North Eastern Geological Society

Newsletter September, 2015

UPCOMING EVENTS

September 19th **Whitby – Saltwick Bay**

Leader: John Waring

Meet at the Abbey Car Park (NZ 904 110) at 11.30 am. Low water is at 2.15 pm.

From the Abbey Car Park we will walk along the cliff top to Saltwick Bay, which will take about half an hour, from where the traverse will begin.

The purpose of the trip to this classic area is to study the paleogeography, depositional environments, palaeontology, petrology (thin section photos) and industrial archaeology of the Lower Jurassic Whitby Mudstone Formation as well as the overlying Middle Jurassic Dogger and Saltwick Formations. The traverse will include an examination of the famous Middle Jurassic Whitby Plant Bed as well as the possibility of finding dinosaur footprints.

Safety helmets should be worn if close to the cliff face. Bring a packed lunch.

Toilets are available at Market Place, the Abbey Headland Car Park and near the entrance to the West Pier.

Car Parks (map and list) can be found at http://www.scarborough.gov.uk/home/parking/car-parks/whitby-car-parks

Parking charges apply; e.g. Abbey Headland C.P. and West Cliff C.P. 6 hours - £5.00; 24 hours - £6.00. Total walking distance is approx. 3 miles.

Ref. “The Yorkshire Coast” G.A. Guide No.34, P.F.Rawson, J.K.Wright, pub. 2000, Itin. 2

FIELD TRIP REPORT

Siccar Point and Barns Ness 4th July 2015

Leader Mike Brown, BGS retired.

Torrential rain was falling as intrepid members made their way to the study area. The geological attraction of the sites was clearly reflected in the dozen enthusiastic members who made the journey.

Mike outlined the background to his own extensive experience with the sites, especially more recently, with respect to the GeoConservation dimension of the sites. He provided a variety of published leaflets (see links below) and extracts from recent literature to support the site investigation. Safety was highlighted on the Siccar Point leaflet.

The first stop at Barns Ness is well known for the fossil assemblages. Mike carefully developed the modern issue with terminology for the stratigraphic position of the strata. The importance of the site reinforcing the relevance of the age correlation. The group worked with the position below the Great Limestone of North East England, this facilitated the linkage of the cyclic deposits we saw.
The coastal exposure of the five limestones we examined, were clearly faulted, the initial fault lying at the southern end of White Sands Beach. This fault had caused the Middle Longcraig Limestone to fold near vertical into the fault plane. The southern limb displayed very substantial coral colonies of Lithostrotion and other debris whilst the underlying sandstone was well exposed. Trace fossils in the sandstone, notably burrows of Zoophycos and Rhizocorallium demonstrated the varied feeding strategies. The limestone has been exploited for agricultural lime, an old harbour and quarry walls were clearly visible.

Mike developed the geological understanding of the sequence of sediments. Dated at around 320M, the Lower Carboniferous is the locally recognised age. The area was, at that time, a delta environment with sea level fluctuations accounting for the sediment changes coupled with fluvial effects. He reminded us of the Gondwana glaciation at this time which would have caused sea levels to fluctuate. This area had a latitude a little south of the equator.
Coral developments on this scale indicate a warm, clean, fertile ocean. The sandstones suggest fluvial advance whilst the densely fossiliferous mudstones can be accounted for by swamp areas linked to river or coastal areas. We examined the various beds with care noting an ancient beach deposit cemented in Holocene times indicating a clear link with modern environments.

The presence of what appeared to be solution pits in the surface of the Upper Longcraig Limestone caused much discussion, Mike developed the present understanding as the site of ancient Lepidodendra vegetation.

These rapidly growing trees decayed causing organic acids to dissolve the limestone whilst roots have caused iron rich nodules to form in the area around the trunk.

This exposure was a first for most of the party. The sedimentary sequence exposed ranged from limestone to thin coals with a cyclic character similar to the sequences of this age seen in northern England. A raised ridge trending North East had been described as a dolerite in some literature but inspection showed it to be a dolostone formed from limestone material that had been faulted with the alteration facilitated by mineralising solutions moving along the fault.

The attractive "Dunbar Marble' (above and below), a lime rich deposit of solitary corals (koninckophyllum) was noted as was the rare Chaetetes, a sponge that formed small reef mounds at this time.

Moving on to Siccar Point, Mike outlined the background of the famous James Hutton and put his work into the enlightened period of the 1700's. A farmer with a varied academic background Hutton was aware that two rock types in the area had very different structures and sought an exposure of their relationship. The classic Siccar Point was the perfect

demonstration which led to the statement 'No vestige of a beginning. No prospect of an end'. His friend, Playfair helped with the interpretation. This was profound in a society still firmly believing in the biblical statement of an origin of the Earth barely 6000 years ago. They were careful not to confront this belief!

The approach to Siccar Point is signed but the descent requires the utmost care. Following comments by Mike on the coast north and south, members of the group made the descent using a route tested by Mike. Just above the high water mark the exposure was truly inspiring with the near vertical Silurian sands (turbidites) and slaty shales irregularly eroded and covered by near horizontal bright red Devonian fluviatile sands with conglomerate lens deposits.

The angular unconformity is now known to represent a time gap of 65 million years during which time the Silurian rocks were lithified, strongly deformed during the closure of the Iapetus and uplifted to the surface when erosion modified the surface before sinking again to receive the Devonian material. The group returned to the viewpoint above the unconformity before moving a little South to observe the overhang of the Devonian material, strong east west faults and some drag folding on the foreshore.
The trip ended in wonderful sunshine that completed an exceptional day in the field with the leadership of Mike warmly appreciated.

