



The Black Country Geological Society

NEWSLETTER No. 64 - August, 1987:

Editorial:

As we approach the August break in our programme, many of us will be off on holidays putting geology into practice. Several of us are off on the U.S.A. geology trip from Nottingham University, and no doubt many others are on other trips. All these trips are of interest to members, and we would be very pleased to hear about them. So will all you shy types please try to tell us a little about these places outside the Black Country? After nearly nine years of editing your newsletter, I have decided that the summer break is a suitable time to retire from it. I shall miss it in many ways, but it will be nice to have time at meetings to talk with you all. My very real thanks go to the faithful small band of members who responded so kindly to my requests for contributions. I hope that they and others will help my successor in the same way.

Next Meeting:

Monday: 14th September. Talk by
Professor Westbrook -
"Accretionary Processes in the
formation of the Barbados Reef."

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

Those who would like lifts for field meetings
please contact John Easter - 0384 274 916

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 arrange
their own insurance as a matter of course.

Chairman
Alan Cutler BSc M.CAM
DipM MInstM

Hon. Treasurer
Anne Harrison BSc MB
ChB FFARCS

Hon. Secretary
Paul Shilston MA CEng
FIEE MIMechE

Field Secretary
John Easter BSc

Programme 1987:

Monday: 14th September:

"Accretionary Processes in the formation of the Barbados Reef." Talk by Professor Westbrook of Birmingham University. This will include sedimentary processes near deep ocean trenches.

Sunday: 11th October:

"New Sites in the Malvern Hills." Leader Dr. D. Bullard. Joint field trip with Shropshire Geological Society.

Monday: 16th November:

"Geology and Philately." Talk by Dr. R. Bradshaw, Bristol University.

Monday: 7th December:

"Greenland Geology - Roots of an Old Volcano." Talk by Dr. Andrew Chambers of Birm. University.

The Channel Tunnel - Part Two.
(continued from the June issue)

4. Civil Engineering. By H. Norie, Director of Mott, Hayward and Anderson.

The design was well under way and the ~~construction and equipment~~ contracts were 'up and running.' Tunnelling would be within the chalk marl strata wherever possible, subject to a maximum track gradient of 1%. Further boreholes and geophysical work had been carried out this past winter. The chalk marl outcrops at Folkstone and the ~~tunnel crosses the coast just west of Dover.~~

The contracts for the tunnel boring machines have been let in both France and Great Britain. Fully shielded machines have been chosen which can be closed for adverse ground. The cutters rotate at 4½ rpm and progress at about 5 metres per hour.

The tunnel will be of segmented reinforced concrete with a design life for 120 years - this is difficult with reinforced concrete. Some cast iron segments will be used. All segments will be grouted. Pressure slurry will be used in the shields to give support to the ground.

Probing will take place up to 100 metres ahead of the face - and lateral and inclined probes made as desirable. Ground treatment will be carried out in faulted areas and also in areas of high permeability. There will be a series of marshalling tunnels at the Dover end. The disposal of spoil has been marked out carefully.

5. Ground Engineering: By L. M. Lake, Director, Geotechnical Division, Mott, Hayward and Anderson.

He emphasised the greater accuracy of fixing the position of sampling in 1986 compared with 1974, and dealt with deep and shallow structural and geomorphological features. The saturation of the Gault Clay has resulted in collapses at Folkstone Warren, and in situ testing in existing tunnels was carried out.

6. Specialist Geotechnical Aspects: By Jean-Luc Dessenne, Head of Geotechnical Department, Bureau de Recherches Geologiques. He also works with Mott, Hayward and Anderson.

Geological mapping was done to a scale of 1/20,000 and for buildings to a scale of 1/100. For the tunnel boreholes were not as close as on land, where a borehole is usually drilled every 50 metres. Geophysical survey data have enabled a lot of data to be obtained at a lower price. However, this could bring a lack of precision due to interpolation. This produces problems in identifying the position of the Gault Clay. Statistical analysis has been used to reduce this problem. Despite this, more boreholes were necessary on the French side, as the geology is more variable.

Details were given of the sophisticated measuring plant used to measure horizontal and vertical tunnel stresses. These showed that there was an anisotropy of stress - the vertical stresses were major and the horizontal minor.

Discussion: There was much discussion about the stress and strain on the tunnel, and on the corrections for creep and shrinkage in the concrete. The design of the segments is more governed by durability than by stresses. Thus we have a high level of competence and a high level of safety.

The rates of tunnelling given were the daily rates of progress for the service tunnel. The main tunnels were unlikely to be much slower.

Douglas Warren:

Thank you very much, Douglas. Very informative and most interesting!
Sheila.

"The Wild West Midlands." An evening of conservation topics. May 18th, 1987.

