The Black Country Geological Society

NEWSLETTER No. 68 : April, 1988:

Indoor meetings are held at the Bayeaux's Head, Stone Street, Dudley, 7.30 p.m. for 8 p.m. start.

Sunday: 17th April: Field trip to the Abberley Hills in Worcestershire led by Dr. Peter Oliver, former vice-chairman. The Abberley Hills, a Silurian inlier involving Rodge Hill, Walsgrave Hill and Abberley Hill form part of the extended Malvern Axis. Their characteristic shape in our south-western skyline is a result of an overfold anticline and reverse faulting, exposing rocks of Wenlock and Ludlow age.
The party will meet at 10.00 a.m. at the Hundred House Hotel in Great Witley (752662) where Dr. Oliver will outline the day's itinerary. It seems to be many years since B.C.G.S. last visited this area so come and refresh your memory or begin your acquaintence on 17th April.

Sunday: 8th May: Field trip to attend the Open Day of the British Geological Survey at Keyworth, Nottingham. It has not been possible to arrange a coach to this venue as was suggested in the October newsletter. Members should therefore make their own way to Keyworth which is situated between the A606 and A60 about 8 miles south of Nottingham. The day offers an opportunity to view the wide range of activities of the BGS such as mapping, deep drilling, construction surveys for civil engineering projects, exploration for mineral resources on land and sea, collection of fossils and minerals and seismic surveys to name but a few. There will be numerous exhibitions from all types of geological activity. It is a day all geology enthusiasts ought not to miss. The day begins at 10.00 a.m. and finishes at 5.00 p.m. Arrive early as 10,000 visited on the previous open day on a week-end in 1986 and 7 hours may prove inadequate for seeing all the exhibits, displays and demonstrations!

Monday: 16th May: "Contaminated Land - the next Environmental Disaster?" Talk by BCGS member Graham Worton which replaces Dr. David Vaughan's lecture on Physical Resources.
Graham will begin by defining what is meant by contaminated land, explain how it happens, give some idea of the enormous scale of the problem and how unaware we really are. Maybe we will become aware in the future and raise this matter to prominence in conservation issues.
To conclude he will outline some of the job opportunities available to geologists in this area and he intends to demonstrate the nature of contamination by bringing some (suitably protected) contaminated materials.

Sunday: 12th June: Field trip to Cerrington reservoir an incidence of a dam collapsing, led by Dr. Aitkenhead of the BGS. Full details in the June issue. Two recommended texts to prepare yourself:-
1. Ashbourne Sheet Memoir (1.50,000 sheet 124) by Chisholm J, Charsley TJ and Aitkenhead N (1987) which may just be published in time!
2. Coxon RE (1986) Failure of Cerrington Embankment Department of Environment Report to the Secretary of State for the Environment (H.M.S.O)
We will also be shown other sites of geological interest in the area.

Monday: 20th June: Evening field trip to the Stourbridge Area. Leader Alan Cutler.

Monday: 11th July: Evening field trip to be arranged.

Monday: 19th September: "Those Incredible Limestone Mountains of South China" illustrated talk by Tony Waltham of Trent Polytechnic, Nottingham.

October: Field trip to Clee Hills. Joint meeting with Shropshire Geological Society. Awaiting confirmation.

November: To be arranged.

December 5th or 12th: "Racecourse Colliery" lecture by Nigel Chapman of the Friends of the Black Country Museum mining group.

Editorial:

Life, as all of us are aware, is a series of ups and downs, but the life of anyone connected with geology seems particularly prone to these swings of fortune.
As a society we have had our successes and failures - 76 turning up for a field trip, our conversazione and memorable lectures to days when we have been very thin on the ground yet ours is nothing when set against the dramatic events within the world of economic and engineering geology.
The completion of the Japanese inter-island rail tunnel (34 miles in length) was hailed as a technological marvel. Overcoming major geological problems it was finally opened this year, vastly overbudget, after 25 years work. It is no longer needed or viable due to competition from air travel. One hopes a rosier future awaits the Chunnel.
The hot rocks project of Camborne School of Mines has received further government funding as a potentially successful geothermal energy project but before the first watt of power has been generated it is being blamed for releasing much greater energy in Cornish Earthquakes!
The residents of Abbey Village in Lancashire were confidently expecting a new village hall courtesy of Amoco whose exploration well was predicted to hit but the latest news is that the well is dry and drilling has ceased.
Building houses of solid granite - a wise choice until the Radon Gas levels are measured!
Our landscape is littered with geological new successes and old failures. Whilst one area or generation benefits another counts the cost. In the 'From the Papers' section include a selection of such geo-events.
One resounding success, however, is the Chinese Dinosaur exhibition which members visited in Cardiff recently. This excellent exhibition demonstrated the size, shape and variety of Dinosaurs which roamed the earth from the Triassic to the Cretaceous periods. A thoroughly enjoyable day.

