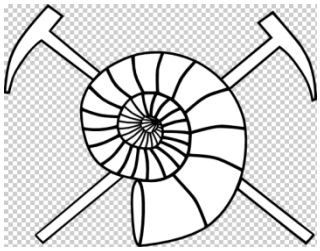

NORTH EASTERN GEOLOGICAL SOCIETY
Newsletter January 2015
http://www.northeast-geolsoc.50megs.com

1. NEGS SPRING/SUMMER FIELD MEETING PROGRAMME

The planning for this is well under way and we should have some dates by AGM in March.

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2. NEGS AUTUMN/WINTER LECTURE PROGRAMME.

Report from Members Evening presentations Dec 2014. There is no report from this event but we hope to have a link on the website for short reports and some of the excellent photographs. Thank you for three very interesting presentations.

Report from the Lecture Meeting 16th January 2015

Chinese Dinosaur Embryos. (Henan Province PRC); a talk by Dr John Nudds, Manchester University

John outlined the early history of these fossils. In 1923 an expedition to Mongolia failed in its purpose to discover early hominids, but discovered dinosaur eggs. These fossils remained rare until the 1980's when China allowed western Geologists to help their experts. Thousands of eggs have now been discovered ranging from elongate raptor eggs to near spherical sauropods. More than 200 sites are now recorded across the world.

An amateur palaeontologist, Terry Manning, had been developing techniques to present important fossils and began working with John who developed a team of experts in modern reptiles and fossils to look at dinosaur embryos.

Terry proposed a series of conditions that he felt would be ideal to preserve an embryo. It took four years for appropriate samples to be identified. Essentially the conditions had to facilitate mineralisation of the embryo bones. The samples came from China; they were up to100mm in diameter and thought to belong to the therizinosauroid group.

Terry bought 3,100 eggs to allow suitable specimens to be identified. The cost was close to 500,000$. The microstructure of the outer shell becomes porous when the egg is fertilised so sampling the outer shell to detect porosity features was a first stage. This resulted in half of his collection being rejected and sold back to fossil collectors. Embryo bones had been altered to a calcium phosphate composition retaining minute detail of the skeletal material. The orientation of the egg was important to ensure the acid he used to etch the material was in contact with the bones. Trial and error resulted in a weak (2%) acetic acid being agitated and in contact with the bone material for cycles of twelve hours.

Terry Manning, seen here working on some of the many dinosaur eggs.
(In true amateur fashion, this is done in his bathroom at home)

He exposes and prepares the embryos as seen in the two pictures below.

This enabled a minute thickness (1/10mm) to be removed; the sediment that was loosened was itself collected and studied. Significant material in the embryo was protected with a plastic coating. This process took months.

Prior to this work the expert knowledge of embryos was limited to two published examples (Norell and Chiappe) which had been discovered partially exposed. The samples that Terry was preparing marked a massive step forward in quality.

Terry produced 25 specimens of top quality. Some had been damaged by what appears to have been beetle activity!

Therizinosauroid dinosaurs had previously been allied to various dinosaur groups. Evidence from the embryos suggested that they were theropods although the embryos appear to have been herbivores, unlike other theropods. The teeth were suited to plant grinding. Similarities to modern crocodiles supported the theropod conclusion, as did the strap-like scapula, thin walled limb bones and very large claws. The brain case also supports this classification. The eggs may represent a new species.

The work has attracted European support enabling the specimens to be studied at the synchrotron facility at Grenoble, France. The principle is that when an electron is made to change direction it emits light that is 10,000 billion times brighter than normal X Rays. When this radiation is channelled onto fossil material it can penetrate sediment to reveal bone structure for example. This has enabled John to produce exceptionally detailed images of the embryo material. He has generated 3D rotating images enabling amazingly detailed whole images to be studied. The short videos of two of the samples were so impressive John was encouraged to rerun them.

Soft tissue samples have been identified but remain to be studied.

