



NORTH EASTERN GEOLOGICAL SOCIETY

Newsletter June 2012

<http://www.northeast-geolsoc.50megs.com>

Dear Member,

1. NEGS SPRING/SUMMER FIELD TRIPS.

Report on last month's field trip

Details of future trips

2. NEGS AUTUMN/WINTER LECTURE PROGRAMME.

No news at present

3. OTHER NEWS

Members night

Attachments

4. ADMINISTRATION.

1. NEGS SPRING/SUMMER FIELD TRIPS.

Our first field trip of the year was led by Andy Lane

Andy Lane led a large group of NEGS (23 members) to study more of the Durham Permian, as seen at the coast. The excursion led on from the excellent visit last year that ended at Tunstall hill.

The sequence is complex with reef, marine bedded and evaporite deposits cutting one another with the relationships complicated by solution of anhydrite allowing collapse breccia to form adding to the complexity of the field relations.

The first stop set the scene at Ryhope with a brief summary of the formations that were to be seen and direct study of the Concretionary Limestone Formation, which is capped by boulder clay.

Moving on to the coast adjacent to Seaham Hall the Permian rocks demonstrated excellent views of fracturing together with the solution / replacement structures so well developed in the formation. Bedding was evident. Moving south the exposures are described as the Roker Dolomite Formation.

The distinction between the CLF and RDF is far from clear in the field. Andy led a vigorous discussion of the features and the evidence.

Our third stop was Seaham. The group had crossed the younger Seaham harbour fault to view cycle 3 material from the Zechstein. (The coastal cliffs are protected by very coarse larvikite 'armour', thought to have originated in Norway.) The cliff exposures are allocated to the Zechstein 3 cycle. Evidence of evaporite solution and subsequent rock collapse was abundant, the residue of the evaporite suggests a muddy deposit made up the Forden evaporite, which is itself located at the top of cycle 2 at the base of this sequence. Walking to the promontory we studied the type section..... with concretionary structures, wash outs and bedding creating a challenging sequence of events as recorded by the rock types and their lateral - vertical sequencing.

Stop 4 was Blast Beach, (sign post to Nose Point) so named after a blast furnace works in the late 1800's. This picturesque bay has been the subject of massive renovation largely by the removal and stabilising of large quantities of industrial waste. This waste gives the bay a sulphurous odour and a distinctive dark brown deposit of iron residue cementing into place beach material. The residue appears to have protected the cliff line from erosion over the last forty years. Today the residue was clearly being eroded suggesting cliff erosion could well be a feature later this century. The cliffs formed from the Roker Formation (cycle 2)

Returning to the car park the group unanimously thanked Andy for another challenging and enjoyable visit.

An explanation for the concretionary structures is given on various web sites. The Yorks Geol Soc offered the following summary from Dr. Braithwaite

Bizarre calcitic concretions occur within the Upper Permian Concretionary Limestone and Seaham Formations on the north-east coast of England. They include fine-grained spherical cannon-balls, with concentric and radial structures, spherical clusters of radiating crystals, and fine-grained pelletal and linear, rod-like, concretions, some of which also occur as radiating groups. They formed by the replacement of a fine-grained, organic-rich, carbonate sediment. Contrary to earlier assertions, there is no evidence that any of the structures present are pseudomorphs of previous replacements by sulphates.

Some concretions may have grown relatively early in diagenesis but size, numbers and density were controlled by the nature of pore fluids. The differing balances between composition, saturation with respect to particular ions, and temperature of fluids, and growth rates of crystals are responsible both for the varying sizes of component crystals and the overall shapes of the concretions themselves. Irrespective of morphology and stratigraphic position, the formation of concretions was followed by dissolution which removed residual unaltered sediment and corroded exposed surfaces. The concomitant loss of strength of the rock led to localized collapse and compaction of concretions with evidence of mechanical failure, internal strain and pressure dissolution of margins. Since this history is common to all concretion occurrences it must reflect a major diagenetic event such as the emergence of the sequence in Triassic or later times.

