North Eastern Geological Society

Newsletter late January 2016

UPCOMING EVENTS

19th February 2016 Brian Young
Mapping it out: William Smith 200 years on.

18th March 2016 AGM + Prof. Mike Bentley, Durham University: Antarctic ice sheets and climate change

---

LECTURE REPORT

Members Evening 18th December 2015. The reports are both by the presenters – John and Les.

1. **John Waring gave the first talk of the evening, and what a lot he managed to cram into a short time!**

"From Deserts to Deltas"

The purpose of this illustrated talk was to give a brief overview of the geology of Durham and North Yorkshire in conjunction with the ongoing work of the Tees Valley Geo-Conservation Group (TVRIGS).

The first locality described was Middridge Quarry (NZ2478 2529), where the Lower Permian Basal Breccia, Marl Slate (famous for its fossil fish) and Raisby Formation are seen to unconformably overly Coal Measure sandstones. One of the fossil fish (palaeoniscum) found by a TVRIGS member was illustrated.

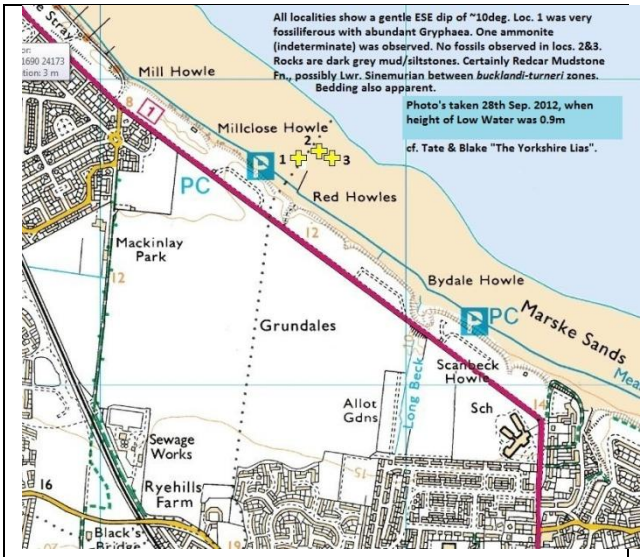
RIGS group visit to Middridge quarry

A thin section photo of the Basal Breccia illustrated the contrast between sub angular Coal Measure quartz grains and the more rounded "millet seed" grains of nearby seif dunes which are dramatically displayed at Field House Farm quarry near Houghton-le-Spring as well as at Quarrington quarry.

Further up the succession, at High Coniscliffe west of Darlington, is an exposure of the Ford Formation consisting of possible lagoonal beds. It is being proposed as a RIGS site.

A brief mention was made of a visit by RIGS members to Blackhall Rocks where Dr. Mike Mawson described and illustrated aspects of the Ford Formation reef facies.

Members of RIGS with Dr. Mike Mawson (2nd from left) discussing reef flat & overlying Boulder Conglomerate at Blackhall Rocks



Yellow crosses at Red Howles NZ 627 237 mark a proposed RIGS Site.

Three sites at Ingleby Barwick and by the River Leven from the Triassic period were described and it was noted that exposures of this period are sparse in the Durham-North Yorkshire area.

A coastal locality, Red Howles, between Marske and Redcar in the Lower Jurassic Calcareous Shales of the Redcar Mudstone Formation was then mentioned as being proposed by TVRIGS group as worth preserving due to its rarity of exposure owing to frequent sand cover.

The group was aware that Forewind, a consortium comprising four leading international energy companies, were planning to landfall wind turbine cables from Dogger Bank precisely on or near this spot. Friendly consultation with Forewind representatives resulted in an undertaking to protect the Red Howles Site.

Other Lower Jurassic Formations, including the Staithes Sandstone, Cleveland Ironstone and Whitby Mudstone were illustrated followed by a brief description of the different facies of the Middle Jurassic Dogger Formation.

The deltaic facies of the Ravenscar Group was then illustrated, including point bar deposits of a channel sandstone and two famous plant beds, Marske and Hasty Bank, all in the Saltwick Formation.

