



The Black Country Geological Society

NEWSLETTER No. 46 - August, 1984:

Editorial: Ph.D.

There are some unusually pleasant editorial jobs. Among the very nicest is the present one of congratulating Margaret Oliver on the recent award of her Ph.D.

This follows six years of allegedly part-time work. Many Society members will have experienced the demands of serious study when combined with other demands in life, and will have some idea of the effort involved in this. How long does a page of tabulated experimental results take to produce? And the remaining four hundred pages? Quite apart from the final presentation.

Margaret has been a member since the Society was formed. We send her our very best wishes and congratulations. Above all, we now want to see her back among us.

Next Meetings:

Monday 17th September: Informal meeting at the SARACEN'S HEAD, Stone Street, Dudley. Talk and slides on Iceland, by Paul Shilston.

Sunday 23rd September: Joint field trip with the Shropshire Geological Society to Ludlow and Leintwardine. Leader Professor W. Dean. Meet 10.30 at Leintwardine, on the A4113 by the River Teme. Grid Ref: SO 404 738.

Meetings are held in the Allied Centre, Green Man Entry, Tower Street, Dudley, behind the Malt Shovel pub. Indoor meetings commence at 8 p.m. with coffee and biscuits (no charge) from 7.15 p.m. Field meetings will commence from outside the Allied Centre unless otherwise arranged. Those who would like lifts, please contact Nigel Bradley.

The Society does not provide personal accident cover for members or visitors on field trips. You are strongly advised to take out your own personal insurance to the level which you feel appropriate. Schools and other bodies should arrange their own insurance as a matter of course.

Chairman
A. Cutler B.Sc., M.CAM.,
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P. D. Shilston M.A., C.Eng.,
F.I.E.E., M.I. Mech.E.

Field Secretary
N.G. Bradley

Remaining Programme 1984:

October 14th, Sunday:

In response to John Colledge's suggestion for a trip to York to see the dinosaur exhibition in York Museum, a coach has been booked for members of the BCGS and friends. Pick up points will be:-

DUDLEY, The Library 8.30 a.m.

WEST BROMWICH, The Library 8.45 a.m.

SUTTON COLDFIELD, Beeches Walk 9.05 a.m.

The return time is 5.45 p.m. This allows 1-5 p.m. for the exhibition, and the rest for tea in the city. Return to Dudley at approx. 9.30 p.m. Cost £4.00. Children 16 and under £2.00. Please complete the form at the end of the newsletter.

October 15th, Monday:

Talk by Dr. I. Fairchild at The Saracen's Head, Stone St., Dudley.

"The Balmy Shores and Icy Wastes of the Late Precambrian". Several countries in the North Atlantic area possess a distinctive association of late Precambrian sediments with peculiar climatic indicators. On the one hand there are great thicknesses of carbonate rocks, especially dolomites, with structures suggesting a warm climate during deposition. On the other hand there are glacial deposits indicating two great ice ages. These two types of sedimentation will be contrasted. Examples will be taken from the Scottish Isles and the present icy wastes of NE. Spitsbergen, where late Precambrian sediments are beautifully preserved.

November 12th, Monday:

Informal meeting at the Allied Centre, Dudley. Talk by Maitland Woods on "Borehole Drilling."

November 17th, Saturday:

Borehole drilling, at a location

to be announced. This will be followed by a lunchtime buffet social at The Park Inn, George Street, Woodsetton. The cost will be £2.00 per person. Please write to Nigel Bradl y, enclosing cheque (BCGS) for tickets.

Devember 3rd, Monday:

Talk by Professor A. Hallam, at the Allied Centre. "Mass Extinctions in the Fossil Record."

New Venue - The Saracen's Head:

All this year's meetings at the Allied Centre have been well attended. Nevertheless, some members have felt that meetings held in a pub would be more enjoyable. Accordingly we have arranged to have two of our events at The Saracen's Head, Stone Street, Dudley. A comfortable room upstairs will be available for us to meet in privacy.

The two evenings concerned are 17th September and 15th October.

Further meetings can be held there next year if the arrangement proves popular.

"The Biology of Trilobites."

Lecture by Dr. P. Lane, 5th Dec., 1983.

Trilobites existed over 350 ma., from the mid-Cambrian to the Lower Permian, but they are usually rare except in shallow marine Cambrian sediments. Arthropods are not a natural group because they have major differences, and trilobites may in the future be classified as a single phylum. Trilobites moult, so many fossils are found as separate parts of the hard exoskeleton, which is 90% calcite. Slides of magnificent Devonian trilobites from New York State were shown, making us quite jealous. The variation of the fossils is reflected in variation in their biology. In adult size they vary from 2mm. to 700mm. Thoracic segments vary from 0-56. The shape varies from flat to round, and from smooth to many furrowed. Some have no eyes and some have enormous eyes. Collections at all stages have been

found revealing details of the life cycle. At 0.5mm there is no articulation, then the head develops. The thorax follows, developing segments from the back forward, until the adult number is reached. These then grow to full size. Sexual maturity is not known.

