



# Cambridgeshire Geological Society

Newsletter No.12

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## Cambridgeshire Geological Society



### Inside this issue:

<i>Editorial</i>	1
<i>Coprolite Mining in Cambridgeshire</i>	1
<i>How can YOU help</i>	2
<i>Fen Edge Trail News</i>	3
<i>Online resources</i>	4
<i>September CGS talk</i>	4

### *Editorial : Reg Nicholls*

The past few months of Covid 19 measures in place will have limited the travelling to see new rock exposures that we all might have planned. Fortunately there are now large numbers of online geological resources being made available to “keep our hand in”. ( See page 4)

As we begin to think about the next season of Society meetings again, social distancing will have a great effect on what we can safely arrange.

Many of us are becoming adept at Virtual meetings and certainly this might be one of our options for at least the beginning of the

coming season.

The society’s committee is meeting (virtually) to discuss what options are open to us: we are determined to provide some form of programme whilst “Staying Safe”.

We will keep you informed of our plans in good time

### *Coprolite Mining in Cambridgeshire*



Phosphate nodules in a piece of Woburn Sand Formation from Upware.

Dr Simon Kelly and Ken Rolfe (ex of CGS) have just published a paper in Proceedings of the Geologists’ Association detailing their work from a new exposure of the Woburn Sands Formation (aka Lower Greensand in this area) near Upware. Those of you who have previously attended field trips run by Simon for Geo-East and the GA, will be familiar with the trench that is examined in this paper. This temporary trench is on private land—so not accessible to the public.

The Cretaceous Woburn Sands Formation (c. 120 Mya) lies unconformably upon the Jurassic Ampthill Clay and Upware Limestone Member. The rock itself is of a mixture

of brownish sands and pebbly conglomerate layers - the brown coloration is from the oxidation of the authogenic green minerals such as glauconite.

Although there are only a few exposures in



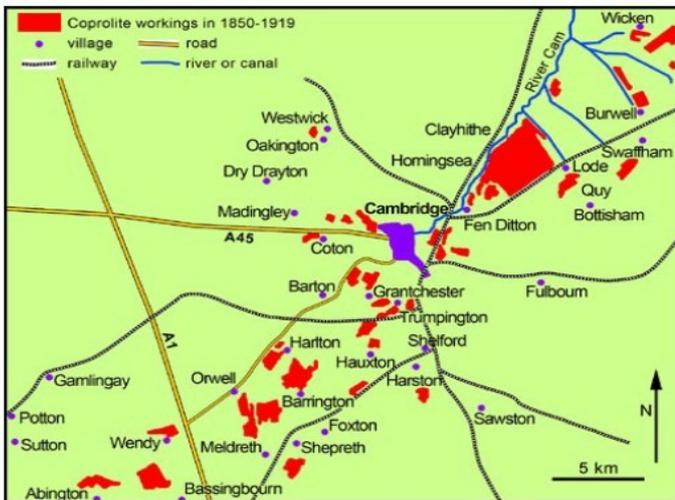
Cambridgeshire (eg Ely), the deposits of the Woburn Sands Formation nevertheless have had a great influence in the geology of the Fen Edge

area—notably the economic geology.

The hard, brown pebbles are mostly phosphatised nodules—commonly called coprolites—although very few will actually be fossil dung. Many of them are actually internal clasts of bivalves and ammonites.

The nodules gave rise to the “Great Cambridge Coprolite” rush of the 1860-70s about which much has been written by Bernard O’Connor. The term “coprolite” was coined by Buckland and was applied to fossil dung. It seems that he collected some actual fossil excreta from the Rhaetic Bone Bed and Lyme Regis.

## *Coprolite Mining in Cambridgeshire cont.*



**Figure 7.** Coprolite workings around Cambridge (after map by Sedgwick Museum).

### References

S.R.A. Kelly, K.R. Rolfe, The 'coprolite' bearing Woburn Sands Formation, Lower Greensand Group (Aptian) at Upware, Cambridgeshire, UK, Proc. Geol. Assoc. (2020),

Trevor. D. Ford and Bernard O'Connor : A Vanished Industry: Coprolite Mining,

MERCIAN GEOLOGIST 2009 17 (2)

It was said that he even had a pair of earrings made of coprolites for his wife! In the case of the nodules from the Greensand, many have signs of borings, so have been rolled around the sea floor for some time.

Another Cambridge Professor, Henslow (he of the Botanic Garden fame) demonstrated the phosphate- rich composition of the nodules and soon their commercial worth as a fertilizer was appreciated.

The only problem was that even powdered, the phosphate was very insoluble, so took time to be bio-available as a fertilizer. The 1860s saw an expansion of the quarrying all around the Fen Edge in the south east where the nodules occurred at shallow depth. Around this time a new process for creating a Super Phosphate that was soluble was developed at the Rothamstead Research (Station) in Herts. This provided more impetus for the mining of the coprolites in our area.