Our Chairman Alan Cutler welcomed visitors*of kindred organisations. Tom Slater represented the interests of flora and fauna, and Mary Worrall helps with putting nature conservation into action. Alan began, first describing the conservation activities of the BCGS in the 1970's, especially site documentation. Sites of geological value are required for teaching purposes, at all levels from pre-mary school to university, as well as their historical or rarity value. There are about 80 sites documented locally, some with natural history interest also, such as Wrens Nest, Doulton's Claypit and Cotwall End. The Turner's Hill SSSI has the oldest rocks in England containing fossil fish, in Aymestry Limestone. Exposures on the Western Boundary Fault show many different periods, and form an ideal teaching series. Tom Slater described the Urban Wildlife Group, which was formed in 1980 to promote awareness of wildlife, and to involve local people in the protection of sites. They have five units.

One unit deals with ecology, and one with planning applications. The landscape unit helps with planning, and features such as sites of ponds and shrubs. The education unit works with schools, and the public unit organises events and displays.

The loss of hedgerows and wetlands, and the use of fertilisers puts pressure on wildlife in the countryside, and it has partly come into urban areas. Westland areas such

as quarries, and the embankments of canals and railways can be left to grow. The tidy grass of housing schemes might be more interesting if a little more wild. Some good sites have been "developed" such as the Merry Hill shopping centre, involving the last local farm but close to the disused Round Oak steelworks.

Other good sites remain. Moseley Bog was not drained, following local lobbying, and a rare fern is conserved there. A subsidence area near Walsall with trees and ponds is used by local schools. Foxes and grey squirrels have adapted to urban life. Cornflowers, marigolds and willow herbs grow well in such areas because of less pesticides, and in some areas bluebells and red campion are used on verges instead of grass.

Mary Worrall represented the Conservation Volunteers, who do "anything to help nature." They plant trees, clear ponds, make footpaths and repair walls. They try to save rare plants and animals, but habitats rather than individuals. Woods and ponds need managing, or they will become overgrown or silted.

Volunteers also improve access, by paths and steps, and this also reduces damage, because the presence of people inhibits vandalism. Schoolchildren help in school grounds, encouraging interests and learning respect for wildlife. Volunteers teach skills such as hedge-laying and dry-stone walling, and the management of habitats. They help to tell people what they can do and where they can go, rather than preventing them doing things. They organise weekends, holidays and camping for their activities.

The photographs were as interesting as the talks, showing everything from orchids and bluebells to muddy, hard work. We are especially grateful to our visiting speakers, who showed by their bright-eyed enthusiasm what a tremendous amount of fun hard work can be.

Sheila Pitts:

Dudley Limestone Workings - Progress:

It was August 1986 when the newsletter last received a "sit-rep" on Dudley's limestone problems and the remedial measures being undertaken and planned.

* to discuss the activities

As a result it is now possible to report substantial developments since the newsletter.

It is anticipated that the infilling works to the caverns adjacent to Birmingham Road will start shortly, the total cost of which will be over £1.5 million, including fees. Over 90% of this will be met by way of a Derelict Land Grant from Central Government, with the local Authority contributing the balance, so as to include the "extra" work necessary to bring back to beneficial use the area of the Dudley Football Club Stadium. The infilling work is due for completion by the end of the financial year, and this will ensure safety and stability of the heavily trafficked Birmingham Road and some houses on the south side, and the Stadium will be available for the 1988/89 season, with completion of the recultivating and regrassing of the football pitch during the first half of 1988.

Some of the "rock paste" infilling material will be obtained through the coincidental clearance of the derelict Primrose Hill pit mound off Cradley Road, Halesowen, thus killing two birds with one stone, both in Dudley.

Drillhole investigations into parts of the workings on the north-western and south-eastern edges of Wrens Nest Hill, and those south of Dudley Bus Garage were completed early last autumn. Currently in hand are investigations in the northern part of Dudley Sports Centre, adjacent to the Guest Hospital, in the Black Country Museum, in and adjacent to Dudley Zoo and the Castlemill area including British Federal Welder and the Foxyards Housing Estate. There seem to be drilling rigs everywhere.

It is clearly impractical to summarise accurately or fairly the findings of the various investigations in only a modest number of words. Anyone interested can examine copies of the full reports including plans, as and when they are released at the offices of the Borough Architect and Planner at 4 St. James's Road, Dudley, or of the Borough Engineer at Mary Stevens Park, Stourbridge. It is the policy of the Council to ensure that information is made fully available to the public as soon as the contractors and

consultants' investigations and reports are completed.

As has been previously stressed, these first and second stage investigations form the necessary preliminaries for the carrying out of remedial infilling and grouting work, as illustrated by the recent and current work at Dudley Sports Centre near Birmingham Road. At the same time, however, the investigation works are important in ascertaining the condition and stability of mines, facilitating on-going assessments of risks, priorities and treatment options, bearing in mind financial resources. In certain instances, such as the gallery south of the Dudley Bus Garage, it has been found that the workings are essentially collapsed, and accordingly the overlying and adjacent land can continue safely in use as formal open space recreational land.

