

# North Eastern Geological Society

## Newsletter October 2018

### UPCOMING EVENTS

**Evening lecture Series - Friday October 19<sup>th</sup>. 19.30.**

**Cruising for Ridges.**

See full list at [negs.org.uk](http://negs.org.uk) and at end of this Newsletter.

---

### FIELD TRIP REPORTS

**Saturday, July 7<sup>th</sup>, 2018**

**Eildon Hills with Louis Golightley**

In early July 2018 the fourth excursion of the NEGS year took place.

A dedicated group joined the leader, Louis Golightley, to investigate the Eildon Hills. The weather was warm and dry. Louis had generously supplied his detailed research to the group. This is available as an addition to the next Newsletter.

Melrose is an attractive town with its abbey and three peaks dominating the immediate landscape. Our purpose was to examine the evidence for the late Devonian conditions, Louis noted the similarity to parts of the Indonesian island chain today. The first stop examined the Chiefswood exposure. This resulted from a huge, cataclysmic [phreatomagmatic] eruption that produced a chaotic deposit of agglomerate almost two kilometers long.

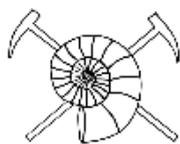
Moving on to the Bowden Moor Quarry, the group were introduced to the Sanidine Trachyte, a pink rock that makes up much

of the Eildon Hills laccolith. The early (1914) description of the exposure described relationships that are now covered by vegetation however the quarry debris enabled some of the variation of the rock type to be examined. Turning to the view of the hills the later volcanic plug was noted with a boulder clay tail picked out by the vegetation whilst the Sanidine sills were notably more prominent.

Moving onto the hills Louis noted the field relations that remain from the eroded intrusive mass of Sanidine material. A prominent lobe of the acidic material was carefully examined to explore its relation to a coarse agglomerate mass which could be a tipped material but was identified as underlying the sill.

We ascended the plug structure with its mineralogical make up, including 'Markle type' basalt, allowing some witty comments due to the royal association with the Duchess of Suffolk. It made an excellent spot for lunch.

Three sills are noted in the Eildon Hills, the benches in the hill profiles (supported by Louis's historical background to the activity of Roman legions) were correlated to the sill junctions. The group were able to distinguish the lowest sill with faulting structures, two drilled bore holes, probably for a dating exercise and a surface which was utilised by an ancient track, with a rock surface that led to some debate as to its origin. The mineralogy of the sills was challenging to confirm in hand specimens however there were



# North Eastern Geological Society

abundant textural features allowing variations to be agreed.

After climbing to the peak of North hill, Louis led the group in a large-scale landscape study which was very supportive of the geological evolution of the area.

The day was a great success, the party warmly thanked Louis for the thorough experience and excellent background material together with in depth discussions of the sites studied.

Gordon Liddle

---

## Saturday, August 18th, 2018

Runswick Bay led by Karl Egeland -Eriksen with an introduction and much illumination by Dr Paul Williams. Joint meeting with NOUGS

This well-attended event commenced with a brief introduction to the geological setting which placed the stratigraphy firmly in the Lias of the Lower Jurassic, explained in some detail in Karl's notes (a quick revision in the car-park was required), we set off along the beach southwards, swinging eastwards towards Kettleness Scar. Initially the land above the beach is boulder clay, this deposit being subject to rapid erosion from the sea, as evidenced by the position of the last remaining beach hut perched precariously on the edge of the clay above a three to four metre drop.

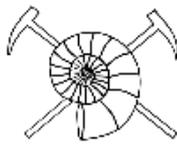
Being essentially a day for fossil hunting we moved rapidly on to the towering cliffs

above the area known as Hobb Holes. These are caves, not sea eroded, but adits, a result of Jet mining, and this places the exposure in the Jet Rock Mulgrave Shale Member. The Jet layers are within a sequence of finely laminated black pyritous shales which smell of crude oil, an indication of their formation in anoxic conditions. The exposure also contains a sequence of calcareous or sideritic nodules, spherical in shape and variable in size, known as Doggers. The rocks are highly fossiliferous with many ammonites, belemnites and bivalves. Dactyloceras is common, but less frequent is Hildoceras (named after St. Hild, Abbess of Whitby, the 7th Century saint), recognised by the sinusoidal curvature of the chamber 'ribs'



After negotiating a difficult section of the upper beach full of large boulders, the group moved to Kettleness Sands known as a prime area for Jet, these beds being overlain by bituminous shales. The presence of oil in the strata even extends to ammonite chambers in some cases.

