



# Cambridgeshire Geological Society

Chairman: Dr. Reg Nicholls

**Cambridgeshire**  
Geological Society

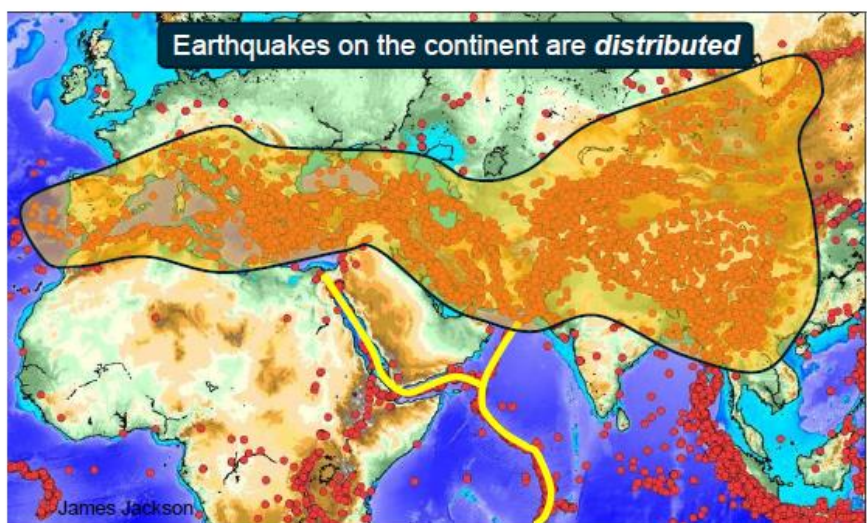
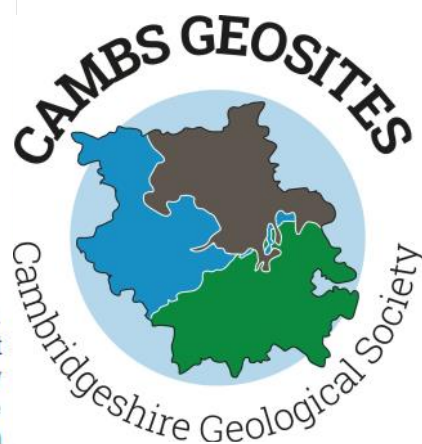
Newsletter: Winter 2022/23

## REVIEW OF THE TALK GIVEN TO THE SOCIETY ON 14TH NOVEMBER 2022: Reg Nicholls.

### **A Recipe for Disaster, by Dr. Eckbal Hussain, British Geological Survey.**

In this talk we were given a view of earthquakes that geoscientists often gloss. Geoscientists tend to focus on the mechanics and the origins of a natural event and do not consider how it can turn into a human disaster. Dr Hussain began by showing the global distribution of the main clusters of earthquakes. Although we are familiar with the dangers encountered along the major subduction zones down the west coast of the Americas and around the complex Asian plate boundaries, a huge number are *distributed* across the Asia| Minor Zone through to the N. Mediterranean. It is these areas that have accounted for most fatalities in recent history.

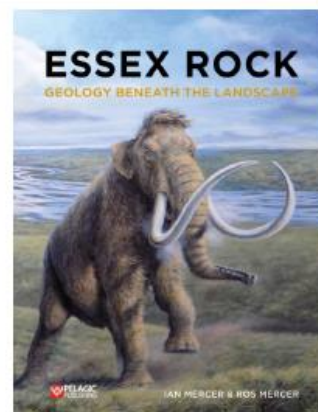
An earthquake turns into a disaster through human influence, with concentrations of habitation in high risk areas, poor building standards and corrupt building practices among the main reasons. 83% of deaths from earthquakes in a recent survey period were in low income, corrupt nations. However, global fatalities from disasters have been decreasing from a maximum in the 1920's, despite dramatic growth in population This is partly due to reducing vulnerabilities and better hazard management processes.



### **BOOK REVIEW: Anne Squire.**

Ian & Ros Mercer, **Essex Rock: Geology beneath the Landscape**, Pelagic Publishing, ISBN 9781784272791.

