

North Eastern Geological Society

Newsletter August 2018

UPCOMING EVENTS

Saturday August 18th 2018

Runswick Bay (Joint meeting with NOUGS)
Led by Karl Egeland-Eriksen

FIELD TRIP REPORTS

NEGS/ Nat. Hist. Northumbria visit to the coastal section North of **St Mary's Island**, North Tyneside on **19th May 2018**
Leaders: Derek Teasdale, Eric Johnson.

A glorious day welcomed thirty enthusiastic members of Negs and the Natural History Society of Northumbria to an excursion between St Mary's island, North Tyneside and Seaton Sluice, Northumberland to view the SSSI exposure of middle Pennine Coal Measures, possibly the best exposure of these rocks in the world!

Derek Teasdale and Eric Johnson jointly led the group expertly detailing the evidence for the changing sedimentary environment as this part of the world drifted northwards during the Carboniferous, to the equator with a huge southward draining river system, fluctuating sea levels (one explanatory theory is that this was due to the polar glaciation that was occurring at the time) and tropical forests creating the cyclothem; sequences of fine silt, fine sandstone and coarse sandstones with seat earths and coal seams adding to the sequences. The coarse sandstones were attributed to channel fill, the structures of these sediments indicated river flow,

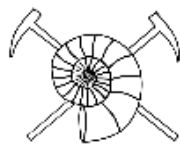
planar deposits and sequences of rich animal activity indicated by burrowing structures.

The rocks have been affected by post deposition changes, an interesting discussion of the siderite iron nodules, that locally were mined in the past, took place whilst the orientation of bedding and abundant faulting were explored at length. The rock sequences have been moved vertically by multiple events causing the group to appreciate the helpful sedimentary log and map that were provided.



The discussions led to broad agreement that the rocks had moved locally as they settled and lithified but also the impact of the complex Variscan Orogeny was probably responsible for the dominant trends of faults and folding in the late Carboniferous / early Permian times. The approach to Crag Point introduced especially interesting fault deformation with grabens, fault surfaces, drag folds together with loose material that recorded cone in cone structure.

The whole sequence was overlain by Boulder clay materials that reinforced the importance of this location. Derek demonstrated the strain effects of the



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very thick ice cover (possibly 600m) notably of jointing. He then demonstrated the effect of the ice motion on crushing the softer shales leaving a clay size matrix of the Boulder clay together with clasts of rocks which demonstrated origins to be local and distant as the glacial sediments

An extension to the day allowed a visit to the Seaton Sluice cut, a section through the massive sandstone which had been seen twice before on the trip. The rock displayed current bedding, wash outs and various other features helping to confirm its origin as a fluvial sediment deposited perhaps 280Ma. This extension also allowed some to view the Tertiary dyke that cuts across Collywell Bay in an ESE trend indicating a possible link to the Mull intrusions.

The group gave a rousing vote of thanks to the leaders for an excellent day.

Gordon Liddle

Geology of Howick Bay Northumberland 3rd. June 2018.

Led by: **Ian Kille** and **Karl Egeland, Eriksen**.

NEGS and NOUGS members joined forces to enjoy the challenging and fascinating geology exposed in the Howick Bay Area of Northumberland. We were fortunate to have two leaders both very knowledgeable about the area. As the opportunity arose, the geological features were linked to social, environmental and economic events which enhanced the appreciation of the features observed.

The substantial group gathered at Craster for the walk, starting in the disused dolerite quarry. Ian helped the group to

appreciate the character of the exposed rock notably in the area of the harbour where the limestone Muckles and a fault had helped to create a sheltered small embayment. The relationship of the igneous rock with sediments was established as a sill. This is the Whin Sill, a late Carboniferous intrusion that underlies much of NE England. Heading south the group explored a minor embayment with a dyke like structure and erosion of the possible baked margins.



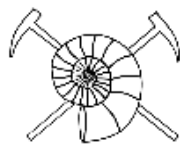
Craster Whin Sill, probable dyke

The polygonal jointing was noted and discussed.

Approaching Cullernose point, an in-depth discussion of the vesicle/ amygdale structures allowed consideration of the complex of factors that can affect the crystallisation of this type of basic magma.



Howick Fault Zone – Dragged shale



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We moved into Howick bay, enjoying our lunch on the deformed limestones. Fossil fragments, and a loose trilobite were recovered and recorded whilst the folding, faulting and minor intrusions were noted.



Trilobite

We did a quick transfer to the middle of the bay, dropping down to the wave cut platform which is crossed by a complex of essentially extensional faults. The presence of grabens and coal seam marker beds were discussed. This area may overlie a northerly Iapetus suture fault structure. The coal measure sediments were well exposed with cliff and beach exposures allowing careful study of the environments indicated by the cyclic sedimentary column. Plant debris and the remains of probable amphibian footprints were explored in some depth.



Amphibian footprints or natural holes in limestone?

The quality of the exposures and excellent description and analysis by our leaders made for an exceptional day in the field. The group gave a most appreciative vote of thanks to Ian and Karl.

Gordon Liddle

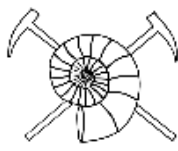
Eildon Hills, July 2018

This report will appear in the next issue of your Newsletter.

LECTURE REPORTS

The season starts again in October and Professor Foulger has been busy developing an interesting and topical programme. The Members Evening in December still requires speakers from the membership.

Contact : g.r.foulger@durham.ac.uk or negsec@gmail.com



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FIELD TRIP PROGRAMME

Sunday September 16th, 2018

Tunstall Hill and Ryhope Railway Cutting
(Joint meeting with NOUGS) Led by Karl Egeland-Eriksen

More detailed information available on the Website at <https://www.negs.org.uk/>

Please inform negsec@gmail.com of intention to attend these field trips.

Heritage Open Day Walks

Thursday 6th. Sept 2018

Chris Taylor - Building Stones of Newcastle

Friday 7th September

Andy Lane – Sunderland Coast, north of River Wear

Bookings have commenced for these two public geology walks. We will require member support for these events, one or two names have been submitted but more will be required. Please contact negsec@gmail.com to volunteer to help plan, run, back-mark on these events. Thanks to those who have volunteered their support already.

NOUGS Field trips

NEGS members are welcome to join NOUGS on their frequent field trips

Please note changed dates - Borders Geology weekend 1/2 September.

Dob's Linn now on the SATURDAY

Meet: 10.00am. Pay and Display, Grey Mare's Tail NTS Car Park. GR NT 186144

And

Wanlockhead on the SUNDAY (there is a cycle race on near Dob's Linn on the Sunday with roads closed to traffic).

Meet: 10:00 am. Wanlockhead Visitor Centre Car Park (Lead Mining Museum). Old Library Row. NS873129

Sunday 16 September - Tunstall Hill, Ryhope Cutting (NEGS/NOUGS)

Further details of these, and contact details at <https://ougs.org/northumbria/>

ADMINISTRATION

NEGS requires a representative to the GEOLOGISTS ASSOCIATION, this person needs to be a member of the Geologists Association who will report back from meetings. GA pays some expenses