



NEWSLETTER NO. 103 FEBRUARY 1994

The Black Country Geological Society

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 accident insurance to the level you feel appropriate. Schools and other bodies should arrange their own insurance as a matter of course.

Leaders provide their services on a purely voluntary basis and may not be professionally qualified in this capacity.

The Society does not provide hard hats for use of members or visitors at field meetings. It is your responsibility to provide your own hard hat and other safety equipment (such as safety boots) and to use it when you feel it is necessary or when a site owner makes it a condition of entry.

FUTURE PROGRAMME

Lecture meetings are held in the Banquet Room (Dudley Suite) at the Ward Arms Hotel, Birmingham Road, Dudley. Phone: (0384) 458070. 7.30 p.m. for 8 o'clock start.

SATURDAY 5TH FEBRUARY. Birmingham University Dayschool 10.00 a.m. - 5.00 p.m. Fee £13. "Precious and semi-precious stones" by Dr. Rob Ixer.

Details and booking:

School of Continuing Studies, University of Birmingham, Edgbaston, Birmingham B15 2TT. Phone (021) 414 5606/7/8.

MONDAY 21ST FEBRUARY. 7.45 p.m. ANNUAL GENERAL MEETING (see notice in this newsletter). All posts of officials and committee members are up for annual election) Any nominations for election should be given to the secretary or can be declared at the AGM.

Followed by a talk "The Himalayas - a Trekker's Travelogue" by David Gossage.

DAVID GOSSAGE writes: "The Himalayas are a major physiographic and structural feature of the Earth's surface, extending 2500km from Kashmir to the border of Burma, with fourteen summits higher than 8000m. The geology is dominated by Alpine-type nappes, greatly complicated by metamorphism and igneous intrusions. My talk is illustrated by slides from two treks in which I took part: Langtang in 1988 and Rolwaling in 1992."

Chairman
A. Cutler B.Sc., M.CAM.,
Dip.M., M.C.I.M.

Vice Chairman
G. J. Worton B.Sc., F.G.S.,
A.M.I.Geol., M.I.Env.Sci.

Hon. Treasurer
Mrs J. Shilston

Hon. Secretary
P.D. Shilston M.A., C.Eng.,
F.I.E.E., M.I. Mech.E.

SATURDAY 26TH FEBRUARY Birmingham University Dayschool 10.00 a.m. - 5.00 p.m. Fee £13. "Fossil Fish" by Dr. Paul Smith & Dr. Alan Thomas.

Details and booking : As for Dayschool on 5th February.

MONDAY 14TH MARCH Lecture: "The Aeolian Islands - a dying volcanic arc in the Tyrrhenian Sea" by Michael Bamlett (University of London).

The Aeolian Islands lie off the coast of Sicily. As well as being a super place for a holiday they are in an active volcanic area with nearby Mount Etna often in the news for its eruptions. At least two of the islands - Vulcano and Stromboli - are currently active. The latter is the type-locality of 'Strombolian type' volcanoes world-wide to indicate volcanoes which erupt continuously rather than with intermittent violent explosions.

While Etna continues to be active and is probably increasing in activity, there is some evidence that the Aeolian Islands are in a declining phase. The lecture will describe the islands and their environment, and link their activity to that of Etna and other vulcanicity in southern Italy.

MIKE BAMLETT is Head of Geology, Birkbeck College, University of London.

MONDAY 18TH APRIL Lecture "Groundwater supplies in the Severn Trent catchment" by R.I. Rodgers (Groundwater Planner, Severn Trent Water).

Severn Trent Water's catchment covers a large part of central England and much of its area depends on groundwater for its public water supply, involving boreholes in the various aquifers. Location and maintenance of these supplies depends largely on geological expertise provided by Severn Trent's own staff and this lecture will describe their activities in providing groundwater supplies in various parts of their area.

Mr. Rodgers is a hydrogeologist, working with Severn Trent Water as Groundwater Planner in their Planning and Resources Department in Birmingham.

THURSDAY 21 APRIL Lecture: "Geological fieldwork in the Antarctic - a personal perspective" by Dr. Debbie Armstrong of the British Antarctic Survey.

This lecture will cover the work of the British Antarctic Survey, what it is like to live in Antarctica and also the minerals found there.

WEDNESDAY 27TH APRIL Afternoon visit to salt mine at Winsford, Cheshire. This is Britain's only dry salt mine.

Party is limited to 12 - ADVANCED BOOKING IS ESSENTIAL. See separate sheet with booking form in this newsletter.

SUNDAY 8TH MAY. Field meeting to Mam Tor landslip, Castleton, Derbyshire and related sites.
Leaders: Dr. J. Cripps and Dr. P.R. Ineson (Sheffield University).