Below the Jet rock lies the Cleveland Iron formation consisting of ironstone seams and salad mudstones. One seam, the Pecten Seam contains the larger bivalve Pseudopecten which members found easy to extract. The highest seams hereabouts are the Alum



# North Eastern Geological Society

shales which were worked for Alum in the eighteenth and nineteenth centuries. Grey when extracted/quarried, the process of recovering the Alum is by burning(calcination). Examples of the broken burnt shale can be found at the quarry area and elsewhere where it has fallen from the cliffs and become consolidated on the beach, as a kind of agglomerate.

Members returned to base along the beach and up the slipway, observing the beach reinforcements in the form of Nordic Granite blocks.

Their greenish tinge contrasting with the only other Plutonic rock on show, the Shap Granite, with its pink feldspars. The latter having been moved naturally by the glaciers of the Ice Age, unlike the former, which required man's marine engineering! Our thanks to Paul and Karl for sharing their extensive knowledge with us.

L R Barnes

---

## Heritage Open Days 6<sup>th</sup> and 7<sup>th</sup> September 2018.



Chris Taylor and her group of eager learners find, at last, a metamorphic rock!

Chris Taylor led a 'Building Stones of Newcastle' walk which the 22 members of the public evaluated very highly, amazed at the array of stones used and their geological history.

Andy Lane led an equally well attended and highly praised walk looking at Seafront Geology in Sunderland. As well as tufa and cannonballs the group were introduced to various types of granite



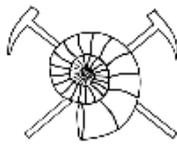
NEGS: Encouraging participation and widening knowledge of geology in the North East of England since 1971

Thanks to the volunteer NEGS members who supported these walks.

---

## LECTURES

The Autumn/Winter season of lectures will commence in October in the Arthur Holmes Lecture Theatre, Durham University Science Site on South Road. Lectures are on Friday at 7.30 pm on the following dates:



# North Eastern Geological Society

## October 19<sup>th</sup>

**Dr Matthew Funnell**, Durham University  
Cruising for Ridges

## November 16<sup>th</sup>

**Prof. Chris Greenwell**, Durham University.  
A time of waste – sustainable  
environmental geoscience solutions

## December 14<sup>th</sup> Members Evening

**Dr Andy Lane**: Glimpses of Harz Geology –  
Familiar but Different

**Chris Taylor**: Carboniferous Volcanism of  
the East Fife Coast

## January 18<sup>th</sup>

**Derek Teasdale**: Modelling ice flow  
patterns across the NE using a Geographic  
Information System (GIS)

## February 15<sup>th</sup>

**Dr Antonio Carponi**, Durham University  
Bubbles in basaltic volcanic systems:  
insights from analogue experiments

**March 15<sup>th</sup> AGM**, followed by  
**Prof. Claire Horwell**, Durham University:  
Volcanic Hazards

---

### Some More Dates for your diary:

#### Natural History Society of Northumbria

October 26<sup>th</sup>. Professor David Manning.  
December 7<sup>th</sup> Ian Jackson (ex BGS).  
January 25<sup>th</sup>. Dr Helen Reeves. BGS.  
February 22<sup>nd</sup>. Clare Brint, Network Rail

## FIELD TRIP PROGRAMME

Your Field Programme Secretary, Gordon  
Liddle, has the programme planning well  
under way for the 2019 Field season.

In the meantime, don't forget that you  
can attend the NOUGS field trips as a  
guest. Details:

<https://ougs.org/northumbria/events/>

October 14<sup>th</sup>. Redcar and Saltburn.  
November 4<sup>th</sup>. Stanhope, Weardale.  
December 1<sup>st</sup>. Cresswell and Newbiggin.

---

## NEWS AND LOCAL EVENTS

**New Book: Minerals of the English  
Midlands, Roy Starkey.**

Recently published a major new book  
*Minerals of the English Midlands* may be  
of interest to members. The book is a  
private project funded entirely by the  
author and is being distributed on a not-  
for-profit basis seeking only to recoup  
the cost of producing it. You can see  
more information on the authors website  
here

[https://britishmineralogy.com/wordpress/?page\\_id=878](https://britishmineralogy.com/wordpress/?page_id=878)

and order a copy here

[https://britishmineralogy.com/wordpress/?page\\_id=842](https://britishmineralogy.com/wordpress/?page_id=842)