Gordon Liddle

Links to the leaflets mentioned in text:-

Barns Ness. Fossils Geological Walk

http://www.edinburghgeolsoc.org/downloads/rigsleaflet_barnsnessa4.pdf

Siccar Point

http://www.edinburghgeolsoc.org/downloads/lbgcleaflet_siccarpoint.pdf

James Hutton, a man ahead of his time

http://www.edinburghgeolsoc.org/downloads/rigsleaflet_huttona4.pdf

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LECTURE AND FIELD TRIP PROGRAMMES

Lecture dates for 2015/16

16th October Dr. Ceri Nunn

Structure of Mt. Etna

20th November Dr. Rick Smith FWS Consultants:

The recent polyhalite discoveries in North Yorkshire

18th December **Members Evening**

We are seeking volunteer speakers for this event.

Can you do a 20 minute session?

1. Gordon Wilkinson Aspects of the Taupo Volcanic Area – New Zealand

Also, your Committee would be pleased to hear of suggestions for lectures/lecturers this coming season.

Let me know soon - negsec@gmail.com

15th January 2016 TBC

18th February 2016 Brian Young

Mapping it out: William Smith 200 years on.

18th March 2016 TBC +AGM

Field Trip Programme 2015 -16

September 26th Knock Fell, Pennine Escarpment.` Leader: Eric Johnson

October 10th Coldberry Gutter, Teesdale

Leader: Brian Young

A small number of members have been taking advantage of the offer to join OUGS Northumbria field trips. Further dates and arrangements are below, full details can be found on their website – link at negs.org.uk

September 6th Bowlees & High Force Meet: 10.00 a.m. Bowlees Car Park. (NY 908282).

September Berwick Weekend 19th-20th
Saturday Meet: 10.00 a.m. Eyemouth Beach Car Park (NT 944645).
Sunday Meet: 10.00 a.m. Castlegate Car Park, Berwick. Long Stay (Far end) (NT 997531).

October 4th Cheviots
Meet: 10.00 a.m. Public car park at Ingram Visitor Centre (on left immediately after crossing bridge). (NU 018163). (West off the A697 Wooler road about 1.5km north of Powburn).

October 18th Loftus
Meet: **12.15.** Church car park at Carlin How at the top of the bank (NZ 713200).
Organised by Tees Valley RIGS

November 7th Cowshill
Meet: 10.00 a.m. Car Park off A689 on lane heading north immediately to east of bridge at Burtreeford. (NY 856406).

NEWS AND LOCAL EVENTS

Each year NEGS Awards a Durham University Earth Sciences student a £100 prize. The prize winner this year is Sophie Appleton who was presented with her cheque by Chairperson Gordon Liddle on 6th August.

Congratulations Sophie.

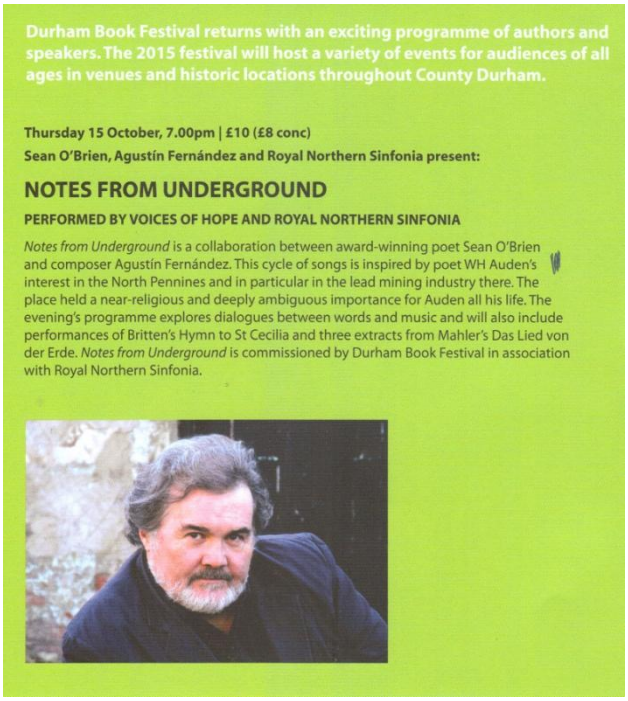
Further congratulations

To member Brian Young whose Honorary Fellowship at Durham University has been renewed for three years from 1 June 2015. Brian has been a long-time collaborator to many people in Earth Sciences and has supported many aspects of Department activity.

Congratulations Brian

Durham Book Festival

Gala Theatre, Durham - A cycle of songs inspired by poet WH Auden's interest in the North Pennines and in particular in the lead mining industry there. The place held a near-religious and deeply ambiguous importance for Auden all his life.



The new NEGS website is now online, it is a work in progress, but do please visit and use: **http://www.negs.org.uk/**

Don't forget that we're also on **Twitter,** courtesy of Kirsten Dutton **(Our Student Rep at Newcastle University).** k.e.dutton1@newcastle.ac.uk

Tweet us - '@NEGS_UK'.

Bringing up the rear

Answer to last issue's photo: from member **Nigel Harrison** who just happens to live on the other side of Skiddaw.

The picture of the u-shaped valley was taken from the summit of DALEHEAD, at the southern end of the Newlands Valley, looking North; the Skiddaw Range is in the far centre distance, with the Blencathra Range to its right (or east!).

NATIONAL EVENTS

The geologists Association annual festival of Geology takes place in London and entry is FREE.

Member Gordon Hull goes to this interesting full day and has proposed that if any members are interested in attending he would investigate a group booking of train tickets.

As you can see from the flyer there are talks, walks and much more.

Contact Gordon if interested : - ghullgd1919@gmail.com