Meet at 10.45 a.m. where the former A625 road from Castleton towards Mam Tor is stopped because of the landslip (grid ref: 135834). There are several ways to Castleton, but a suggested route is: M6 motorway to junction 14, A34 to Stone, A520 to Leek, A53 to Buxton, A6 towards Chapel-en-le-Frith but turn right to Sparrowpit, then down Winnatts Pass. Before Castleton turn left onto the old A625 for the meeting point.

MAM TOR is composed of a series of sandstones and shales (Mam Tor beds and Edale shales) between the Carboniferous Limestone and Millstone Grit (Upper Carboniferous) horizons. Due to chemical weathering and groundwater action its face is unstable and below the face there is a trail of landslip debris over 0.5 mile long. The landslip started at least 2000 years ago and is still active today. Repeated attempts have been made to maintain the A625 Manchester-Sheffield road which passes over the landslip tail but the unstable ground made this difficult and eventually in 1979 the road was abandoned.

Dr. Cripps will explain the features of the landslip from the Mam Tor face to the tail and in time from the Ice Age to the present day. It is also planned to visit other sites in the area.

SUNDAY 12TH JUNE Field meeting to the Forest of Dean. Leader: Roger Vaughan (Bristol City Museum).

MONDAY 20TH JUNE. Lecture: "Australian Journey" by Paul Shilston.

SUNDAY 3RD JULY Field Meeting to Derbyshire with a lead-mining theme. Leader: Lynn Willies (Peak District Mining Museum).

5TH - 9TH SEPTEMBER. BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. 1994 ANNUAL CONFERENCE - LOUGHBOROUGH.

SATURDAY/SUNDAY 24/25TH SEPTEMBER 1994. 10 a.m. - 5 p.m. each day. DUDLEY ROCK & FOSSIL FAIR - Town Hall & Museum, Dudley.

SUNDAY 2ND OCTOBER. Field meeting to the Bridgnorth area. Leader: Dr. David Thompson (Keele University).

MONDAY 24TH OCTOBER. Lecture: The Geology of the Isle of Man. By Dr. Trevor Ford (Leicester University).

MONDAY 14TH NOVEMBER. Lecture: "Geology - without a rock hammer?" By Kathie Bowden (National Remote Sensing Centre, Farnborough).

MONDAY 28TH NOVEMBER. Lecture: Pleistocene geology of the loess plateau of China. By Dr. David Keen (Coventry University).

EDITORIAL

1994 will be different! Our speakers are no longer accompanied by the karaoke and the dinosaurs have disappeared from Dudley Museum. One suspects that commercial instincts will ensure that the second extinction of the dinosaurs will be a slow decline rather than a sudden catastrophic event.

The repaired Hubble space telescope is sending back photographs of spectacular clarity and in July we will read of the consequences of a comet hitting the planet Jupiter which may have significance for our understanding of past extinctions.

Geological research will advance faster than anyone can absorb its findings yet most people will continue to treat earth science as little more than a source of sensational news stories lacking rational explanation. Recent river flooding is regarded as an unprecedented effect of random rainfall rather than the consequence of a combination of natural cycles and man's interference. Short sighted attempts to control and speed river flow and increased intensity of land use on

flood's plains and elsewhere is speeding overland flow and run off. Man's influence on events is rarely considered despite it being the most dynamic force operating on our rapidly changing planet. But geologists, surely, are more aware than most of the inevitability of change.

REPORTS

"Canal Construction and Maintenance", an illustrated lecture by David Brown of British Waterways on 6th December 1993.

Mr Brown commenced by reporting on the death on 8th October 1993 of Mr John Brown, the former Projects Officer with British Waterways. He had given great support to the Dudley Canal Trust and had done much to ensure that the Dudley Canal Tunnel, which was opened in 1792, was reopened in 1992.

Mr. David Brown dealt with the history and geography of canals in the Midlands and their extension with the development of industry. Then we had a resume of the development of locks - from the use of a flash lock to more modern types with single and double gates, the use of reservoirs to store water, and gates to separate the transfer of water between the different canal companies.

The pros and cons of the following were outlined: safety gates to prevent low lying land being flooded in the event of a breach, perpendicular barge lifts as at Tardebigge and elsewhere, inclined planes, aqueducts made of brick or stone arches and puddled clay as well as cast iron.

The section of the talk on tunnels related primarily to the Dudley Canal Tunnel, No. 2 Tunnel to Selly Oak and Netherton Tunnel. He returned to the need of water, when traffic was heavy, and elaborated on reservoirs, the use of mines' drainage water and the recirculation of lock water.