I enjoyed this book very much, which tells the story of Essex rock from the distant past to the present and through to the future. It is easy to read, has lots of pictures and clear charts, and presents scientific information in a way that is comprehensible to the general public. If you are interested in Essex it is obviously especially fascinating but much of the material could also apply to other local counties. The authors' practical experience and enthusiasm is clearly communicated to their readers, encouraging them to explore for themselves. The book includes a selection of sites to visit and views to see.



**Deadline for the receipt of contributions for the April Newsletter:**

*St. Patrick's Day.*

## NEW WALKS AND A HISTORY PODCAST ON THE FEN EDGE TRAIL! *Chris Donnelly.*

December saw the publication of four new Walk Guides including two with a difference. We have now expanded into the realms of podcasts and YouTube videos!



1. The first of these four walks is also the first walk on the western fen edge to be published: starting in Sawtry (named after salt, once a precious commodity made in the Fens), the walk passes the site of Sawtry Abbey, the iconic (and once deserted) church of St Andrew's situated on a lonely hill outside the village, and finishes in Wood Walton. The geology is nearly all Oxford Clay (including the hill!) except for a patch of peat in Sawtry Fen that fills one of the intriguing periglacial 'bays' on the fen edge. The walk is on the edge of the rich wildlife area of the Great Fen, including nearby Woodwalton Fen, and was developed in partnership with the Great Fen Heritage Group.



*St Andrew's church, Wood Walton*

*Monk's Lode near Sawtry Abbey*

*Wood Walton Green*

2. The second walk is the third to be published on the Isle of Ely, following on from the walks from Witcham to Mepal and then Sutton on to Haddenham. From the heady heights (38m. OD) of the centre of Haddenham, it takes you via Aldreth and the Old West River to Wilburton, crossing seven types of geology in total! This is a lovely area, full of history, and with views down from the high Kimmeridge Clay, Woburn Sands and Gault clay ridge that runs east to west along the south of the Isle of Ely. The walk follows the Aldreth Causeway as you descend onto Amphill Clay and cross the terrace gravels of the Ouse 'system' as well as peat and alluvium near the river. It is in the area where the 'New Life in the Old West' project is running and we hope to work with them in the future to arrange joint walks.



*The Old West River*

*Nine Acre Wood*

*Aldreth Causeway*

3. The third walk is the penultimate walk to be published of the six that link Ramsey with St. Ives. Starting in Somersham, where the walk from Warboys finishes, it takes you via Colne and on to Earith, the start of the walk along the river valley to Needingworth. Only the final section, from Needingworth to St. Ives remains to be published. After a pleasant stroll through fields and along farm tracks to Colne, you pass through the Somersham to Earith fen edge which is now a land of flooded sand and gravel pits but was once the first dry land after travelling west from the Isle of Ely. It is an area that has seen significant (Pleistocene) geological research and there have also been important archaeology finds here. The bedrock is Amphill Clay (younger than the more famous Oxford Clay that outcrops to the northwest) but it is mostly covered by terrace gravels and more recent alluvium that, together, tell part of the complex local history of the Ouse - once an extensive delta emptying into the Fen Basin and later a single channel transformed by fen drainage.



*View over the River Great Ouse, near Earith*

*Colne church built mostly of sandstone cobbles and limestone, with some flint*

*Looking north along the bank of the Old Bedford*

My thanks are due to Paul S., Jeff and Paul M. for their work in putting these three walks together and to Paul M. for the YouTube videos of his exploits when researching the route!

4. The fourth walk is a detour from the main Fen Edge Trail route: a circular walk focusing on a particular aspect of the landscape, accompanied by a podcast that describes the associated history. We have partnered with the Word Garden who have designed the route and produced the podcast as part of their 'Adventurers' project (run by Peter Daldorph and funded by the National Lottery Heritage Fund) about the drainage of the Fens in the 17th century. From Earith, you walk out along the banks of the New (the 100 Foot) and Old Bedford Rivers to see the southern end of the extensive Ouse Washes (the land that lies between them). This is an interesting area, just to the east of the Somersham to Earith walk and to the west of the Sutton and Haddenham walks on the Isle of Ely, with a fascinating geological and cultural history. As you walk, the guide (and the downloadable podcast) explain how the construction of these two major drains was accomplished, how they changed the landscape and how they still provide the main flood prevention scheme in the southern Fens.