In other cases continued beneficial use of land can continue whilst the condition of open workings is regularly checked by personal inspection or remote monitoring. Over the last four years it has been possible to gain a much clearer picture of the precise location and extent of Dudley's Limestone Mines, to ascertain their condition and type of and priority for further actions required. At the same time experience has been gained in the implementation of remedial measures, especially infilling with rock-paste. Whilst there still remain substantial mines to be investigated, future years will undoubtedly see a greater proportion of expenditure on remedial measures such as infilling of mines which are accorded highest priority, assessed from considerations of mine stability and land uses affected.

The Council is currently undertaking a full review of its formal Strategy and Programme, which it plans to publish towards the end of this year, and which will reflect the new knowledge and information available, the likely levels of financial resources, competing pressures for action and so on. However, the council has already resolved that priority will be afforded to considerations of safety, reaffirming the criteria established in the 1984 Strategy Document.

Alan J. R. Evans:

P.S. Thank you very much, Alan, for another interesting account of what goes

on under our feet in the Black Country, and what prevents our feet going too far into it unexpectedly! We also gain insight into other people's jobs, and the vast amount of public money that goes into one small area. - Sheila.

Brown End Quarry:

This unique geological site near Waterhouses has now become a nature reserve, following a Staffordshire Wildlife appeal last month. Many societies contributed, and the site is likely to be open to the public within the year.

The quarry exhibits a sequence of steeply dipping limestone rocks, about 335 million years old.

They are the oldest rocks in the Derbyshire and North Staffordshire region. Fossils include corals, brachiopods, crinoids and trilobites. The slender fossil *Hampsoncora brownenderis* was found on the site a few years ago, and named after the site.

The Rock Exchange: Peak Lapidary and Mineral Society, Medway Centre, Bakewell, Derbyshire.

October 10/11th, 1987. Weekend rock and mineral exchange. 30p entrance.

Snowdon in the Ice Age: by K. Addison. Book at reduced rate of £2.25 post free, the rate for Shropshire Geological Society members. Cheques to K. Addison, 10 Hurst Close, Brosely, Shropshire, TF12 5SG.

Alton Douglas Books: Pictorial, of Black Country and Birmingham, each £4.95. from 371 Rednal Road, Kings Norton, Birmingham B38 8EE.

Field Secretary:

John Easter,
27 Fairlawn Drive,
Kingswinford,
West Midlands, DY 9PE.
0384 274916

Hon Secretary:

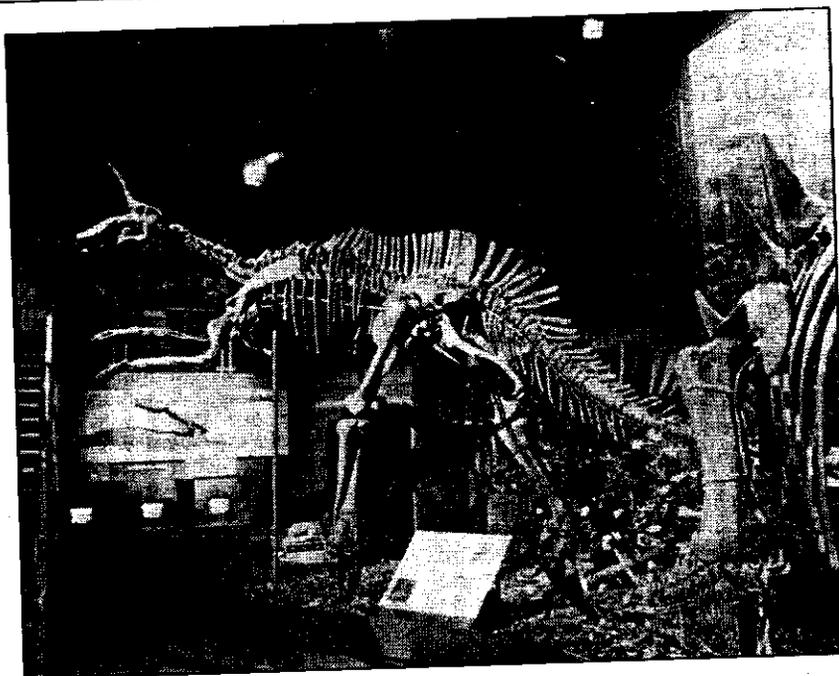
Paul Shilston,
16 St. Nicolas Gardens,
Kings Norton,
Birmingham B38 8TW.

Retiring Editor:

Sheila Pitts,
17 The Pear Orchard,
Northway Farm,
Tewkesbury,
Glos. GL20 8RG.

From the Papers:

Electronics and Power - May 1987.



Memory-controlled spotlights are being used to illuminate an exhibition of dinosaur skeletons excavated in China at Cardiff's National Museum of Wales. The Strand Lighting spotlights are programmed to fade from one lighting state to the next in synchronisation with a commentary and music tape. Colour filters help to recreate the world of 200 million years ago, while the 10 minute commentary gives background information on the period and the dinosaurs