The next section related to bridges including masonry and brick arches - with the testing of an old one by the Transport and Road Research Laboratory, cast iron arches, swing bridges - old and modern, lifting bridges and towing bridges.

There followed a number of examples of the later development and of course the works fronting the canal at Merry Hill in Dudley as well as the redevelopment of canal frontages and walks in Birmingham.

The last section of the lecture was devoted to the more modern methods of maintenance on the building of lock gates at Bradley where there is a dry dock for repairing the maintenance boats, the use of modern dredging machines mounted on boats, the separation of silt by particle size and its separation for safe disposal, the construction of reservoir basins, the cutting off and filling of old basins, the passing of pipes under canals using cofferdams and trenches, shutting a canal using flexible dams, de-watering, trenching and rebuilding the puddle clay shaft sinking away from the canal and thrust baring, the selection of puddle clays, the strengthening of canal banks.

DOUGLAS WARREN

November 15th 1993. The uses of palaeomagnetism in the study of sedimentary rocks.

Dr. Peter Turner of Birmingham University returned after 11 years to talk about his work with palaeomagnetism and its applications to sedimentary sequences. Initially he also mentioned other uses of magnetism, such as for navigation, and magnetic resonance imaging used in medical investigations.

The planet has a permanent magnetic field, which varies over its surface and through time. Sediments accumulate all the time and record the geomagnetic field at the time, so act like a magnetic tape recorder.

Over the geological time scale reversals of the magnetic field occur. Also, the continents have moved over the global surface and the Carboniferous of the U.K. shows a shallow declination consistent with it being nearer to the Equator than at present.

Reversals of polarity (the speaker's field of study) can be demonstrated by magnetometers towed by a ship across ocean basins. There are periods of normal and reversed polarity, depending on when the ocean floor basalts were extruded. Rock sections also show the reversals and samples can be measured and related to stratigraphy. Reversals are known as far back as the Jurassic. In the Cretaceous there was a long period when polarity remained unchanged, whereas there were frequent changes in Tertiary and Quaternary times. The reasons are not known. The force of magnetism is known to decrease before reversal, perhaps for a few thousand years, and it may now be decreasing.

Magnetism is the important force which holds together the Van Allen belts, without which cosmic radiation would penetrate further and there would therefore be more mutations. Tertiary and Quaternary reversals may correlate with evolution.

Palaeozoic records are less clear, with no ocean floor records, and the rocks are often continental deposits with few fossil records to help correlation. There are magnetotactic bacteria which precipitate crystals of magnetite during their metabolism.

North Sea oil and gas exploration reveals sandstone sequences in detail and so does the Morecambe Bay gas field. The St. Bees sandstone is an extensive red Triassic deposit and a 300m thickness reveals a sequence of magnetic reversals. Drill cores allow measurements of declination and polarity. The Dorset area can be correlated similarly. There has been attempted global correlation and the St. Bees sandstone and areas of China correlate.

Dr. Turner's work includes studies in northern China and studying magnetostratigraphy in an active sedimentary basin adjacent to a volcanic arc. Salt lakes and salt domes are involved, in a mainly desert area, with a large alluvial fan and earthquake activity too.

A lively question time followed. Magnetic studies began in the 1940's, became shipborne in the 1950's, then on land, and now magnetometers can be carried in a backpack. Perhaps the quiet times in the record are due to lack of known detail. Sample size is about one inch. Magnetising heat is about 690°C. Some other planets are known to have a magnetic field. The maria of the moon are non-magnetic (perhaps due to meteor impact) but the highlands are magnetic.

Dr. Turner gave us a fascinating evening and the prospect of a future holding further discoveries fundamental to geology.

SHEILA PITTS

COURSES

1. Sheffield University

Details and booking: Division of Adult Continuing Education
University of Sheffield
196-198 West Street, Sheffield S1 4ET
phone: (0742) 825400

Geology and scenery in Languedoc, Southern France. 29 May - 5 June 1994. £565.

2. Nottingham University

Details and booking: Sarah Poyzer
University of Nottingham
Dept of Adult Education
14-22 Shakespeare Street
Nottingham NG1 4FJ
phone: (0602) 516513

Geological study tour - south western USA. July/August 1995.
£1600-1800.

3. Keele University

Details and booking: Keele University Adult Education
Freeport ST1666
Newcastle under Lyme, Staffs.
phone (0782) 625116

Lanzarote/Tenerife. 'The Elusive Canary Islands - Geology and Wild Flowers' 8-20th May 1994.

4. Field Studies Council - Geological Courses 1994

Details and booking at the relevant field centre.