*Sluice on the Old Bedford River*

*The New Bedford River (The 100 Foot)*

All walks can be downloaded from the website and there are also links to the podcast and videos: [www.fenedgetrail.org/overview/walks](http://www.fenedgetrail.org/overview/walks). We hope to have guided walks on these and other Fen Edge Trail walks in 2023.

**REPORT ON THE LECTURE DELIVERED BY MR. ENGLISH AT LAMBERHEAD GREEN ON SUNDAY 22ND JANUARY, 1893, courtesy of *The Wigan Observer and District Advertiser*, Friday, January 27th 1893.**

*(The editor hopes readers of this newsletter will excuse him for raising a controversial topic and wishes to make clear that the views expressed by Messrs. Atherton and English are not necessarily his own, although it is obvious from that which follows that Mr. English is a scholar of wide learning.)*

A lecture was delivered last Sunday night at the Victoria Hotel, Lamberhead Green. Mr. John Atherton, who was called to the chair, said they had two important subjects before them, namely, geology, and from monkey to man. Mr. English believed in geology, but not that man had come from monkeys, or apes, no more than he believed that monkeys came from man. (Hear, hear.) Geology (from the Greek, the earth, and logos, discourse) was that science which treated of the materials composing the earth's crust, which meant that solid covering to the depth of about 32 miles, which had been studied by man. Those who had not studied geology could have no adequate idea of the numerous interesting objects the crust of the earth contained for the student of nature to investigate, and that was one of the principal reasons why the science was of such importance. By studying the rock formations of the globe the geologist got to know the materials of which the earth was composed, and the conditions of the earth when those formations began. Geologists had a more correct idea of the great antiquity of the globe than any other students of nature except astronomers. They had a fair knowledge when vegetation and animal life began, by the organic remains found embedded in rocks low down in the earth. The crust of the earth contained many beds which were so many stone leaves in the book of nature, in which could be read the age of the world and its ancient life-history. If geology were a science, Darwinism was only a theory, because it had not been proved. The fact that so many great men had been so long hunting up odds and ends in favour of Darwinism without succeeding in proving the truth of the ape origin of man, went very far to show that that the "monkey" doctrine of Dr. Darwin had no truth in it. (Hear, hear.) If there were any solid evidence in favour of the descent of man from lower animals, evolutionists would have produced it long since. It was a surprising thing to find men who

were not satisfied with their human origin, and who did all they could to prove they were descended from brutes, as if there were something more grand in brutish than human nature. Other men had a right to think of themselves as cheaply as they pleased, but he preferred having descended from a man, having reason, a soul, a moral and religious nature, and having been created in the image of God. (Applause.) How man could come to have reason if he came from an unreasoning brute, or how he could have a soul if he were the outcome of an ape that had no soul, or how he could obtain a religious nature and instinct if he were descended from apes that know nothing of religion, surpassed the wisdom of Solomon to find out. (Hear, hear.) To give up the idea of man's human origin, and to go in search of arguments to prove his ape origin, was not in harmony with the progressive march of intellect, but was a kind of going back from man to the brute, instead of making them as nature made them - eternally distinct from each other. (Hear, hear.) The lecture was then delivered. Mr. English dealt with a number of the most interesting matters connected with geology and showed a number of diagrams, and then explained the theory of the ape origin of man, and dealt with the Gill theory, the human tail theory, the missing link, spontaneous generation, and other leading matters, all of which failed to prove man the son of an ape, either with or without a tail. It was then announced that Mr. English will lecture on Sunday night, January 29th, at the Tipping's Arms, Worsley Mesnes, on "Lord Beaconsfield and Mr. Gladstone"; at the Amberswood Common Tavern on Monday night, January 30th, and the Red Lion, Park Lane, on February 5th, on "Geology and from Monkey to Man"; and at the Queen's Head, Chapel-lane, on Monday night, February 6th, on the "Eight Hours Question, Paid Members, and Labour Representation".