4th January, 1988: Lecture by Dr. Russell Coope of Birmingham University 'Mammoth Remains in Shropshire.
When some large bones were unearthed in a gravel quarry at Condover near Shrewsbury, it was fortunate that an interested amateur realised their significance and raised the alarm, otherwise they might have been lost for ever.
Dr. Russell Coope was called in, and as he described in his lecture he is used to being offered all sorts of bones which turn out to be just farm cattle. But this time it was different - it looked like a mammoth but it was in a horizon much more recent (11,000 years ago) than any previously discovered mammoth in western Europe.
Either it wasn't a mammoth (then what was it?) or here was a great new discovery; fortunately it was the latter and it turned out to be a really important find.
Dr. Coope took us through the stages of discovery and evaluation in a most entertaining way. Not just one mammoth, but two babies as well came to light, and of course everyone thought they were a mother and her family. In the event, the adult was a male so it is not clear if they were together or died at different times.
The geology showed that the mammoths had become trapped in the mud at the bottom of a kettle-hole caused by melting ice. There was evidence - from plant and insect remains - that there was a warm climatic interval and it appeared that the mammoths had been grazing on lush vegetation, and gone too near the edge!
Did one of the babies fall in, and the adult tried to rescue it? We shall never know.
Dr. Coope is an expert on insects, and had

already shown from his insect studies that there were two warm periods during the late ice age - roughly 40,000 years and 11,000 years ago. Virtually all mammoth remains found in western Europe belong to the earlier period, and it appeared that then they left Britain. BUT this new find showed that they returned during the later warm spell, crossing the land bridge from Europe, although they do not seem to have stayed long. Almost complete skeletons of the adult and one baby were recovered, and they will be reassembled for exhibition.

Dr. Coope's lecture had a mixture of academic insight and boyish enthusiasm. He paid tribute to the many other academics who helped, and to the great band of amateurs who did most of the digging - but his own outstanding contribution is clear.

Society members must keep their eyes open whenever they see bones in the field!

Paul Shilston:

8th February, 1988: Lecture by Paul Shilston 'Canyons in Utah and Arizona'.

Society members are fond of two things - geology, and going away on holiday. So what better than to combine them and go on a geological holiday, especially when it is to some of the most spectacular scenery in the world?

The canyons of Utah and Arizona comprise almost all the best-known canyons, including Grand Canyon, and they are all formed in the Colorado Plateau. The plateau is some 300 miles across, and is perfect for the visiting geologist as it contains strata from virtually all periods, the strata are almost always horizontal, and since it lies in a semi-desert area there is no vegetation to hide the rocks.

Each canyon has been formed by river erosion as the land level slowly rose, and the steep sides of the canyons are due to the near-desert conditions which restrict weathering. Grand Canyon has to be seen to be believed - its sheer scale is breathtaking - and it gives a display of horizons from Precambrian up to Permian. Harder bands - in particular the Coconino sandstone (Permian) and the Redwall limestone (Mississippian or Lower Carboniferous) - give the canyon a stepped profile.

There are many magnificent sights in the area but the prize must go to Bryce Canyon, in Tertiary sandstones and limestones. The rocks are poorly cemented and have pronounced vertical joints, so that they readily form stacks and pillars; together with the lovely rose-red colour of the rocks it makes an unforgettable sight. Bryce Canyon is named after Ebenezer Bryce who ran a cattle ranch nearby - all he could say about the place was ITS A HELL OF A PLACE TO LOSE A COW.