The trench created by Kelly and Rolfe was also instructive as it was bisected by the back wall of old coprolite diggings—part of the trench being undifferentiated backfill. During the mining, the quarried material was taken to a washing station (many of these were mobile as the shallow working became exhausted and the digging moved along) just north of

the nearby Commissioner's Pit, concentrated and then shipped by barge on the nearby Cam to be crushed and converted. Locally the nodules were crushed in windmills such as at Angelsey Abbey and the Big Mill in Burwell. Possible remains of a processing plant can be found at the site of the Burwell Chemical Manure factory beside Bottisham Lode (which can be accessed from the Cam at Upware).

The industry was widespread in the Fen edge, but came to an end with a combination of a slump in agriculture and cheap guano imports from S. America.

As much of the mining was on valuable agricultural land, after extraction the land was restored again for cropping. There are a few old pits and disturbed areas remaining, but much of the evidence of the industry that supported up to 600 workers in the area, has gone.

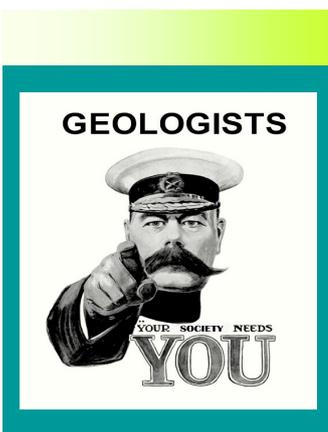
## *How can YOU help?*

The Cambridgeshire Geological Society depends on the efforts of a small number of volunteers to populate the committee, investigate potential LGS's and to produce output of interest to the Society membership. In normal circumstances, we endeavour to provide a full timetable of interesting and

varied talks as well as a host of web based content. But we could do much more if we had the human resource to support us. We need help, for example in researching potential new sites for our Local Geological Site applications, volunteers for helping with the Fen Edge Trail initiative and of course expanding the

committee, to share the load. If you have some spare time and feel you can help—then please get in touch. You do not have to be an expert geologist—just have an enthusiastic interest.

**Your Society Depends upon You**



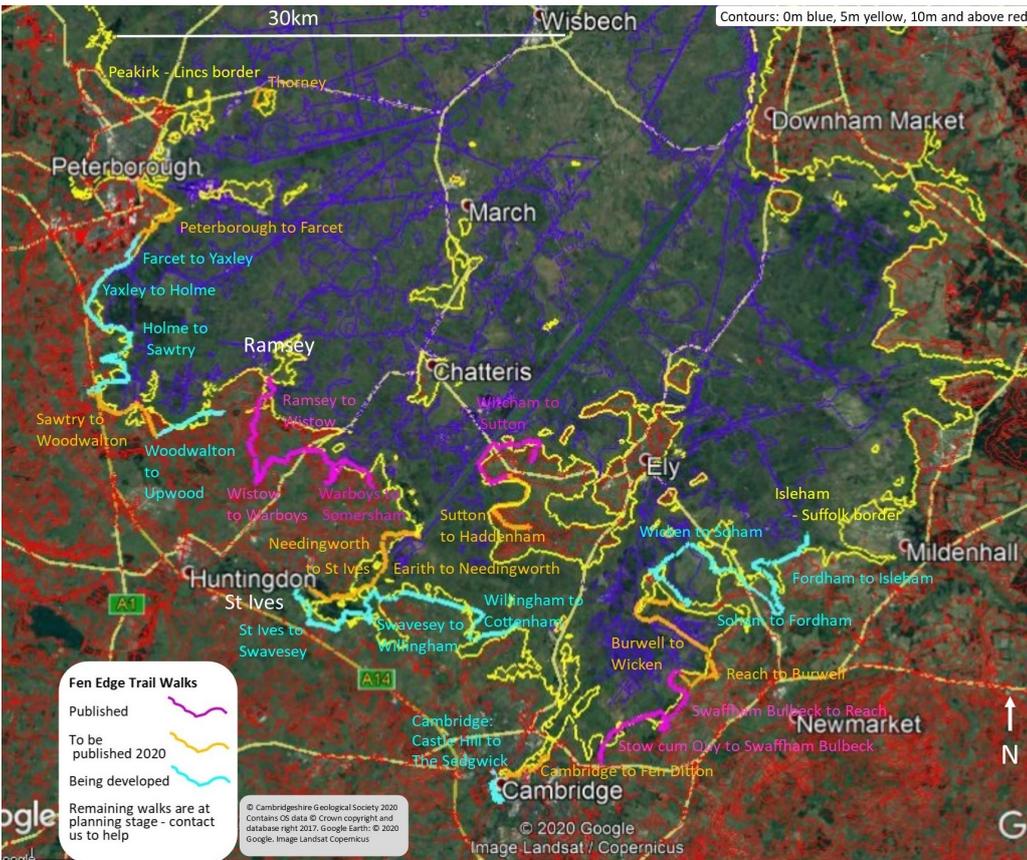
## Fen Edge Trail News

During this lockdown we were still able to keep working on the Fen Edge Trail. The number of volunteers who are covering the ground is steadily increasing and we would like to thank all of our contributors who are growing the number of walks we can publish.