Finally an acknowledgment was made to the late Dr. Martin Whyte who generously led N.E.G.S. on at least two field trips to Whitby and Burniston respectively.

2. **The second talk was given by Les Barnes who described his fascinating encounter with geology whilst on holiday. As one member said "Makes you want to go and see for yourself".**

The Geology of the Isle of Purbeck

For the purpose of this talk the Isle of Purbeck is an area of Dorset bounded by Corfe Castle and St. Alban's Head in the west and Swanage Bay in the east, the coastline representing the eastern end of what has become known as 'The Jurassic Coast".

The geological sequence considered begins with the Kimmeridge clays of the Upper Jurassic and upwards through the Portland Limestone, the Purbeck Formation, the Wealden Beds and the Greensands, to the Chalk, as one travels north. The structure is that of a monocline in the Purbeck Formation roughly horizontal from the south coast to a west-east ridge parallel to Swanage and then dipping steeply down under the Wealden Clays which are then overlain by the dominant Chalk Ridge. An early Geological Survey map indicated the Jurassic-Cretaceous boundary above the Purbeck Marble, but today the boundary is placed below the Purbeck formation so that the latter is classified as Cretaceous.

The focus of the talk was the mining and quarrying of the Purbeck Limestone, centred on the village of Langton Matravers. Here, the village is built almost entirely of locally mined limestone, the various beds in the sequence being ideal for either walling, roofing, paving or in the case of the Purbeck "Marble", decorative stonework. (Like the Weardale "Marble", this is just a limestone which takes a polish). A memorial to the miners, carved from the local limestone, stands outside the church.

Limestone is no longer mined but extraction continues in opencast quarries. The writer managed to locate two former mines(small-scale family-run affairs), now much overgrown, and identified two capstans formerly operated by donkeys and other features which formed the mechanism for extraction. The last of these mines closed after the Second World War Abandoned quarries were examined at two Rigs sites(in Dorset known as Digs), in Burr Lane (Burr being a bed of limestone below the Purbeck marble). A working quarry was visited at Acton to the west of Langton Matravers, and both rough-cut and polished flags revealed the shelly nature of the rocks packed with bivalves and gastropods. Historically these deposits have shown evidence of dinosaur footprints, so a search was made to see if any could be found. The photograph below is the result of the writer's search. Members are invited to identify it(it measures about 25cm across).

Finally the NEGS Members Rock part of the evening took place. Thanks to Judy Harrison for the following report.

There was a very good turnout of photo's and rocks occupying most of the first bench of the lecture theatre.

Alan Denham got us off to a good start by showing a quick animation of his photos from Somerset with some very clear examples of a fault, ripples and an unconformity.

Rocks displayed came from all around the globe, serpentine from the upper Dordogne in France, granite from Bodmin moor.

Over to Pennsylvania and an example of very pure anthracite looking almost like obsidian from a ***synclinal open cast quarry*** (below).

(What a piece of coal to go first footing with Thanks for the loan Gordon.)

Gordon Hull told me that once worked the quarries are just left – no reinstatement works are necessary under their planning legislation.

Then to Troodos in Cyprus with rock examples and photo's of an ophiolite – a section of the earth's oceanic crust and the underlying upper mantle that has been uplifted and exposed above sea level and often emplaced onto continental crustal rocks.

Serpentinite - a metamorphic rock of magnesium silicate minerals with veins of chrysotile – commonest form of asbestos.

Pillow lavas.

Then thanks to Chris Burridge for a number of photos taken in Patagonia, many showing columnar jointing with a great deal of contortion where magma extruded beneath glacial ice and cooled super-fast.
Back to the UK & **John Bond** had been panning for gold at Mennock Water in Dumfries & Galloway and found some!
Last but not least a nice example of Blue John from Derbyshire – from **Jennifer French.**

Thanks to all members for their excellent contributions. Any errors are mine.
Judy Harrison

LECTURE AND FIELD TRIP PROGRAMMES

The final two lectures of the year are listed on Page 1.