Finally, everyone knows Monument Valley with its "buttes" beloved of western movies. These result from a capping of resistant De-Chellay sandstone (Permian) underlain by a shale horizon; when the capping goes, the shale erodes quickly, so the landscape consists of isolated stumps (buttes) or larger features (mesas).

Paul Shilston:

7th December, 1987: Lecture by Dr. A. Chambers of Aston University 'Greenland'.

Dr. Chambers provided us with a most fascinating insight into the geology of an ancient volcano system in Greenland. The area studied in greatest detail was the Igoliko complex in S. Greenland but a visit to Cap Brewster in E. Greenland was also included at a helicopter cost of £1,500 per hour.

The Igoliko complex is in an area of savage beauty most dramatically shown in the 24 hour sunshine of an Arctic summer. Katabatic winds, however, lead to frequent fog which together with icy glacial meltwater, polar bears and avalanches provide some indications of the hazards of geological research in such wild places.

Nepheline syenites and syenites dominate the area with numerous composite dykes near the margins of the magma tube. Couldron subsidence has produced an igneous body 3 kms deep and 10 kms wide. The almost total exposure of the rocks due to the erosion by ice sheets allowed us to see a 3-D picture, very rare in more temperate and tropical latitudes. Xenoliths rounded by the magma movements, larger crystals where water was in great abundance and the sedimentation of crystals to produce cumulate textures were just some of the observed phenomena.

The intrusion has a saucer shaped structure

with a mineralogy of Olivine, Pyroxene, Biotite, Apatite, Potassium, Feldspar and around 20% Nepheline in some areas. Other accessary minerals are Analcime and Kancrenite ($NaSiCO_3$). Detailed research has shown that subdivision can be made on the basis of mineralogical units with a centre zone containing Analcime and Niobium together with other rare exotic elements. These have become concentrated in the late stage residual fluids to form a highly fractionated core whilst the roof and sides of the chambers were already formed. Rinkite and Tantalum were also detected here.

A chemically based proof of this mechanism of emplacement was then outlined. Certain minerals are concentrated in the rim areas whilst others are confined to the core region reflecting the time scale of successive solidification of the intrusion. Barium concentration in Feldspar for example decreases with distance from the margin of the body. Dr. Chambers supported his theories with further textural and mineralogical evidence which complemented and confirmed the field observations. Overall this provided a very thorough view of geological research from field study to laboratory techniques as a means of hypothesis formulation and solution.

To conclude Dr. Chambers showed us some general views of life and its discomforts in this remote part of the world; pitching tents on blocky lava flows, rabid husky dogs and the numerous carcasses of the musk oxen victims of polar bears. But there would have been no shortage of BCGS volunteers for the next trip. Many thanks to Dr. Chambers for a most fascinating evening.

A. Rigby:

BCGS NEWS:

A.G.M: The A.G.M. was held on 12th March in Cardiff. The 1987 report is attached in this newsletter for those who didn't attend. The treasurer's report showed very healthy finances and hence no subscription increase in the immediate future. The officers were re-elected but subsequent to the annual report John Easter retires as field secretary.

Rock and Mineral Fair at Chatterley Whitfield Mining Museum 28th-29th May. Admission 20p. Buy, sell, exchange rocks, minerals or fossils. Further details - contact North Staffs Group of the Geol. Association (NSGGA) c/o Chatterley Whitfield Turstall, Stoke-on-Trent.(0782) 813337.

Exhibition at Stoke-on-Trent city museum and Art Gallery - Brownend Quarry and Waterhouses fossils. 31st March to 16th May.

Fieldwork Courses etc:

1. Losehill Hall - Peak District National Park have sent details of summer activity holidays including one weekend course on caves 23rd-25th September at a cost of £59. and a similar course on Minerals, Rocks and Fossil 28th-30th October at the same price. Details from editor or Peter Townsend on Hope Valley (0433) 20373.

2. University of Bristol - Geological Field work weekend course 29th April-1st May at Urchfont. Apply to the Warden, Urchfont Manor College, Devizes, Wiltshire, SN10 4RG.