From mass burials, all specimens can be measured, and a curve plotted of length against number. This can show the peak pelagic size, before the benthonic habit is adopted. Old age is probably four years.

The eyes are of two sorts. Compound eyes are covered by a complete sheet of cornea. Lens crystals are up to 1 mm larger than any today, moveable, and they moult.

Separate hemispherical eyes have exoskeleton of pure calcite between them. The calcite C-axis of single refraction is used for vision. Curved moulds from below the eyes are mainly filled with sediments, so they may have contained fluids. If so, this could improve resolution as in an achromatic lens.

Eyes help to orientate the trilobite on the surface of the water, and to use currents for feeding.

Trilobites can roll up, and the groove below takes the tail and some thoracic segments. Not many creatures today do roll up. It is probably a defence mechanism.

Pyrite preservation of soft parts has been

found in some German and New York specimens. Appendages, gut, muscles and ligaments have been shown by X-ray. Muscle insertions on the exoskeleton, and the attachment of jointed legs have been found, and also the hypostome below the head. The Burgess Shales of British Columbia, mid-Cambrian, show appendages and jointed legs with feathery branches. These are too thick for gills, and are probably food filters. The jointed appendages are suitable for walking. Gills are not known, and may not have been needed. The ventral surface of the body may have been delicate enough to allow the exchange of gases.

Over 30 people were present, and a lively half hour of questions followed. These included defence mechanisms, extinction, structure and uses. It was obvious how much members had enjoyed Dr. Lane's talk.

Sheila Pitts:

"The Forest of Dean." March 24th 1984. Field Meeting led by Martin Bragg.

The geology of the Forest of Dean is in the form of a bowl, with the youngest (Carboniferous) strata at the centre, and the Devonian age strata at the rim. This field meeting led by Martin Bragg of the Wilderness Field Study Centre, Micheldean, first visited locations on the rim of the area around the Wilderness. In the afternoon we moved to May Hill to study the Silurian formations.

The most characteristic rock of the rim of the Forest of Dean is the quartz conglomerate, locally called "puddingstone". It is late Devonian and contains well-rounded quartz pebbles, formed from a shingle bank deposit, from the erosion of mountains to the north west. The puddingstone

is found on almost the whole circumference of the Forest of Dean and forms a very clear geological marker.

We then moved up the geological column, by moving towards the centre of the bowl. Conditions changed from the desert-like Devonian to the tropical sea of the Lower Carboniferous.

Quarries showed the Whitehead Limestone (an algal formation) and the Crease Limestone, both of which are often impregnated with iron. Below these there was an exposure of Lower Dolomite.

Across the road another quarry showed the Drybrook Sandstone, also Lower Carboniferous, with one thin bed showing a "cobbled road" effect, probably due to bending of the bed in two different directions, causing fracturing into 100mm squares.

In the afternoon we visited the May Hill area, where Silurian formations are exposed in a sharp anticline. Conditions in Silurian times were those of a warm shallow sea, giving rise to coral limestones and to shales.

Along the roadside near Longhope, the Woolhope limestone and Wenlock Shale were seen, but at the top of the hill and lower down in the succession, we saw a fine series of Wenlock Limestone exposures. These were in a line of old limestone quarries which followed the line of the anticline northward. There were several very clear sections, one of them showing a "ballstone" formation, representing the growth of submerged coral reefs which gradually became covered by other material which stopped further growth.

The Forest of Dean is a fascinating geological area, and our thanks are due to Martin Bragg for a first class geological day.

Paul Shilston:

Field Trip to Warwickshire, April 15th, 1984.

Our guide for this trip was Tristram Besterman of Warwickshire County

Museum. The party assembled at the Museum building, formerly Warwick's market hall, dating from 1690. The geological collection is based on fossils collected in the last century by the Warwick Natural History and Archaeological Society. Amphibians and reptiles from the local Permian and Triassic are particularly well represented, but the collection is comprehensive, and has recently been re-catalogued. We were also shown the geological locality record centre, and finally viewed a temporary exhibition on Britain's oil and gas.

Leaving the comfort of the Museum for the showery April weather outdoors, we made our way to Coton End quarry. Exposing Bromsgrove (or "Lower Keuper") Sandstone, this quarry was the site of numerous amphibian and reptile discoveries in the last century. A factor here may have been the generous rewards paid to the quarrymen for good specimens.

