NORTH EASTERN GEOLOGICAL SOCIETY
Newsletter July 2014
http://www.northeast-geolsoc.50megs.com

1. NEGS SPRING/SUMMER FIELD MEETING PROGRAMME

Stop Press – Date for your diary.

Sunday 12th October. Field trip – Nenthead – Mineralisation: Leaders: Peter Jackson and Brian Young. More information will be supplied later.

Don't forget the next Field Trip

Sunday 20th July 2014 **Austwick and Crummackdale.** **Leader Eric Johnson**

Meeting Point: Crag Hill Road near Horton in Ribblesdale station [SD804 725] at 10am.
Logistics: Park by the roadside in Crag Hill Lane; 100metres or so south of the B6479 junction. Share cars and drive to Austwick (about 8km/5miles) for 10.30am start. Park cars next to the green in the centre of the village [SD768 685]. Walk back to Horton in Ribblesdale via Crummackdale - about 6km/4miles for 4pm. Return drivers to Austwick to pick up cars.

Further information is available in the previous Newsletter and on the Website.

Will members please email me with notice of 'intention to attend', so that we can have some idea of the numbers? This, of course, does not exclude you if you should decide at the last minute that you will attend. Car sharing would be a good idea - If you are willing to car share, or would like a lift let me know and I will put out an email to all. I will need your name, location and contact (mobile number / which I will not share with whole mailshot unless you're okay with that) and we'll try and get something co-ordinated. (negsec@gmail.com)

Report of a Field Trip to Lady Cross Quarry and Blanchland on July 5th 2014.

A small group of eager members met at Blanchland and moved on to Slaley Forest, where, at the entrance to the quarry, Eric gave an introduction to the regional geology and its depositional environment to provide a background context. He provided members with a hand-out that summarised the Namurian stratigraphy to help members keep track of where they were in the succession during the day.

SUMMARY OF NORTH PENNINES NAMURIAN STRATIGRAPHY

Epoch	Age Ma	Stage	Zone	Key marker beds	Lithostratigraphy
WESTPHALIAN	314	Langsettian	____	*Subcrenatum Marine Band*	Coal Measures
	315	Yeadonian	G	*'2nd Grit'*	
	316	Marsdenian	R_2	*'1st Grit'*	Millstone Grit Facies
	317	Kinderscoutian	R_1	*Whitehouse Lst./Dipton SB*	_____
	318	Alportian	H_2		
NAMURIAN	319	Chokerian	H_1		
				Upper Fell Top Limestone	Upper Limestone Group
	323	Arnsbergian	E_2	*Lower Fell Top Limestone*	
	327	Pendleian	E_1	*Great Limestone*	
VISEAN					Alston (Middle) Limestone
Group					

Typically the Namurian succession is just under 300 metres thick and was deposited in an interval of ~13 million years. The cyclical succession records numerous low-stands (thin coals and seatearths) and high-stands (limestones and marine bands) in sea level. There is no definitive evidence for Chokerian and Alportian rocks in the North Pennines. Locally, thick sandstone successions are present filling channels in the Arnsbergian part of the succession.

The sandstones in Lady Cross Quarry lie close to the Namurian – Westphalian succession. Like other rocks of this age they are part of a vast delta top succession of sandstone siltstones and mudstones that covered Northern England in Late Carboniferous times. There were numerous different depositional high and low-energy environments on the delta top (summarised in Figure 46, BGS British Regional Geology, Northern England). These included channels filled with sandstone, overbank siltstones, crevasse-splay interbedded sandstones and siltstones as well as lacustrine mudstones and siltstones. The low-relief delta was subject to repeated changes in sea level, coals and seatearths formed when sea- level fell, thin limestones and marine mudstones (marine bands) were deposited when sea- level rose. In Late Carboniferous times what is now the British Isles lay on the east side of the supercontinent of Pangea, a few degrees north of the Equator. The climate must have been similar to that on the equator today, hot and wet with much of the land covered with tropical forests that would later form coal seams.
The party then went into the quarry where the owner, Robin Turner, pointed out and discussed the various types and features of the thin bedded sandstone succession.

He explained that the sandstone is extracted by hand and used mainly for roofing slates and is highly valued for restoration work on historic buildings throughout Northern England.

Other uses include floor tiles, paving flags and thicker beds for building stone.