## GEOSITES NEWS - LOCAL NATURE RECOVERY STRATEGY. *Chris Donnelly.*



As CGS members know, we have making faster progress in identifying sites that qualify as Local Geological Sites (LGS) in order that we can have them mapped on the County Site Records. In October we obtained LGS designation for two more sites: Fowlmere Springs and Stapleford Parish Pit. Details of each are on our website: [www.cambsgeology.org/fowlmere-springs](http://www.cambsgeology.org/fowlmere-springs) and at [www.cambsgeology.org/stapleford-parish-pit](http://www.cambsgeology.org/stapleford-parish-pit). We also mapped another seven candidate sites including Isleham Limekilns, Wicken Brick Kiln and Pit, Anglesey Abbey Pit and Dernford Reservoir, and we hope to take these forward for designation in 2023. However, the 'urgent' need for a comprehensive list of geological sites in the county has been highlighted by our invitation to provide input to the Local Nature Recovery Strategy for Cambridgeshire. This is part of a national initiative under which Nature Recovery Networks are being set up to increase biodiversity (and also geodiversity) values:

with a clear focus on nature recovery there are real opportunities for geodiversity as a fundamental element of nature. Geodiversity will both benefit from and contribute to the four aims of the NRN including the enhancement of designated sites, improving landscape resilience and, most importantly, reinforcing the geological diversity of our landscapes, and enabling us to better connect with nature.' (Colin Prosser, Principal Geologist for Natural England, *Earth Heritage*, issue 57, Summer 2022, p. 14.)

We have therefore been discussing the possibility of grant aid to pay for a contract to expedite the mapping of potential LGS and also to produce a report that describes the county's geology as a basis on which to build local nature recovery. there will be more news on this soon, we hope! In the meantime, we need help with this geoconservation work, particularly from CGS members. Please get in touch if you can offer even just a few hours – surprisingly, detailed geological knowledge is not required. It's a great way to learn!



*Fowlmere Springs*



*Isleham Limekilns*

## CGS'S RESPONSE TO THE FENS RESERVOIR LOCATION CONSULTATION. *Chris Donnelly.*

We have recently given feedback on the selected site for the proposed Fens Reservoir. As with most of the Fens, the Quaternary geology is often overlooked in terms of its interest. The site is mapped by the BGS as having mostly (Holocene) tidal silt and clay deposits at the surface (these will be from the Bronze Age sea incursion c.3900 years ago) with some March (Pleistocene) Gravels and some Jurassic Amphthill Clay bedrock. We have, therefore, stressed the importance of carrying out as much geological research as possible prior to and during construction, particularly on the Holocene deposits. Another concern is that there is likely to be buried Peat at the site (as there is in many areas of the Fens) as boreholes there show 1.3 to 2m of Peat at c.5m depth. This needs to be accounted for when carbon loss is calculated. We have suggested that the opportunity is taken to create a Fens Landscape Heritage Centre as part of the Education and Community resources! (See [www.fensreservoir.co.uk](http://www.fensreservoir.co.uk) )

**FORTHCOMING CGS MEETINGS:****Monday, 9th January 2023****MEMBERS' EVENING.**

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.

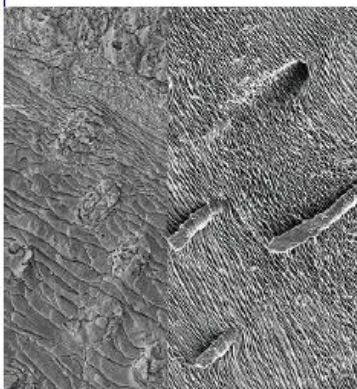
Free to CGS members,  
with a small charge for  
non-members.

**Dr. Mike Tuke: "The cooling of teapots and igneous intrusions".**

By thinking about the factors which control the speed of the cooling of teapots, we can see how these same factors affect the speed of cooling of igneous intrusions and thus of the degree of metamorphism. This will involve the presence of Teapots!

**Lee Wells: Basalt Trap Feature rocks**

I also have a modest collection of igneous lumps from 'trap stone' sites. These might provide a useful source for discussion.