Calcite cements and internal sediments (including detrital quartz), which have been introduced subsequently, have generally failed to occlude porosity.

The Fulwell Hills Quarries site on Google also offers a cross section and detailed account of the concretionary structures; try concretionary structures in the Permian Limestone to find this and other site

Thanks to Gordon Liddle for the summary.

NEGS FIELD TRIP JUNE 23RD 2012

Wards Hill Quarry, Lordenshaws Hill Fort and Tosson Lime Kiln

Wards Hill Quarry

Date: 23.6.12

Time: 10.30 am

Grid ref: **GR NZ078967.**

Time at site: 1.5 – 2 hours

Routes: The site is in mid Northumberland, about 3 miles south south east of Rothbury. One route is to follow the A697, turn off at Weldon Bridge, turn left at Pauperhaugh, bear left about 300 metres further on, up a steep hill and on for about 3 kms.

Toilets: Non available

Access; gentle slope into the quarry, multiple options in the quarry

Parking: roadside - can be boggy. Single-track road along ridge.

Food: picnic essential.

Site: Lower Carboniferous (limestones and shales) intruded by leaves of the Whin Sill. Fossiliferous.

Minor caves. Deformation features – folding, faulting within a regional dip to the south

A hard hat is essential to examine some of the exposures.

The location has very distinctive features associated with the margins of an intrusion, we will examine this and propose an explanation for the evidence!

(Some may wish to take the opportunity to measure some of the deformations present in the quarry and develop a possible explanation for the effects described. If so, bring a tape measure; compass and recording sheet if you wish to do this exercise).

Then onto

Lordenshaws Hill Fort

Event Date 23 Jun 2012

MeetingTime 01:00 PM

Grid Ref NZ054989

Time At Site 1.5 hours

Getting There: From Rothbury:

Head southwards across the River Coquet bridge and turn left on the other side. Follow the B6342 for 3 miles up a long bank and on to the fell tops. Turn right onto a single track paved road when the main Rothbury road makes a sharp turn to the left [at NZ059977]. Follow the single track road for half a mile, through a small wood. Lordenshaws car park [NZ054989] is on the right as you leave the woods.

From Wards Hill Quarry:

Head westwards along the farm track from Wards Hill. At the first T-junction turn right and travel down the bank for half a mile to Forestburn Gate. Turn right at the public house and head northwards for a mile along the B6342. Go straight ahead onto a single track paved road when the main Rothbury road makes a sharp turn to the right [at NZ059977]. Follow the single track

road for half a mile, through a small wood. Lordenshaws car park [NZ054989] is on the right as you leave the woods.

Toilets There are no toilets at Lordenshaws. The nearest public toilets are in Rothbury (ca. 3 miles

Accessibility The main features of the site are accessible along good grassy paths and very gentle slopes.

There are no styles to cross. Total distance ca. 1 mile.

Parking There is a large free car park.

Food There is no food available at the site. The nearest shops are in Rothbury (ca. 3 miles away

Description Lordenshaws is rightly famous as one of the gems of Northumberland.

Panoramic views can be seen of the Cheviots, Coquet Valley, Simonside and the Fell Sandstone ridge. It is an ideal spot to get an overview of the influence of bedrock geology on the landscape of North Northumberland. Many sandstone outcrops have been carved with enigmatic cup & ring marks. Much later, an Iron Age fort was constructed on the site.

References * Beckensall, S. (2001) Prehistoric Rock Art in Northumberland. Tempus,

Stroud.

* British Geological Survey. (2009). Rothbury. England and Wales Sheet 9. Bedrock and superficial deposits. 1:50 000 Geology Series. British Geological Survey, Keyworth, Nottingham.

