Rev. William Cockburn
(Dean of York, 1823-58);
2. Rev. Professor Adam Sedgwick;
3. Sir Charles Lyall, Bart.,
4. Mr. George Stevenson, railway engineer.





MORE LOCAL GEOLOGICAL SITES: *Chris Donnelly.*

At the October County Sites Meeting we hope to have three more sites designated as Local Geological Sites, which will bring the total in Cambridgeshire (not including Peterborough) to nine. These sites include two more chalk pits and another chalk spring. Stapleford Parish Pit (owned by the Magog Trust) has exposures of the New Pit Chalk, which lies above the Holywell Nodular Chalk (seen in the top of the cliffs at East Pit LGS, Cherry Hinton). Heydon Clunch Pit (owned by Heydon Parish Council) lies above Stapleford in the chalk sequence, and the 'cliffs' here are of the Lewes Nodular Chalk. Heydon also shows the effects of ice, with brecciated chalk and some evidence of possible ice-pushed chalk rafts – still being investigated! Fowlmere Springs (owned by the RSPB) has a number of chalk springs supplying pools and the River Shep which flows through the site. As with other local chalk springs, the water flow is supplemented due to current low water availability within the chalk. All three sites are well maintained for public access and valued by local people, making them very suitable for telling their local geological story.

Heydon and Fowlmere were two of the twelve sites mapped as candidate LGS last year and we are pleased to propose them now for full designation. We are also proposing another seven 'candidate' LGS for mapping on the county's records. These include Isleham Lime Kilns and Quarry, Dernford Reservoir, Wicken Brick Kiln and Pit, and Anglesey Abbey Pit. We hope these will go on to become fully designated LGS once further discussions on management have taken place with their owners. Do let us know of any sites in the county that you think have geological value, whether scientific, educational, historical or aesthetic. Look out for news on these sites soon!



Stapleford



Heydon



Fowlmere



FEN EDGE TRAIL WALKS: *Chris Donnelly.*

This summer saw the publication of the walk from Castle Hill in Cambridge to the Sedgwick Museum. Thanks to Martin Evans (alias our Treasurer), who designed the walk and wrote up the many features of interest and also guided a group on the walk on a very sunny day in June. Walking from the chalk ridge, with views over the city's rooftops, across the underlying Gault Clay, through river terraces of gravel and river meadows of alluvium, the geological history of the Cam Valley gradually reveals itself, as do the hippos, bison, elephants and hyenas that once roamed here. Add to this the clues to be found of the (unknown by many) industrial landscape that once occupied the riverside, the variety of building stones to be seen, and the rich cultural history that surrounds you (plus the odd ice-cream en route) – the walk is full of interest and gives a very different perspective to this well-known city. Several more walks should be published this autumn and winter, so get ready for views from the high (Kimmeridge Clay and 'Greensand') ridge at Haddenham, the historic 'gravel' landscapes of Somersham and Thorney, the iconic church on an Oxford Clay 'hill' at Woodwalton and the Jurassic limestones of Peterborough. Also, look out for news of Reg's additional (due to popular demand) walk from Reach to Burwell!



View from Castle Hill



Bison skull, 38,000 years old, found in Sidgwick Avenue, now in the Sedgwick Museum



Sheep's Green

FORTHCOMING CGS MEETINGS:

Monday, 10th October 2022

**Darwin and the Geology of the Galapagos.
Professor David Norman, Dept. of Earth Sciences, Cambridge**

**Hall 1,
St Andrew's Centre,
School Hill,
Histon.
CB24 9JE.**

*All talks are at 7.30. p.m.
(Doors open 7.00.p.m.)
Everyone welcome.*

*Free to CGS members,
with a small charge for non-
members.*

Charles Darwin is, of course, justly famous for his detailed compilation and analysis of the evidence that formed the basis for a non-theological explanation of the diversification of organic life on Earth through the publication of *On the Origin of Species* in 1859. His subsequent books reinforced these views, and history shows that he was able to establish new branches of scientific investigation and that his theoretical model was largely correct – even though he couldn't adduce the underlying mechanism that made it all happen. As a consequence, he stands alongside Newton as one of our intellectual pillars. But what if he had not published for fear of offending society and his deeply religious wife Emma: would we even remember him? I think we probably would because the early part of Darwin's career saw him establish himself as one of the most able observational and interpretative geologists in the world (Geikie was shocked to realise this in 1907!) – Darwin just got distracted from his 'first love' by all those organisms.