**Roger Horton: 'The Pits' - the history of the Cherry Hinton chalk pits.****Penny Coggill: A Short Geological Tour to Shetland****Reg Nicholls: The Borrowdale Volcanics Group: arguably the most attractive rocks in England! (See the photographs below.)****Monday, 13th February 2023****Fossil brachiopods shells as outstanding archives of climate in the deep past.****Dr. Claudio Garbelli, University of Cambridge Dept. of Earth Sciences.**

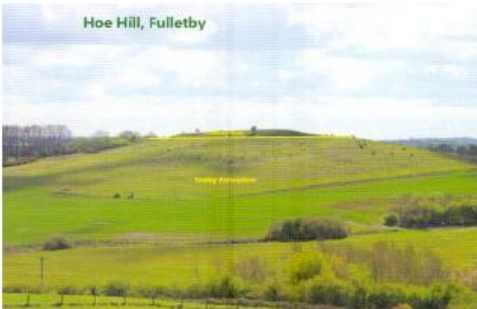
Brachiopods are present in the marine benthic communities all over the Phanerozoic and they were the dominant bivalved organisms in the Palaeozoic. Their calcite shells have a high preservation potential, allowing the palaeobiologist to reconstruct their life histories from individual to community level. Due to their physiological constraints, these organisms change in response to environmental parameters, and they thus represent a powerful archive of past oceanic conditions and climatic variations. Their episodic growth patterns also provide a sequential record of growth increments which can then be analyzed through morpho-structural and geochemical proxies for tracing environmental variables even at seasonal scale. Fossil brachiopods shells can thus be considered an excellent archive for the study of the ancient ocean.

**Monday, 13th March 2023****The Geology of the Northwest Passage.****Dr. Owen Weller, University of Cambridge Dept. of Earth Sciences.**

This talk will address a less well-known feature of the fabled Northwest Passage: the four billion years of Earth history contained in the geology along the route. Alongside an overview of the spectacular geology, the talk will include a discussion about how geological research is conducted in the Arctic, how the region has contributed vital evidence in the ongoing debate about when plate tectonics were initiated on Earth, and the unexpected links with both Margaret Atwood and my college at Cambridge: Sidney Sussex.

## OTHER RELEVANT EVENTS:

Friday, 6th January 2023



### The Lower Cretaceous 'East Lindsay Group'.

**Dr. Paul Hildreth, Yorkshire Geological Society.**

Geologists' Association - Janet Watson Lecture Theatre, Burlington House, Piccadilly. W1J 0BA. (6.00.p.m., in person or by Zoom.)

The Lincolnshire Wolds south of Caistor provide what is arguably the most scenic part of the county. A tract of land that broadens southwards is founded on a sequence of Early Cretaceous rocks that separate the Kimmeridge Clay and Carstone and are unique to Lincolnshire. The unofficial term 'East Lindsay Group' has been used here to define the stratigraphic limits of the sequence which has had significant commercial interest but remains relatively unpublished when compared with partly coeval sequences such as the Wealden and the Speeton Clay.

This illustrated talk hopes to highlight some of Lincolnshire's geological attractions and attempts to construct a palaeogeographic model for the early Cretaceous in the county.

Friday, 3rd February 2023



### The Winchcombe Meteorite.

**Dr. Ashley King, Natural History Museum.**

Geologists' Association - Janet Watson Lecture Theatre, Burlington House, Piccadilly. W1J 0BA. (6.00.p.m., in person or by Zoom.)

The Winchcombe meteorite is the first rock from another world to be recovered in the UK for thirty years. Guided by videos from the UK's meteor and fireball camera networks, the main mass was found on a driveway in Gloucestershire only twelve hours after landing. Over 500 grammes of the meteorite are now being curated at the Natural History Museum in London, and it is both scientifically and culturally priceless; as a fresh carbonaceous chondrite fall it holds vital clues about our origins. While the rapid recovery and analysis is a shining example of international collaboration between scientists, citizen-science projects, and local communities.

Friday, 3rd March 2023



### Excavating Plesiosaurs.

**Dr. Richard Forrest.**

Geologists' Association - Janet Watson Lecture Theatre, Burlington House, Piccadilly. W1J 0BA. (6.00.p.m., in person or by Zoom.)

Plesiosaurs are perhaps the most enigmatic of all fossil marine reptiles. They are represented by a diverse range of morphologies including huge-headed, extremely powerful predators as well as the better-known extraordinarily long-necked forms. They were extremely successful, forming a significant element of marine ecosystems from the end of the Triassic to the K/T boundary.

