



THE BLACK COUNTRY GEOLOGICAL SOCIETY

CHAIRMAN	A. CUTLER, B.Sc.
VICE CHAIRMAN	P. G. OLIVER, B.Sc., Ph.D., F.G.S.
HON. SECRETARY	XXXXXXXXXX J. GOLLEDGE, M.A.
HON. TREASURER	XXXXXXXXXX M. J. WOODS, B.Sc., M.Sc., F.G.S.

NEWSLETTER NO.12 - MAY 1978

Next Meeting - May 11th, 1978 - Members' Night

The Society is pleased to welcome one of its new members - Geof Davies, B.Sc., M.Sc., F.G.S. - to lecture on 'The Hydrogeology of South Shropshire'. Hydrogeology is now an important part of the Geological Sciences and is of particular significance in maintaining adequate supplies of water for potable and industrial uses.

Dudley Library 7.45 p.m. Tea and biscuits
7.15 p.m.

Llangollen Field Trip - Leaders Pete Oliver and Geof Davies

Further information will be sent to those participating. Evening meal at the Woodlands Hotel, Trevor Road at 8.30 p.m. Friday May 12th.

Annual Report - read by Alan Cutler at the A.G.M. on March 16th, 1978

It now appears that the overall level of membership is stabilizing at around 40 members. It was disappointing to lose nine individual members, the same as in 1976 but pleasing that we gained as many new members as well as five new associate members. The end of year total stood at 44 comprising 25 individual, 10 people as family members, 3 Junior and six associate members. We are continuing with a further mailing of industrial firms which has already been so successful. However there are a great many people living in our surrounding area, interested or involved in geology yet are not members. It must be our aim to enlist as many of these potential members as possible.

The monthly programme continues as successfully as ever. Field trips remain the most popular and all five trips during 1977 were very well attended. We welcomed two guest lecturers, Colin Knipe and Tim Pettigrew and the attendances at their meetings was a considerable improvement over those experienced in 1976. The social was held again at the Old Mill and proved to be an overwhelming success and we made a substantial profit which augmented our income.

The informal meetings have not quite worked out as originally intended and have now developed essentially into briefing sessions for field trips. It may be that the library does not have the right atmosphere for this type of meeting.

As regards the various projects that the society is involved in, Pouk Hill which took so much of our time in 1976 has not received much attention. Tipping has now commenced and it is unlikely that much more field work will be undertaken although the future of the tramway tunnel there is still in doubt.

The Mucklow Hill exposures have not received very much field attention but the Nature Conservancy have shown interest and the site may become listed.

During the summer a number of members formed a survey party visiting Gotwall End where there was some danger of tip encroachment which may have affected various exposures of Coal Measures and Silurian material. However any immediate threat has been lifted through Nature Conservancy intervention.

Towards the end of the year our attention was directed to the West Midlands County

Structure Plan, and at the request of the Nature Conservancy, again, we shall be submitting our recommendations insofar as the Geological aspects will be affected. Details were circulated to all members with the February Newsletter and we hope that as many members as possible will contribute details of exposures known to them that merit special protection or indeed which could become alternative sites to those which are more seriously threatened.

On a much wider plane we have received much encouragement from the Geological Sciences department of Aston University and indeed our last meeting was held at their invitation in the department but sadly the attendance was very disappointing. Nevertheless they have offered us access to their laboratory facilities and we may well take up the offer with the Pouk Hill material.

The Newsletter maintains its lively interest and although there is usually sufficient material it would be nice to have a few more notes and news from other contributors. Typing of the stencils is being carried out by Pat Pickering who most of you will remember and who is now living in Aberystwyth and we record our grateful thanks for her help.

In our last report we indicated that we hoped to have published the first edition of an annual journal by the end of the year. We were in for a rude awakening for first quotes were in the region of £700-£800. The most recent quote of about £500 is in the right direction but still impossible without outside assistance.

The society is now affiliated to Dudley Arts Council and one of the benefits that we may well possibly derive is some form of financial assistance towards the journal. How successful our application will be remains to be seen.

We have taken steps to improve and extend on the services to members and we can now offer safety helmets and hammers ex-stock at attractive prices. We do seriously recommend the use of helmets in quarries and indeed they are now obligatory in working quarries. The range of items can be extended provided there is sufficient demand but it would be worthwhile checking with the Hon. Secretary about any item in case we can obtain preferential terms.

We shall also be introducing a book box along similar lines to the system used in the Extra-Mural classes. Some books have already been donated and we shall add more titles as funds permit.

Finally we have to record the sad departure from the committee of Dave Wraight, Eileen Bakewell and Margaret Oliver. Dave resigned during the summer owing to increasing pressures on his time and he was unable to devote his energies to the society in the manner that he wished. Eileen resigned only a few weeks ago as she is moving away from the district and joining the other ex-patriots in West Wales. Eileen was an ideal Treasurer and combined a flair for figures with disarming ability to extract cash from anyone. Both David and Eileen were part of the original group that conceived and set the society on its present course and Margaret too has been a committee member continuously from the Inaugural meeting, but pressure of time has made it impossible for Margaret to continue. We record our grateful appreciation of their tremendous work.