3. Medway Mineral and Fossil Fair to be held in the Community Hall, Hempstead Valley Shopping Centre (Savacentre), Gillingham, Kent on Saturday 25th June. 10am - 5 pm. Admission 40p. More than 25 dealers will be there. Details also recommend visits to two classic fossil sites - Warden Point, Sheppey, (low tide 4.30 pm) in the London Clay and Copt Point, Folkestone (low tide 2.30 pm). On Sunday 26th June there will be trips organised to these localities. Please apply to Mr. A. A. Mitchell, 10 Prinys Drive, Wigmore, Gillingham, Kent, ME8 0RB. (0634) 35507.

Hon. Secretary: Paul Shilston,
16 St. Nicolas Gardens,
Kings Norton,
Birmingham B38 8TW. Tel: 021 459 3603.

Editor: Andrew Rigby,
Witley House,
O.S. Hospital,
Stourbridge DY8 1QX. Tel: 0384 390916.

See over for 'From the Papers'

The Black Country Geological Society

1987 Annual Report

Membership

The membership during 1987 declined slightly compared with the previous year, giving an end of year total of 50 compared with 55 in 1986.

The membership profile was made up as follows: - 34 (36) individual members, 6 pairs (7) family members, 1 junior (no change), and 2 (3) Associate members. Figures in parenthesis indicate 1986 members.

Annual Programme

A total of 12 meetings were held during 1987, four being field meetings and the remainder being lectures or other indoor meetings. We were most fortunate to receive the support of eight guest speakers/leaders. These included Professor Westbrook from Birmingham University, Dr Bulland who led the trip to alternative sites in the Malverns soon to be the subject of a new trail guide. Mention must also be made of the Cotswolds trip on which Hilary Giltrap found some small pieces of fossil reptile bone which have caused some interest in the scientific establishment and was also reported in Geology Today magazine.

Conservation

(a) Collections

The appointment of Colin Reid to the new post of Geological Curator at Dudley Museum has had a most striking and beneficial effect upon the collection's welfare and the promotion of the subject locally.

A small party of members visited Wolverhampton Art Gallery in May to see the new displays of the Frazer collection.

(b) Site News

The principal activity in 1987 was the preparation of a list of geological sites within Dudley Metropolitan Borough for inclusion in the SINC (Site of Importance for Nature Conservation) scheme. A total of twenty five sites have been selected and submitted to the Nature Conservancy Council for scheduling. It is hoped that this will be the beginning of a formalised second tier system with much more widespread application. Each site selected has had to be supported by descriptive material including stratigraphic, palaeontological or structural information. The record forms of the National Scheme for Geological Site Documentation were utilised and a comprehensive literature search gave additional bibliographical information.

Subject to the response to the Dudley Survey, it is anticipated that we will be asked to consider sites within Sandwell and ultimately to the remainder of the West Midland County Area.

Other Activities in Brief

The society took part in a one day exhibition in July at Brierley Hill in support of the Pensnett Wildlife Group. The society's display was manned by John Easter.

A more extensive display was mounted at Dudley Museum Open Day in October. A rota from the committee reported much interest from the substantial number of visitors.

Alan Cutler, Colin Knipe and Paul Shilston acted as guides and leaders for a party from the East Midlands Geological Society when they visited Wrens Nest and Saltwells in October.

Descriptions of the geology of local sites have been supplied to the following organisations: - Ketley Quarry (Urban Wildlife Group), Moxley Hospital Woodland (Walsall Community Projects).

Apart from planning applications considered within the Nature Conservation Consultative Group the society was asked for specific comments relating to stabilising works necessary within the Castle Hill Conservation Area.

The chairman together with Colin Reid co-authored a paper entitled "Origins", arguing the case for a special tourist attraction featuring the geological and historical development of the Black Country within the proposed Black Country World project. Although geology would appear to be very much in the forefront of proposals, no formal reaction has been received as yet.

Retirements

We record our special thanks to Sheila Pitts, who retired as Editor of the Newsletter in August. It was a task carried out with conscientious enthusiasm if at times a little frustration ! She presided over exactly 50 editions and well earned her rest from deadlines.

Sadly Anne Sutcliffe (Harrison) retires as Treasurer after several years as an officer of the society. Her calm, common sense approach will be missed very much.

Conclusion

The decline in membership and poor attendance at field meetings continues to be of some concern. Paradoxically lectures are well supported in rather stark contrast to the situation 7-8 years ago.

It is pleasing however to see a resurgence of interest in geological conservation issues at a time when geology is re-emerging from the doldrums at a National Level.