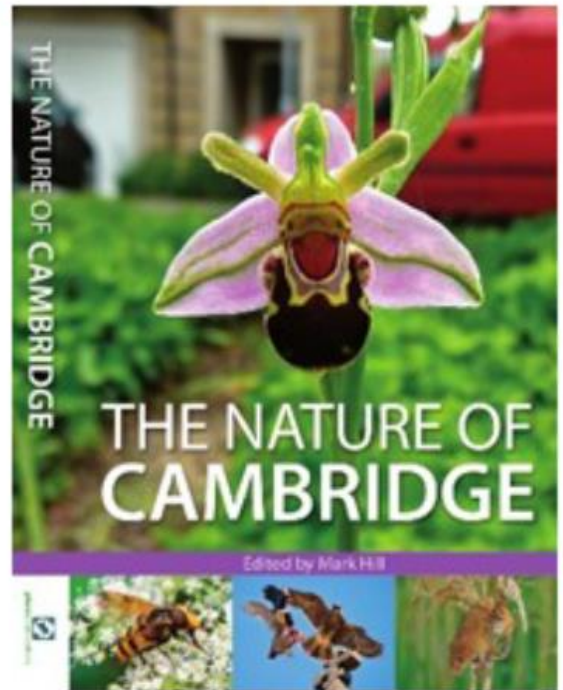
The UK has the best fossil record of Jurassic plesiosaurs anywhere in the world. Specimens from well-known localities like the Dorset coast and the brick pits around Peterborough can be found in many museum and university collections and give a good overview of the early evolution and early diversification of the group. The bulk of the material comes from old collections made at a time when quarrying was a much more manual operation, and the energy of the collectors and palaeontologists was directed more at the osteology of the specimens than their ecological context. However, new finds are still being made. This gives us the opportunity to excavate specimens with the goal of revealing more about the nature of these animals and their place in ancient marine ecosystems than simply placing them in a taxonomic context.

## NEW BOOK THAT INCLUDES AN ACCOUNT OF CAMBRIDGE GEOLOGY.

*The Nature of Cambridge.* (Members of The Cambridge Natural History Society.)

This new and well-illustrated book, published by Pisces Publications (ISBN 9781913994075) and written by a team of twenty-five naturalists headed by Dr. Mark Hill, includes an introductory section on the geology of Cambridge written by Chris Donnelly with advice from Dr Steve Boreham, and comes complete with a geological map by Steve Daniels.

The city and its environs have an interesting geology, reflecting the area's location in the Cam Valley, at the base of the Chalk Formation and on the edge of the Fens, where, beside the many fossils that have been and can still be found, evidence survives to witness the history of the former quarrying and coprolite mining industries and, passing back into prehistory, the effects of the ever-changing course of the River Cam and its tributaries. Chapters in the book, each written by a local expert covering his or her particular specialism, then examine the flora, bryophytes, fungi and lichen, invertebrates (including insects, spiders and molluscs), fish, amphibians, reptiles, birds and mammals of Cambridge, as well as some of the important local habitats and best sites to visit for wildlife. The study area is an 8 x 8 kilometre square centred on the north end of Mill Road, extending from Trumpington in the south to the A14 in the north, and from Cherry Hinton and parts of Teversham in the east, to the M11 in the west.



Too late for Christmas now, this book could make an excellent birthday gift for any friend or relation with a love of nature and a lively and enquiring mind! See [www.nathistcam.org.uk](http://www.nathistcam.org.uk)

## CHURCH ROCKS! *Chris Donnelly.*

No, not a different sort of carol service, but the title of our new project to record the variety of rocks (stones) used in Cambridgeshire's churches. Our local churches are not only of historical (and of course cultural) value, but many are also of significant geological interest. From grand limestone buildings with fine carvings to those that look more like a random collection of cobbles, they represent much of our geological history including biologically rich Jurassic oceans, quiet Cretaceous seas and numerous Pleistocene 'ice' stages, some of which brought far-travelled rocks to our unsuspecting villages.