The afternoon was spent in the vicinity of Nuneaton Ridge, an inlier of ancient rocks close to the eastern margin of the Warwickshire Coalfield. At Hartshill, the Lower Cambrian Hartshill Quartzite can be seen overlain by the Stockingford Shales. The former contains a calcareous bed with the earliest "shelly" fauna known in Britain. Next, at Man-Abell's Quarry, we were able to inspect Hartshill Quartzite lying unconformably on Precambrian volcanics.

The final, and most impressive site visited was Judkins Quarry. On the eastern face, Triassic Sandstones rest unconformably on the Precambrian, with a basal breccia filling in hollows that are interpreted as wadis. The Precambrian Caldecote volcanics in the main part of the quarry consist largely of air-fall and welded tuffs, with considerable intrusion and

shearing. At the western end, Cambrian Quartzites follow on unconformably, the junction also being faulted and intruded. All the exposures visited have been designated Sites of Special Scientific Interest. Tristram Besterman is to be congratulated for his work in ensuring that representative sections remain conserved.

Nigel Bradley:

Dudley Limestone Workings.
Progress Report Two:

At the Dudley Sports Centre site for the proposed full scale trial of rock paste infilling of abandoned workings, there has been intense scientific and engineering research activity over the last few months both on the surface and underground. These detailed engineering and geotechnical observations before, during and after infilling are aimed at providing valuable information on the success of the infilling methods, and to assist in improving and adapting infilling techniques in the extensive and widely varying workings in Sandwell and Walsall as well as Dudley in future years.

Very detailed underground topographical surveys have been carried out by the Borough Engineer's staff to assist the Consultants in the design of the infilling scheme, including the accurate calculation of the volume of voids to be infilled. The British Geological Survey and Building Research Establishment have been developing, installing and monitoring equipment and making observations. The whole site is now a large "test bed".

The material for infilling the workings is now likely to be drawn from old colliery spoil heaps in the Staffordshire area, and at the request of the Department of the Environment, Dudley Council will carry out derelict land reclamation works on an agricultural site north of Walsall, involving old colliery shale mounds, from which some material will be used in the trial. In due course it is

hoped that use of such material will result in benefits at source as well as at the receiving end with significant economies.

Using the new shaft and hoist at the Sports Centre now makes a descent into the workings comparable with using a lift in a high rise office block - but with the need to comply with the strict safety procedures necessary for working a mine.

When a comprehensive range of detailed photographs of the workings were being taken recently, the necessary high intensity illumination created a truly magical effect that can only be likened to visiting Father Christmas's grotto as a very young child.

Inevitably all this development and research work has resulted in some delay to the programme for the actual infilling trial which is now anticipated to commence in November next. Meanwhile construction of the new canal tunnel from "The Well" to Singing Cavern is proceeding, and the bolted concrete segmental lining will afford visitors on the canal boats an interesting comparison between modern and historical tunnelling techniques. To carry out the rock bolting for the roof stabilisation of the Singing Cavern itself, a series of platforms on scaffolding have been erected. The scale of the scaffolding and number of stages necessary to reach the various parts of the roof truly emphasise the sheer size of caverns such as this.

Alan J. R. Evans:

Guided Walks Programme:

Wrens Nest: Aug. 19th.
Sept. 16th.

Meet - King Arthur Pub.

Priory Road, Dudley, SO 943922.

Lickey Hills: Sept. 2nd.

Meet - Lickey Hills Municipal
Golf Course. Grid Ref:
SO 996759.

All commence 3 p.m.

From the Papers:

1) Deadline on Pit Plan for Beauty Spot. Express & Star 2.8.83.

A final decision may at last be reached in October when the County Planning committee consider the Countess of Dudley's application for opencast mining at Saltwells, thus ending eighteen months of speculation.

2) Dowager's Mining Scheme Thrown Out. Express & Star 12.10.83.

The Countess of Dudley's scheme to opencast land adjacent to Doulton's Claypit was finally thrown out by the County Council's Strategic Planning Committee. There may be a legal battle for compensation, so this may not be the last word.

3) German will open new valley Project. Express & Star 12.9.83.

Professor Sukopp of the Institute of Ecology, Berlin, performed the opening ceremony of the new teaching centre and warden's headquarters at Saltwells Nature Reserve. This smart new building to the rear of Saltwells House is worth a visit, although displays are still in their infancy yet.

4) Hunt for Black Gold in County. Evening Mail 31.5.83.