The audience were enthralled by the presentation, reflected in an enthusiastic applause and several perceptive questions.

Gordon Liddle

Prof. G. Foulger arranges a superb programme of lectures and would appreciate suggestions (with names, contact if possible) for speakers: email: g.r.foulger@durham.ac.uk

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3. NEWS

Yorkshire Geology Society & North Eastern Geological Society Joint Meeting.

"Mud, glorious mudstone"

Saturday 31st January 2015: 2pm to 5pm, Department of Earth Sciences, University of Durham. **Lecture Room TR1, TR2.**

Organisers: John Knight (YGS) and Howard Armstrong (Earth Sciences, University of Durham. (Programme with provisional titles)

14.00 - 14.10 Society business
14.10 - 14.35 Speaker 1 (Dr Howard Armstrong)
14.35 - 15.00 Speaker 2 (Dr Jonathan Imber) "Natural fractures in Pliensbachian-Toarcian shales in the Cleveland Basin"
15.00 - 15.20 Speaker 3 (Ms Elizabeth Atar) Recent geochemical research on the Toarcian of the Cleveland Basin

15.20 - 16.00 Coffee Break

16.00 - 16.25 Speaker 4 (Professor Thomas Wagner) Unconventional petroleum source rocks
16.25 - 16.50 Speaker 5 (Dr Liam Herringshaw) "Fracked or fiction? The Science of UK Shale Gas"
16.50 - 17.00 Concluding Remarks/Discussion

Geoscience Frontiers 2015

The Annual Herdman Symposium Saturday 21st February 2015

https://uk.search.yahoo.com/search?fr=nectar-tb-v3&type=61465&p=Herdman%20Symposium%20201

The Oxford Colloquium is an amazing one-day event based at the Oxford University Museum of Natural History. The Oxford Colloquium gives you the opportunity to attend six lectures given by eminent speakers from distinguished UK academic and research institutions. The topics are drawn from across the geosciences.

The Oxford Colloquium will be held on Saturday March 7th. 2015

http://www.ogg.uk.com/#!the-oxford-colloquium/c8s8

Lecture organised by the Institute of Physics (Newcastle)

Thursday 12th March 19.00 - 20.00

Room A003, Ellison Building, Northumbria University, NE1 8ST

Solid-state convection in Earth's deep interior and the origin of volcanic islands

Prof. Gillian Foulger

No need to register.

Contact details: Richard Hornby r.j.l.hornby@physics.org

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200 Years of Smith's Map

Conference: 23-24 April 2015 + **Field excursion**: 25 April 2015

Geological Society, Burlington House, London

The History of Geology Group (HOGG) is organising the Geological Society's flagship William Smith Meeting 2015 to celebrate publication of the first geological map of a nation 200 years ago.

Also

William Smith bicentenary events up and down the country throughout the year.

And – an article here on Page 7.

43rd OUGS Symposium Newcastle July 2015

PANGAEA: LIFE & TIMES ON A SUPERCONTINENT –
A celebration of Britain's unique marine Permian strata.

Northumbria University, 17th - 19th July 2015

http://ougs.org/society_events/details.php?id=23&&branchcode=nor

European Geoparks Week **May 30, 2015**

The European Geoparks Week, taking place in late May/early June each year, is a Europe–wide festival of Geoparks aimed at raising public awareness of geoconservation and promotion of the geological heritage as well as events aimed at informing the wide public about geotouristic and educational activities in geoparks

http://www.europeangeoparks.org/

13th European Geoparks Conference **3rd – 6th September 2015.**

Rokua Geopark has the honour of organizing the 13th European Geoparks Conference in September 2015. The Conference dates are from 3rd to 6th of September. This international Conference is held annually in a European Geopark.