Some churches reflect the local geology and may, perhaps surprisingly, qualify for designation as Local Geological Sites for their educational and aesthetic landscape qualities. The building stones may contain evidence of glacial dynamics or have links to local industry, whilst exotic rocks such as marbles witness the wealth of the community. Certainly, all are fascinating. Helping with this project is a good way to learn about local geology and satisfy a desire to lurk around atmospheric churchyards and one may well encounter a variety of summer teas and cakes being served! As we gradually build up our resources to help with identification of these different stones (so beginners are welcome), we also hope to organise a few guided visits. Email us for more information or talk to one of our committee members at our monthly meetings. [www.cambsgeology.org/building-stones](http://www.cambsgeology.org/building-stones)



Hauxton – chalk, clunch, flint and ferricrete



Papworth St Agnes – flint and limestone



Cottenham – Cottenham sandstone

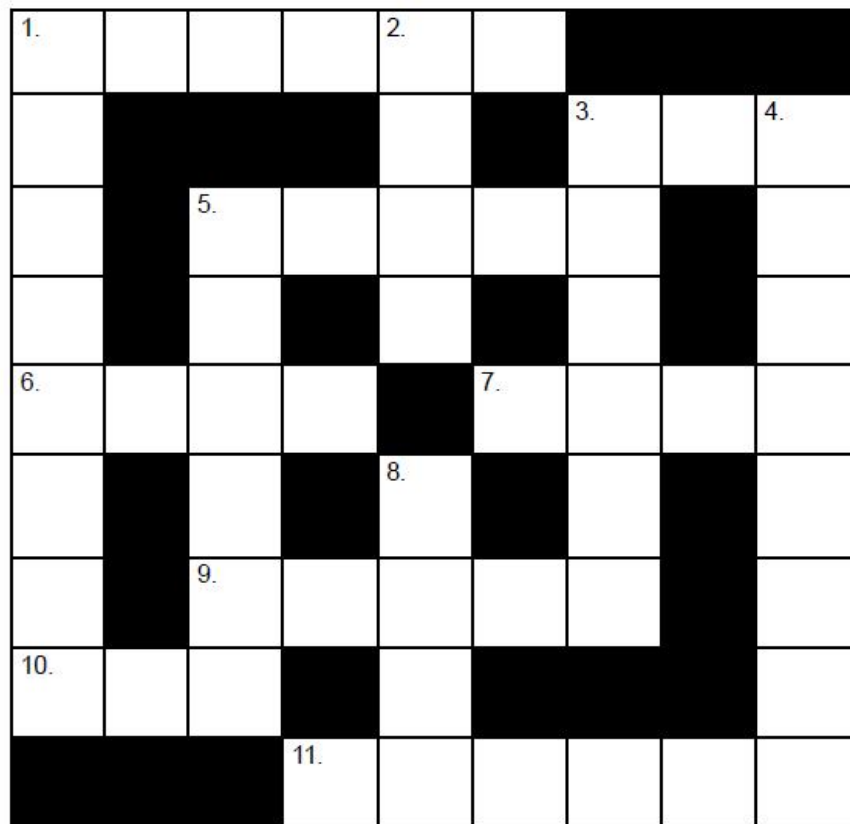


Toseland – field cobbles including quartzites



## The Editor's New Year Geological Crossword Puzzle.

(The solution will appear in the next edition of this newsletter.)



### ACROSS

1. to see you ... ;
3. next stop, Bonn... ;
5. 8 down, thoroughly baked;
6. avoid if wounded;
7. it's looking uncomfortable for Arthur;
9. one side of Mercury;
10. a brief resolution;
11. holdfast for Mytilus.

### DOWN.

1. between the coals;
2. notorious in Cumbria;
3. a discovery made by the Romans they found got harder as time went by;
4. cannot provide bacon however;
5. runs rings round ammonites;
8. London has had a basinful.

## From the Editor's Collection of Larger Rocks: THE PRE-CAMBRIAN FIVE.



**Lewisian Gneiss:**  
*Arrisa, Applecross Peninsula, Wester Ross.*



**Torridonian Sandstone:**  
*Torridon, Wester Ross.*



**Ballacullish Slate (Dalradian):**  
*Ballacullish Quarry, Argyllshire.*



**Crinan Grit (Dalradian):**  
*Crinan Ferry, Argyllshire.*



◀ **Lower Morar Psammite  
(Morar Division):**  
*Loch Sunart shore, Moidart.*

*I think these are all correctly identified !! - Ed.*