Robin then showed people around restored parts of the quarry that were now a nature reserve. The visit concluded by thanking Robin for an interesting and informative visit.
The group followed the track south to the edge of Slaley Forest where Eric explained the geology of the moor-top landscape. Prominent benches are formed by two thick sandstones known as the 1st and 2nd Grits. As the group continued southwards, small exposures of ripple marked and cross bedded were seen in the side of the track. A few steep-sided glacial meltwater channels could be identified in the moorland and provide evidence that the area must have been ice-covered during the last glaciation about 20 thousand years ago.
When the group reached the enclosure wall on the south side of Blanchland Moor Eric explained that we would be begin to drop down the Namurian succession as the path descended into the Shildon Burn valley to about the level of the Upper Fell Top Limestone, towards the base of the Arnsbergian (E_2)
Near the unusually named Penny Pie House (allegedly from an earlier owner who sold pies for an old 1d penny to drovers and miners). Eric explained that on the north side of the Shildon Burn Valley six ENE-trending mineral veins were present in a half mile wide and two and one quarter long belt. The veins were worked for lead i.e. galena and also contain sphalerite in a gangue of fluorite, baryte and quartz. Workings on the veins probably date back at least to the late 18th century. The veins here and elsewhere in the Blanchland area are unusual as they are hosted in sandstone rather limestone as elsewhere in the North Pennines. Thick sandstones are present filling channels in the Arnsbergian part of the Namurian succession. The largest of channels – the Rogerley Channel- is up to 700 metres wide and extends for 30 kilometres from Blanchland southward to Stanhope and Middleton in Teesdale. Open fractures in the 'brittle' sandstones provide pathways for the mineralising fluids.
Various types of sandstone were identified in the dry-stone walls and buildings as the group walked down the Shildon Burn Valley. Also fenced-off shafts provided evidence of former mining activity.
The two farm buildings at Shildon are all that remain of a former mining village which in the 1850's had a population of 150 people. On the opposite side of the track, close to Shildon Burn are the well preserved remains of Shildon Engine House. The Cornish type engine-house was built in 1807 and contained a steam driven beam engine built by Boulton and Watt. The engine was designed to drain the mine workings and pump water from an adjacent shaft that extended down over 200metres to the Great Limestone. The venture was unsuccessful; the beam engine was dismantled and taken to Backworth Colliery in Northumberland. The engine house was converted into accommodation for miners by adding three internal wooden floors and became known as Shildon Castle.
The group continued along the track into Blanchland where the suitability of local sandstone as a building material is clearly evident. Most of the buildings are roofed with sandstone that most likely came from Lady Cross Quarry. Also of interest are the large blocks of sandstone that delimit property boundaries; many are seat-earth sandstones (ganister) that contain fossil tree roots called Stigmaria.
All agreed that this had been a very interesting field trip, made even better by some glorious sunshine, and thanked Eric for his informative leading during the day.

2. NEGS AUTUMN/WINTER LECTURE PROGRAMME.

17th October, 2014	A New Dawn for Shale: Oil, Gas and CO_2 Storage Prof. Andy Aplin, Durham University
21st November, 2014	Brief History of Stable Isotopes: from Kangaroos to Forensics to Botany and the Mesozoic Dr. Darren Grocke' Durham University
12th December, 2014	**1.** Uluru and Kata Tjuta – the geology of a unique area. Gordon Wilkinson
	Two more member contributions required: contact Prof. Foulger.
16th January, 2015	Chinese Dinosaur Embryos. Dr John Nudds, Univ. Manchester
20th February, 2015	Chromite, tungsten and iron: Mineral deposits and mines in Portugal Lesley Dunlop, Northumbria University
20th March 2015	**AGM** **Speaker TBA**

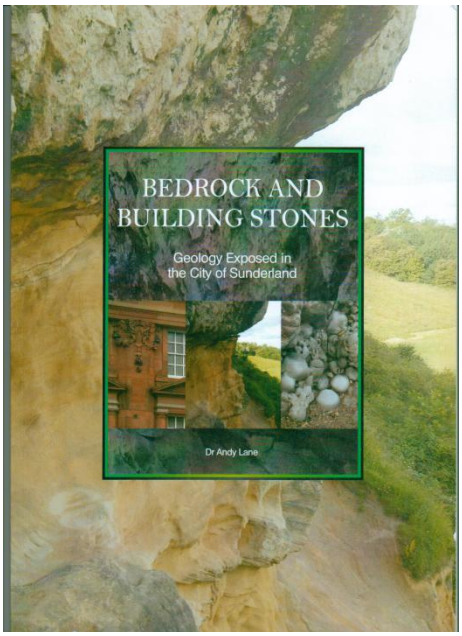
Suggestions (with names, contact if possible) for speakers would be appreciated by Prof. G. Foulger. : email: g.r.foulger@durham.ac.uk

Thanks to Gillian for what looks to be a rather interesting lecture season approaching.