Monday, 14th November 2022

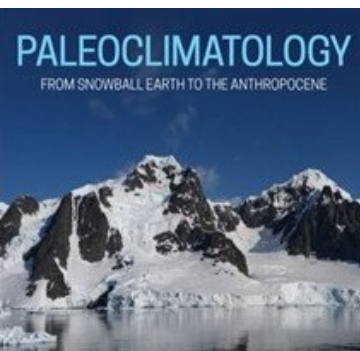
**A Recipe for Disaster.
Dr. Ekbal Hussain, BGS.**



Globally, two-thirds of deaths arising from natural hazards in recent decades were caused by geological hazards. But how and why do natural hazards turn into disasters? In this talk, I will explore this question through the lens of one particularly troublesome hazard: earthquakes. The death toll for a given earthquake magnitude (and mechanism) will depend on geographic location, the social vulnerability of communities and the quality of the building stock. This talk will compare and contrast global trends in earthquake fatalities and aim to extract common themes that exacerbate the impact of natural hazards, and consider where and why these turn into disasters.

Monday, 12th December 2022

**Paleoclimatology from Snowball Earth to the Anthropocene.
Dr. Colin Summerhayes, Scott Polar Institute.**



This talk will explain how greenhouse gases and temperatures varied through time, giving us alternating periods of warm 'greenhouse' climate and cold 'icehouse' conditions over the past 800 million years. I will explain how it was that Antarctica was once covered by subtropical forests and why ice sheets did not cover it until 34 million years ago and go on to explore the origins of the global Ice Age of the past 2.6 million years, the roles of the Sun and of the Earth's orbit in controlling past climate change, and how the past is a natural analogue for today's unnatural global warming. The past is the key to understanding the future.



OTHER RELEVANT EVENTS:

Friday, 7th October 2022

**The Rise and Fall of the Last British-Irish Ice-Sheet.
Professor Chris Clark, University of Sheffield.**
Geologists' Association - Janet Watson Lecture Theatre, Burlington House, Piccadilly. W1J 0BA.

(Continued.)

Tuesday, 18th October 2022

Fissures along Fault: Formation, Filling and Importance.

Dr. Noel Woodcock, University of Cambridge.

Friends of Sedgwick Museum - Downing Street Cambridge. CB2 3EQ.
(7.00.p.m. for 7.30.p.m.)

Tuesday, 15th November 2022

Stretching Ice to the Limit: using Ice Microstructure to understand the Acceleration of Polar Ice Flow.

Dr. Sheng Fan, University of Cambridge.

Friends of Sedgwick Museum - Downing Street Cambridge. CB2 3EQ.
(7.00.p.m. for 7.30.p.m.)

Friday, 2nd December 2022

Volcanic Activity Up Close.

Dr. Evgyeniya Ilyinskaya, University of Leeds.

Geologists' Association - Janet Watson Lecture Theatre, Burlington House, Piccadilly. W1J 0BA.



SUGGESTED VISIT:

Members who have little cause to venture into the terra incognita of south London may be unfamiliar with the **Horniman Museum in southwest Lewisham**, with its extensive natural history gallery and fossil collection. Five minutes walk from Forest Hill London Overground station, this is well worth a visit for anyone who, like the editor recently, is going to London for the evening and wants somewhere to visit earlier in the day. The fossil collections are reputed to include over 175,000 individual specimens and while the editor didn't notice quite that many, there are certainly a lot, of which those displayed around the gallery are set out chronologically according to their geological periods. Admission to the museum is free, albeit with a charge of £6.50 to visit the separate butterfly house (which is worth the money) or £5 to visit the aquarium (which probably isn't). There is a café on site, which sells a good variety of cakes and a limited range of hot food, but, alas, seemingly no sandwiches!