The Geopark Conference is expected to boost awareness on geotourism and Finnish natural sites, internationally and nationally. Finland's only and the world's northernmost Geopark, Rokua Geopark, is part of the the Global and European Geoparks Networks operating under the auspices of UNESCO. Visitors can enjoy the Conference to explore, among other things, Lake Oulu area, Oulu River valley, as well as the Rokua esker and dune area, showcasing the unique Ice Age shaped landscape.

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4. INFORMATION

YGS suggest that this might be interesting reading prior to the Jan 31st meeting:-

http://www.bgs.ac.uk/research/energy/shalegas/lancashireMonitoring.html

Geoparks:- Check out the Podcast of Elizabeth Picket (when in post) talking about our nearest Geopark.

http://planetearth.nerc.ac.uk/multimedia/audio/geoparks2.mp3

Don't forget the AGM in March. Members will be receiving various documents soon.

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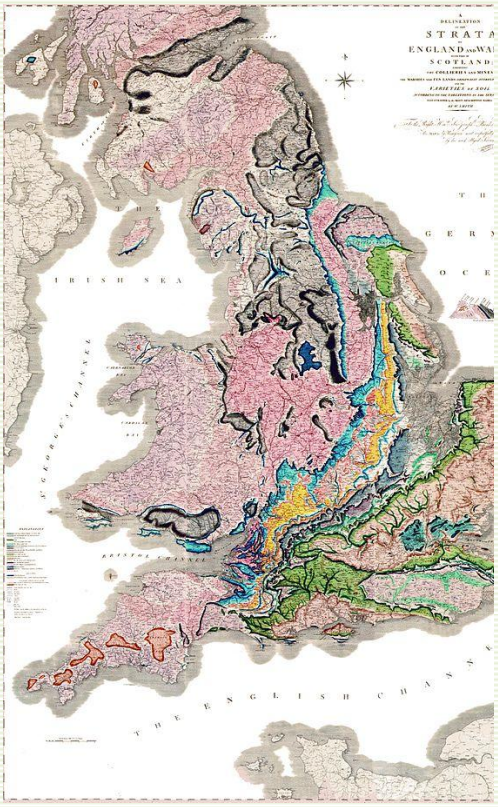
5. No profile this edition. Secretary would appreciate submission + photograph

William ‘strata’ Smith (1769-1839)

William Smith's unique map published 1815 depicting the geology of England, Wales, and part of Scotland helped to shape the economic and scientific development of Britain, just as the country was experiencing the Industrial Revolution and shaping international events on the world stage.



200 year anniversary of the ‘map that changed the world’

William Smith was born on March 23, 1769, into a family of small farmers. He received little formal education, but from an early age took an interest in exploring and collecting fossils in his native Oxfordshire in England. He was appointed surveyor for the Somerset Canal that required detailed knowledge of the rocks through which the canal was to be dug. This led Smith to examine the local rocks very carefully. While doing this, Smith observed that the fossils found in a section of sedimentary rock were always in a certain order from the bottom to the top of the section. This order of appearance could also be seen in other rock sections, even those on the other side of England. As Smith described it,. . . each stratum contained organized fossils peculiar to itself, and might, in cases otherwise doubtful, be recognised and discriminated from others like it, but in a different part of the series, by examination of them.

He lived and worked in Scarborough between 1824-6, and designed the Rotunda Museum which originally described the geology of the Yorkshire coast. It now houses his own later collection and demonstrates the scientific principles he developed. In 1834, Smith gave a successful series of lectures to the newly formed Yorkshire Philosophical Society.

From member Gordon Hull

6. ADMINISTRATION

In an effort to have more membership input to the proceedings of the Society we would like members to share

- 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.

Thank you to Gordon Hull for the article on William Smith.

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7. BRINGING UP THE REAR (New feature)

What is the feature shown in the centre of the photograph?

Whatever it is, there's another one top right.

Any idea where was it taken?

Thanks to Christine Taylor for the photograph.

Please send any interesting photographs; outcrops, exposures etc. AND relevant Questions and Answers to negsec@gmail.com for use in future Newsletters.

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 (Secretary)