3. NEWS

At the 2014 annual meeting of the North Pennines AONB, NEGS member Brian Young was one of the five nominees for the Pendlebury award – – *for his endeavours over many years to further the geological understanding of the North Pennines and his work associated with the UNESCO-endorsed Geopark status of the area*. Although not the winner of the award Brian is congratulated on his nomination and the recognition of his love of this wonderful area of the north east and its superb geology.

4. INFORMATION



Book Review:

'Bedrock and Building Stones'

by Dr Andy Lane

ISBN: 978-0-9929555-0-2

I was a little apprehensive about a book on building stones, worrying it could be a tads dry; as I live in Northumberland, this book about Sunderland could leave me in the cold for this reason as well.

To be fair, I thought I should set up criteria for the books performance. These were:-

1. It should tell of the rock types in the buildings.
2. It should explain the sources of the rocks.
3. It should give a bit of geological background.
4. Hopefully it should inspire some interest in looking at Sunderland's buildings.

Well having now read the slim A4 well presented volume I can report that Dr Lane has exceeded my criteria handsomely. The first twenty-odd pages are a comprehensive geological background of the rocks of the Sunderland and Durham area, well illustrated and written in an informal but very engaging style. He then describes the types of stone identifying the best uses for each rock with some useful photographs which will set the reader thinking about building construction.

Possibly the largest part of the book is the description of four walks taking in the main rock features of the area, their geological significance and relating them to buildings en route. The book is rounded off with some useful appendices.

So who would appreciate this book? For anyone with an interest in local geology it is a "must have". Residents of Sunderland and its environs would also enjoy Dr Lane's style and obvious passion for the area. But in the same way that my bookshelves are populated with books on geology on the Highlands, the Lakes, Dorset, Wales and many other areas as well as Northumberland, this book should find its way onto many shelves around the country. It can stand up in its own right.

It has had two main effects on the reviewer. Thanks to Dr Lane I have itchy feet to visit the walks in the book but also it has helped me to look at my local building stones with a fresh and, hopefully, better informed eye.

And at £14.50 it's a steal!

John Moore 25/06/2014

Note from Secretary: Should you wish to purchase the book – send a cheque for £16.00 (£14.50 + P & P) to:

Dr. A. Lane, 3 Waldron Court, Sunderland, SR2 7UX

5. MEMBER PROFILE

As promised, a new item for the Newsletter. A little bit of getting to know everybody a little bit better.

Our first 'volunteer' is our Chairman.

Gordon Liddle:-

The Present is the Key to the Past

Newcastle born, brought up in the Midlands. I have lived in Whitley Bay for 40 years. Married to Lesley, I have two children, and three grandsons.

I have worked with some aspect of Geology since graduation. I really enjoy helping people to understand and develop their own strengths. My career is strongly educational with an early start teaching, then management of students and staff plus adult work and support for teacher training and young children. Managing European Projects for a few years took me around Europe whilst quality control activities filled up any spare moments, this included Business courses, Life Coaching and Teacher Training.

My hobbies include my children, football (managed teams for many years), I now follow Sunderland AFC. Geology seems always to have been there with field trips being an especially rewarding element. I have worked in the Lake District and a small area (Bedarieux) of Southern France, plus the local area of course.

In addition to the NEGS work I spend many hours at a local National Trust property (Seaton Delaval Hall) and adult classes with the Natural History Society. I also do a little voluntary work with supporting field trips for Newcastle University Masters students.

My favourite geological site has to be Siccar Point, when the sun is shining!

Thank you, Gordon. If anyone would like to submit a profile and picture I will send them a 'pro-forma' to complete.

6. ADMINISTRATION

In an effort to have more membership input to the proceedings of the Society there will be some newsletter developments in the future.
Some of the things we would like members to share are:

- News
- Information
- And feature items
    - E.g. **'My favourite ..... geological exposure / rock sample'** – what, where and why it's your favourite. A photograph would be useful where possible.
    - Book reviews. Read any good new books / new editions lately?

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

Best Wishes,

Chris Burridge

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