An exploration licence has been granted to Clyde Petroleum to carry out geological surveys near to Stratford on Avon, to search for oil and natural gas.

5) Cave for Auction.

Express & Star 30.6.83.
Vales Rock at Kinver is to be auctioned following the death of

its former owner. Members will remember the rock houses from our field meeting there last year, although we did not reach this one. There is speculation about a wealthy Arab prepared to buy at any cost!. The rock is listed, and development would require Dept. of the Environment approval.

Evening Classes:

Birmingham University, Dept. of Extramural Studies, P.O. Box 363, Birmingham B15 2TT.

1. Introduction to Geology.
10 meetings, Mondays 7 p.m.
from Oct. 1st. College of Art and Technology, Haybridge Road, Wellington. £12.
Tutor: Andrew Jenkinson.

2. Introduction to Geology.
10 meetings, Tuesdays 7.30 p.m.
from Oct. 2nd. College of Higher Education, Gorway, Walsall. £12.
Tutor: Chris Sands, Ph.D.

University of Manchester, Dept. of Extramural Studies, Manchester M13 9PL. Geology of Anglesey.
Long weekend field trip based at Beaumeris.
Tutor: Dr. Paul Selden.
Oct. 19-22. Registration fee £10. Total fee excluding lunch approximately £65.

British Association - Geology:
Norwich University 1984:-
Sept. 9th. Norfolk coast.
Sept. 10th. East Suffolk Craggs.
Sept. 11th. Quaternary Studies.
Sept. 12th. East Anglia regional geological survey.
Sept. 13th. Plate margins in the Quaternary.

Examples above. Details from Secretary in University House.

Geological Howlers.

Allen and Unwin offer this book at a discount for a bulk order to the Society, otherwise it retails at £2.95. It contains authentic examples of examination howlers, and apart from the lingering hope that they "only happen to other people", they are very funny. The book would certainly make an amusing present for your friends, especially the geologist who has everything.

"Coal is formed under anaesthetic conditions where bacteria cannot function. The highest ranking coal is andesite."
"The weather conditions changed once more and granite was laid down."
"Gold is found in nougat in placer deposits."
"The limestones of which the Houses of Parliament are made are changing to dolomite and this is causing Parliament to dissolve."
To find your own humour, or order it, please contact Paul Shilston or Peter Knight. The cartoons are quite good too, such as the igloo captioned "glacial erotics."

Change of Committee Date from 10th Sept. to WEDNESDAY 19th Sept. SARACENS HEAD.

Hon Sec.,

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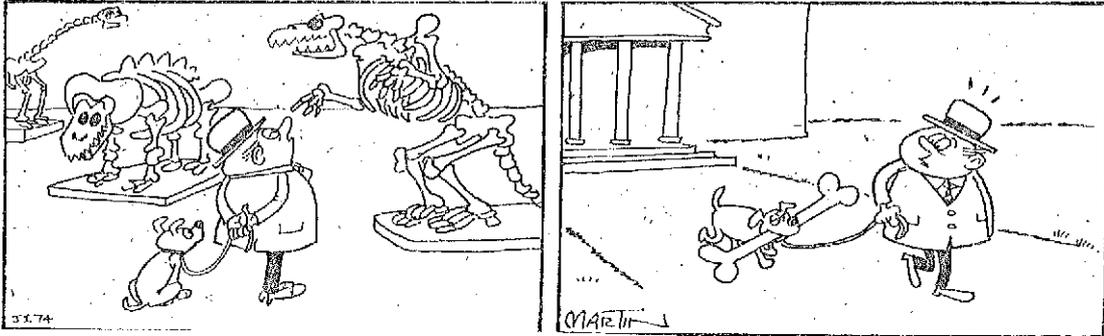
Editor:

Sheila Pitts,
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Northway Farm,
Tewkesbury,
Glos. GL20 8RG.

TRIP TO YORK MUSEUM TO SEE THE DINOSAUR EXHIBITION
Sunday 14th October, 1984:

Details as mentioned on page 2 of this newsletter.
Please state which pick-up point you will require so that numbers can be checked off easily. Prompt timekeeping would be appreciated by both the organisers and coach driver as we could easily lose half an hour with three different pick-up points. Thankyou.

**NO
NUB
NO
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Please reserve the following places on the York Trip 14th October, 1984:

Adults (£4.00) =
Children (£2.00) = (16 years and under)

Name:
Telephone No:

Pick-up Point:

Please notify by Thursday 13th September. Tickets first come, first served.
Return to:-

Hilary Logan,
50 Maney Hill Road,
Maney,
Sutton Coldfield, B72 1JR.,
Warks. (W.M.)

021 355 1737