Although not strictly part of the 1977 report we must make mention concerning the fate of the Dudley Museum collection. On Tuesday of this week Dr Oliver and I attended a meeting with representatives of the Dept Leisure and Recreation and we have now been invited to inspect and give help for the future welfare of the collection. Here is a very real opportunity for the society to prove its abilities and to become recognised in a positive sense. All members who wish to be actively involved with the project please contact me immediately after the meeting.

An equally, perhaps even more, exciting aspect is the prospect of the Council providing accommodation for a permanent society H.Q. Two possible locations have been intimated, one in Dudley, another in Stourbridge. There is no guarantee that either will become reality but at least there are signs that our dreams could become realities.

New Committee

Following the A.G.M. the Committee now consists of:-

Chairman - Alan Cutler

Vice Chairman - Peter Oliver

Hon. Secretary - John Colledge
 Hon. Treasurer - Maitland Woods
 Plus, Colin Mitchell (Field Secretary)
 Graham Hickman
 Peter Parkes

Addresses

Hon. Secretary: 62 Red Hill, Stourbridge,
 West Midlands.
 Hon. Treasurer: 132 Mount Road, Penn,
 Wolverhampton, WV4 5RX.

It is hoped that unofficial sub-groups can be set up to deal with such things as, field trip programme, site documentation, publicity, literature, etc. Peter Parkes is already forming a conservation group and Colin Mitchell is acting as Field Secretary.

John Colledge is also acting as Publicity Officer.

Members' Evening 1977 - Sheila Pitts

lectured on 'TRAVELS IN ICELAND'

Iceland consists mainly of basalts of late Miocene age. Since it is a subaerial part of the Mid-Atlantic Ridge, it is useful for geophysical studies such as the early work on sea floor spreading, and the measurement of rift separation. Volcanic eruptions occur about every five years, and those which are under glaciers produce rocks very similar to those below the ocean but much more accessible to petrological study.

A photographic tour was undertaken, starting from Reykjavik. In the western coastal areas were lava fields colonised by grey moss, the national cement works which uses shelly sand, and the whaling station. Views of the remote north-western fjords showed basalt flows, cirques, plateau tops and vegetation rapidly decreasing with altitude.

In the north was the second town of Akureyri, a forestry plantation to reduce soil erosion and a lava-dammed lake at Myvatn with some curiously shaped andesite pillars in it. From here the journey continued south along the central rift zone, where tectonic features the highest European waterfall, and the lava landscape used for training American astronauts.

There were many boiling mud pools and hot springs, all smelling of sulphur. In the southern end of the rift zone is the largest lake, and nearby a whole town uses steam heat to grow fruit and vegetables. The Westmann islands are an offshore part of the rift zone, and include the new island of Surtsey. The journey finished with views of the vast sandur, the outwash into the Atlantic of Europe's largest glacier.

Malvern Field Trip - Jan. 15th 1978

Despite dull and misty weather well over 40 people turned up for the excursion. The area again proved to be of interest to everyone, with a variety of rock types and

The Institution of Geologists

The newly formed professional body has the grade of 'Affiliate' that may be of interest to many members of the society. Anyone requiring information should write to, The Institution of Geologists, Geological Society Apartments, Burlington House, Piccadilly, London, W1V 0JU.

Programme

- June 15th. Discussion and interpretation of geological maps for the Mendips Area. Dudley Library 7.45 p.m. Tea and biscuits 7.15 p.m.
- June 18th. Field trip to Cheddar Caves and surrounding areas. Leader A.K. Fear, Lecturer in Geology at Worcester Technical College. Meet Dudley Library 8.45 a.m. Bring packed lunch. If sufficient support a coach will be booked. Please indicate your intentions immediately on the attached form.
- July 16th. The Geology of the Black Country. Field trip. Leader Alan Cutler. Meet Dudley Library 9.00 a.m. Bring packed lunch.
- September 21st. 'The Geological Re-survey of Telford New Town' by R Hamblin of the Institute of Geological Sciences. Dudley Library 7.45 p.m. Tea and biscuits 7.15pm
- October 15th. Field trip to Welsh Borders. Leader Dr P Toghill of Birmingham University. Coach from Dudley Library at 8.45 a.m. Bring a packed lunch.
- November 17th. Social.
- December 7th or 14th. Friends of the Black Country Museum Mining Group.

and a range of geological periods covered. Gullet quarry still holds the superb attraction of Silurian siltstones, shales, limestones and conglomerates resting unconformably on the Pre-Cambrian gneisses and granites of Malvernion age. No doubt the Society will be back there again in a couple of years time.

Site Documentation and Conservation

Information please about interesting sites as soon as possible to Peter Parkes, Conservation Coordinator, 393 Wren's Nest Road, Dudley, West Midlands.

Newspaper Cuttings

The Hon. Sec. would be pleased to receive any cutting from the local press relating to geological matters. Please keep your eyes open!