Although our guided walks for **Celebrate the Fens Day** have not been able to take place, we took part in the celebration by Tweeting a photo from each of the 50 or so walks. For more information on the walks see [www.fenedgetrail.org](http://www.fenedgetrail.org). The list of walks is steadily growing and these are easy to complete whilst socially distancing! On many of them, you might not see another soul!



### Preview of upcoming releases



**The Fen Edge Trail Walk: Sutton to Haddenham**  
5.3 miles (8.5 km)  
The route: 'along the Catwater and over the high hills on the Isle of Ely'

*'The fabulous views from the top of North Hill are a real surprise'*  
Ang, Cambridgeshire Geological Society Geocaching team

**Preview:** This part of the Fen Edge Trail links the two villages of Sutton and Haddenham which lie on the north west corner of the Isle of Ely. There is a border through it of an interglacial sandstone which is capped later by Oxford Clay and is fairly rich. This is the region showing the Fen in the 17th century, but was covered by freshwater swamps and peat. The walk follows the Catwater and the high ground of the Isle of Ely. The route is a mix of open fields, woods, and some peat bogs. The walk is a mix of open fields, woods, and some peat bogs. The walk is a mix of open fields, woods, and some peat bogs.

**The Fen Edge Trail Walk: Cambridge to Fen Ditton**  
4.1 miles / 6.6 km  
starting from The Sedgwick Museum of Earth Sciences

*'I love the mix on this walk... the history, the landscape, especially the river'*  
Penny, Geol. Geocaching Team

**Preview:** The route: 'from revolutionary science to riverside meadows'. This is a mix of open fields, woods, and some peat bogs. The walk is a mix of open fields, woods, and some peat bogs. The walk is a mix of open fields, woods, and some peat bogs.

**The Fen Edge Trail Walk: Reach to Burwell**  
4.1 miles (6.6 km)  
The route: 'from the fen up onto the chalk hills, then down to the loes'

*'This route includes a wealth of prehistoric geology'*  
Ang, Cambridgeshire Geological Society Geocaching team

**Preview:** Having started from Cambridge along the fen edge, this walk crosses the Fen, follows a ridge of Reach to Burwell. This is a mix of open fields, woods, and some peat bogs. The walk is a mix of open fields, woods, and some peat bogs.

### To be published 2020

- Peterborough to Farcet
- Sawtry to Woodwalton
- Earith to Needingworth
- Needingworth to St Ives
- Cambridge to Fen Ditton
- Reach to Burwell
- Burwell to Wicken
- Sutton to Haddenham
- Thorney.

### Being developed

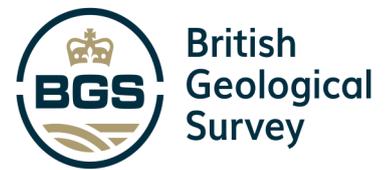
- Farcet to Yaxley
- Yaxley to Holme
- Holme to Sawtry
- Woodwalton to Upwood
- St Ives to Swavesey
- Swavesey to Willingham
- Willingham to Cottenham
- Cambridge: Castle Hill to the Sedgwick
- Wicken to Soham
- Soham to Fordham
- Fordham to Isleham
- Also: Haddenham to Stretham
- Fen Ditton to Stow cum Quoy
- Peakirk to Peterborough
- Wisbech

## Online and remote Geological sites

The Geologist Association have a wide range of content on its “Geology from your Sofa” pages. Go to <https://geologistsassociation.org.uk/sofageology/> where you will find lots of things to do from your computer.



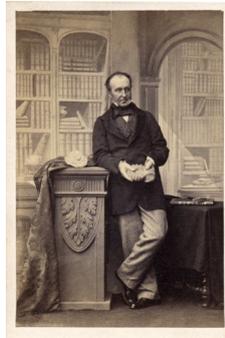
The British Geological Survey has a wealth of available resource on its website—not just “free to download” Geology maps. I found a database of scenic images in their archive <http://geoscenic.bgs.ac.uk/asset-bank/action/viewHome> and particularly liked the photos of old Survey workers from the 1800s—some of which, I reproduce below!



Sir Archibald Geikie



B.N. Peach



Sir Robert Murchison

**CNHS**— some CNHS activities will still be taking place this year . Please see the website for more details <http://www.cnhs.org.uk/>



Cambridge Natural History Society

## Cambridgeshire Geological Society talk programme

Our first talk on 14th September will be a **virtual** one given by Dr Daniel Field. Dr Field is a Lecturer in evolutionary palaeobiology in the Department of Earth Sciences at Cambridge University, and a Fellow of Christ's College. He also holds a UK Research and Innovation Future Leaders Fellowship. Originally from Canada, Daniel obtained his PhD from Yale University, and his research focuses on using the fossil record to understand how modern bird diversity and biology came to be.

“An asteroid impact 66 million years ago may have wiped out the giant dinosaurs, but it also resulted in the rapid diversification of birds. From this point onwards, avian evolutionary history was changed forever, eventually giving rise to nearly 11,000 living species. Daniel Field explores the evidence for the early evolution of modern birds, and sheds light on how, when, and where modern bird diversity arose.”

Details on how to access this talk will be circulated nearer the time.