Unfortunately, due to serious personal circumstances, the speaker failed to appear for the January 15th lecture. Professor Foulger, the Lecture Programme Co-ordinator was greatly concerned and offered apologies, and Dr Dempsey sends his wholehearted apology.

In the absence of a speaker for the evening, the Chair and the Field Programme Secretary took the opportunity to discuss the proposed field trips for the year. This was an interesting discussion in which members present responded to ideas presented.

The Secretary reminded everyone present of one date that should be in their diaries – **September 10th,** the Saturday of Heritage Open Days, when NEGS intends to be offering public 'Stones in the City Walks' and members will be needed to support these.

Some of the field visit ideas discussed were:

- Geomorphology – Borrowdale.

There was some discussion about this being a possible weekend as the journey is approximately 2 hours for most people.

- Malham Tarn area.

Again, discussion regarding this being a weekend visit.

- France.

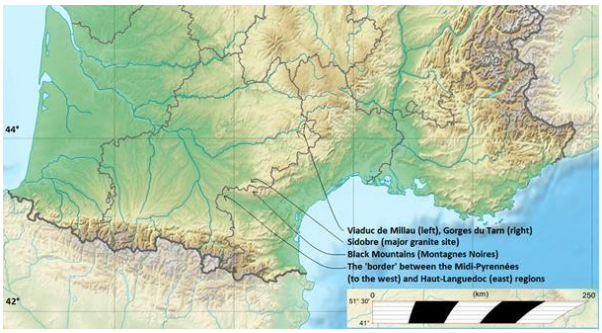
NEGS has received a communication from someone offering to assist in organising a visit. He writes that he is "in the Sidobre, a major granite site, important both for its beauty and for its extractive value. In the interest of aesthetics, the two activities are wisely kept apart, though of course many visitors, not least geology enthusiasts such as yourselves, come to study the mining too. Many visitors come to appreciate the associated artwork using the granite. The 'Parisian walkways' of the Champs Elysées are paved with Sidobre granite.

Just south of the Sidobre, just up the road from Castres, is a fossil trove at Le Causse de Caucalière, which is a "vast lacustrine plateau (about 1900 hectares/4700 acres) of limestone dating from the Tertiary period, rich in fossils.

Not far, in the direction of Montpellier and the coast, there are other stunning geological sites, such as the Gorges d'Héric (which Gordon Liddle has visited) with pleasant walks, rock climbing, and where visitors can legally bathe in the fresh waters. It is

bordered on one side by the Massif du Carroux (gneiss, steep, rugged slopes) and on the other by the Monts d'Espinouse (more complex: granite, gneiss and schist, with seams of soft bituminous coal). The national park here is locally noted for its wild 'mouflon' sheep roaming the steep escarpments.

- http://sidobre.tourisme-tarn.com/en
- http://www.tourisme-castres.fr/visite_virtuelle/360.html
- http://www.ot-caroux.fr/en/



Will members please express any interest in these or other field visit possibilities to negsec@gmail.com so that decisions can be made for the programme this year and possibly for next year.

For those who are interested in taking up the Northumberland OUGS offer of participating in their field trips:

February 21st Carley Hill. Witherwack**,** Sunderland.
Meet 10.00 am. Parking area by Marley Pots Playing Fields, Wembley Road. NZ 37885939

March 13th Scremerston and Cocklawburn, North Northumberland coast.
Meet 10.00 am. Parking area above Cocklawburn Beach. NU 025486

April 23rd **Cow Green,** Upper Teesdale.
Meet 10.00 am. Main car park by Cow Green Reservoir. NY 811309

NEWS AND LOCAL EVENTS

December 17th saw the launch of the book which finalised the 5 years of the Limestone Landscapes project.

http://www.durham.gov.uk/article/7098/Literary-launch-leaves-lasting-legacy-for-Limestone-Landscapes

There was a good attendance at the launch - pictures on Limestone Landscapes Facebook page, and the book is well worth the £12.00 price.