* Clack, P.A.G. and Gosling, P.F. (1976) Archaeology in the North. HMSO, London

* Topping, P. (1993) Lordenshaws Hillfort and Its Environs. A survey by the Royal Commission on the Historical Monuments of England. *Archaeologia Aeliana*, 5, vol 21, pp15-27.

* Turner, B.R., Younger, P.L. and Fordham, C.E. (1993). Fell Sandstone Group lithostratigraphy southwest of Berwick-upon-Tweed: implications for the regional development of the Fell Sandstone. *Proceedings of the Yorkshire Geological Society*, vol 49, pt, 4, pp 269-281.

Then on to

Tosson Lime Kiln

Event Date 23 Jun 2012

Meeting Time 03:00 PM

Grid Ref NU027009

Time At Site Half an hour.

Getting There From Lordenshaws:

Turn right out of Lordenshaws car park and follow the track for one and a half miles to the hamlet of Great Tosson. Turn left at the junction beside Tosson Tower, and follow the road to the right for half a mile. The car park is on the left.

From Rothbury:

Head southwards across the River Coquet bridge and turn right on the other side (signposted to Tosson). Follow the road past a car park and the cottage hospital, up a hill to a junction. Go right towards Tosson. After a mile and a half a side road branches off to the right. Follow this to the village of Tosson. Do not take the road to your left in the village, but keep straight on. The road descends now and after half a mile or so you will see the car park for the kiln on your left.

Toilets There are no toilets at the site. The nearest public toilets are in Rothbury (ca. 2 miles away).

Accessibility Access to the top of the kiln is straight forward, but there is a steep set of steps to negotiate in order to see its base.

Parking There is a free car park immediately adjacent to the kiln.

Food There is no food available at the site. The nearest shops are in Rothbury (ca. 2 miles away).

Description Operating lime kilns were once a common site across Northumberland. The lime was used to make cement or improve soil quality. This example was designed by architect George Reaval and was built in 1888. It is considered the best preserved lime kiln in Northumberland. The site provides an excellent view of the flood plain above Rothbury.

References

<http://www.keystothepast.info/durhamcc/k2p.nsf/k2pdetail?readform&prn=N2877>

7th July : Leader Mr J Knight: The Sedgewick Geology Trail.

If time permits, other localities may be visited, e.g. the Rawthey Valley or Dent village (Adam Sedgwick's Granite Memorial & his father's church). **Meet 10.30am** at the viewpoint and large parking area (SD694912) at the side of the A684 (Hawes road) at 3.6 km to the ESE of Sedbergh. The car park is immediately adjacent to the minor road descending to Danny Bridge (SD698913), where the Sedgwick Geological Trail commences.

4th. August: One of the tributary valleys of Swaledale or Wensleydale.

Leader: Jon Barber, Univ. of Leeds. (Further details later).

September/October: Upper Teesdale, possibly Cronkley Fell area

Leader: Brian Young. Examining metamorphic effects of the Whin Sill on the surrounding rocks, e.g. existence of garnets and magnetite. (More details later).

3. OTHER NEWS.

MEMBERS NIGHT.

Could you put yourself forward?

We hope to have an evening within the lecture programme where we can hear from our members. Would you be able to give a short talk on a topic of geological interest say for 20 minutes or so? If this is something you would be interested in please have a word with Derek Teasedale, Christine Taylor or myself, or drop me an email negssecretary@btinternet.com

ATTACHMENTS.

Festival of Geology – Flyer 10th/11th November

Bed Breakfast with a Geological bent in the Lakes - no links to me & I haven't staid their myself.

Geological Association Conference 13th/14th October

A free online version of **Earth Heritage**, the geological and landscape conservation magazine.

You can now view and download the new issue of Earth Heritage, number 36, as a .pdf file at www.earthheritage.org.uk

3. ADMINISTRATION

If you receive this newsletter by post and have an email address, then please let me have it.
negssecretary@btinternet.com

For those without a computer if you require any further information please ring me on 0191 261 1494.

Best Wishes,

Judy Harrison
NEGS Secretary