- (a) Preston Montford Field Centre, Montford Bridge, Shrewsbury SY4 1DX. phone: 0743 850380.

1. Geology for beginners, 30 May - 3 June. £165.
2. Rocks, minerals and mines, 10-12 June. £87.
3. Geology & scenery of the Welsh borderland, 29 July-5 August. £215.
4. Evolution of the Shropshire landscape. 5-12 August.

- (b) The Drapers Field Centre, Betws-y-coed, Gwynedd LL24 0HB.
phone: 0690 710494.

1. Geology and landforms, 6-8 May, £69.
2. Geology & scenery weekend, 2-4 September, £96.

- (c) Dale Fort Centre, Haverfordwest, Dyfed SA62 3RD.

1. Geology & scenery of the Pembrokeshire coast, 28 May-4 June, £235.
2. Geology & scenery of the Pembrokeshire coast, 5-12 August, £235.

(d) Blencathra Field Centre, Threlkeld, Keswick, Cumbria CA12 4SG.
phone: 07687 79601.

1. Geology of the Lake District and Cumbria, 5-12 August, £220.
2. Evolution of the Lake District landscape, 2-9 September £220
3. Introducing geology, 18-20 November, £85.

(e) Other courses. Details and booking as (a) above.
Phone: 0743 850164

1. About the Isle of Arran, 16-23 April, £375.
2. Canary Islands, 8-19 May, £970.
3. The Canadian Rockies, 29 June-13 July, £1980.

DUDLEY MUSEUM NEWS

Dinosaurs do a ton in Dudley!

On 8th January - the final day of its record-breaking 14 month run, Dudley Museum's 'Dinosaur Mania' exhibition received its 100,000th visitor. Extended twice to meet public demand, the exhibition more than quadrupled the museum's normal attendance figures and increased the takings in the museum's shop by a staggering 1500%!

Put together largely in-house, 'Dinosaur Mania' featured life-sized models and skeletons and the finest private collection of dinosaur material in the country, including skulls, bones and egg nests from the U.S.A., Canada, France, China and the Isle of Wight. The exhibition was complemented by 'Jurassic Park' displays and a range of children's activities, including computer games and exhibits in which they could design and construct their own dinosaur.

'Dinosaur Mania' was provided as a free service and attracted over 250 school visits from as far away as Cheshire, Buckinghamshire and Avon. The exhibition's success has come at a crucial time for the museum. In 1993 local government cuts reduced its working budget by 29% and threatened the museum's long term survival. In 1994, however, it is hoped that budgets will be increased and major capital investment is anticipated.

Congratulations, once again, to Colin Reid, for all his drive and hard work in mounting such a successful exhibition.

REGISTER OF NATURAL SCIENCE COLLECTIONS IN THE MIDLANDS OF ENGLAND, edited by Graham Walley.

John Crossling of Warwickshire museum announces the publication by the All Midlands Collections Research Unit of this register, recording over 2000 collections of geological and biological materials held in museums, educational establishments and in private hands in the Midlands.

An information resource for those engaged in research, it is in the form of a loose leaf A4 binder and has eight cross referenced indices. It is priced at £27 including post and packing and orders should be sent to:

West Midlands Museum Service
Hanbury Road
Stoke Prior
Bromsgrove, Worcs. B60 4AD.

NEWS IN BRIEF

1. B.C.G.S. had favourable mention in the September/October edition of 'Geology Today'. The magazine re-published David Gossage's elegant handout of our visit to the Clee Hills, and made mention of our 100th newsletter, enthusiasm, activity and troubles with the karaoke. (but who sent them records of our educational qualifications?!).
2. The journal of the Geological Society of London, 150 pp 737-750 contains the paper on "Eturia Formation (Westphalian C) palaeoenvironments and vulcanicity of the southern margins of the Pennine Basin by Glover B.W., Powell and Waters C.N. This paper refers to the results of the investigations at a brick pit in Tansey Green, S.W. of Dudley.
3. Saturday 7th May in Keele University Students Union Ballroom - 'Rock and Mineral Fair' 10.00 a.m. - 4.30 p.m. Entry 50p.
4. Congratulations and best wishes to Ivy and Douglas Warren on reaching their Golden Wedding Anniversary.
5. Welcome to new members

Ted Majek - Moseley, Birmingham.
Gill Sullivan - Wombourne.
Peter Lewis - Bromsgrove.

Editor

Kate Ashcroft
48 Worcester Lane
Sutton Coldfield
B75 5NB

Tel: 021 308 6783

Secretary

Paul Shilston
16 St. Nicolas Gardens
Kings Norton
Birmingham
B38 8TW

Tel: 021 459 3603