Thursday 16th Feb. Lecture; Dr W Gaskarth (Aston University) "The Geology of the Black Hills of South Dakota"

The Society is very grateful to Professor Hawkes for providing the lecture facilities of Aston University on this occasion. However due to a combination of navigation difficulties in Birmingham City centre and the extreme cold, a lot of members missed out on what proved to be a very good lecture.

The Black Hills lie in North America (longitude 104°, latitude 45°N.) in the state of South Dakota and bordering Wyoming. It is true Wild West country and has a rich history with such attractions as the grave of Wild Bill and General Custers last stand. The Black Hills stand some 6000 feet above sea level, and high above the surrounding flat prairie which has an almost infinite horizon.

To understand the basic geology of the Black Hills we must again refer to plate tectonics. Like many vast continental areas, North America has a stable granitic basement, or kraton, which is Pre-Cambrian in age. It has few joints and as a result is very resistant to weathering. Within this mass are many pegmatite dykes, some of greater resistance stand above ground level as walls of natural rock. The crystals within these pegmatites are by no means common, in one location 353 different mineral types were identified and crystals of spodumene upto 14 feet in length were found. These pegmatites are the source of

many American mineral collections.

An acute unconformity defines the Cambrian junction. The Cambrian rocks present are sandstones and conglomerates which were deposited in fairly low energy marine environments. Ordovician shales followed merging into the dolomitic Devonian rocks and Lower Carboniferous limestones. The Silurian is absent as a non-depositional unconformity, it could be however, that correlation of Silurian elsewhere does not correspond to the fauna found here. Thus the Silurian rocks may have been classed as Ordovician.

A thin sandy bed, considered to be about the same age as the Millstone Grits was next laid down. Kraton uplift began in late Permian time with the formation of an evaporitic limestone and later a 20 foot bed of gypsum was deposited in the Triassic. By Jurassic time the area was low lying land and red shales formed under semi marine conditions. The Cretaceous period saw the Kraton begin to fall again, due to the opening of the Atlantic, marine cross-bedded sandstones were deposited. Much interest was taken trying to explain the occurrence of a great number of gastrolithes found in a region with a particular absence of dinosaur bones!

The movement of the N.American Kraton westward resulted in a subduction zone along the western edge, where the oceanic crust was forced under the over riding continental crust. The buckling and volcanic activity resulted in the Rocky Mountain belt, about 400 miles west of the Black Hills.

It is believed that an isolated heat plume, probably caused by a section of the Pacific rise becoming trapped under the benioff zone, produced a 'hot spot'. This led to the uplift of the Black Hills Area as an elliptical dome and also the intrusion of several stocks.

Subsequent erosion and weathering has cut into the dome structure producing ring like valleys and escarpments around a central high standing Pre-Cambrian core. The uplift continued on into the Quaternary, ash caves and hot springs are still present to the south of the region, the surrounding area is at present being mined 'open cast', for the vast reserves of Tertiary coal, however a large amount lies under the desolate ground of the Indian reservations!

It is interesting to note that all the rocks surrounding the Black Hills are more or less horizontal and of constant thickness over vast distances. This type of deposition reflects upon the stable conditions which have prevailed in the central zone of this Kraton for the last 1,000 million years or so.

Although the Black Hills are inside a National Park they are still mined for gold; certain areas of the Black Hills have been spoilt by this process, as cyanide slurry is the end biproduct and is allowed to flow freely down the hillside. Since the Area is so large, some 4,000 square miles, and is so poorly populated, the excuse is given that there is room to make a mess!

(GRAHAM HICKMAN)

Good Hunting! Sheila Pitts writes about a recent visit:

Being interested in anything to do with light aircraft, I went on March 18th to the open day of Hunting Surveys Ltd. of Borehamwood, Herts. and found it far more wideranging and interesting than I had expected.

Prebooked parties were conducted around various exhibits and instruments, each demonstrated by the people whose job it is to use them. These included tellurometers, photogrammetric plotting instruments and serial cameras, the company being the only one in this country to be able to calibrate these for accuracy. There were paired demonstrations, such as seismic profiles of seabed with the same area alongside in side scan radar. There were surveys for oil pipelines such as the one from Brent field to the Shetlands, possible routes for pipelines then resurveys after pipeline laying to assess any movement of the pipe and predict damage. Pipelines are better laid in soft sediments which will discourage damage including that from anchors, whereas harbour construction needs a knowledge of the bedrock which would be suitable.

The production of maps is a large part of their business, especially in the Middle East. There they have surveyed the whole of Kuwait, produced a geological map of the Qatar peninsula, and are currently surveying an aquifer in Saudi Arabia. We saw books for which they had produced specialised maps for Canadian wildlife, anthropology, vegetation and tourism. Maps of Nigeria with its constant equatorial cloud cover have been produced using side scan radar. Any available source of information is used, including infra-red and conventional satellite photography, but copyright prevents the use of Ordnance Survey material in Britain.

Apart from the abundance of information, good organisation (and refreshments) it was fascinating to listen to so many people who had "gone out and done it".

(SHEILA PITTS)

EDITOR:

Peter Oliver
26 Belvedere Close
Kidderminster
DY10 3AT