



THE BLACK COUNTRY GEOLOGICAL SOCIETY

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NEWSLETTER NO. 10 - NOVEMBER 1977

November Social

This year's social evening is again at the 'Old Mill', Windmill Street, Upper Gornal, Dudley, on Friday 18th November at 8.00 p.m. Tickets are now available (price £1.50 - including buffet) from Hon. Secretary. Last year this event was very successful; come and enjoy yourselves.

Lecture: T. Pettigrew (Sunderland Museum)
'An Expedition to South Georgia with the
British Antarctic Survey' - Thursday
4th September.

South Georgia is a small British-owned island some 1000 miles east of Cape Horn, latitude 55° south. To understand its basic geology one has to appreciate the global continental activities occurring in Jurassic - Lower Cretaceous period. When the Atlantic Ocean opened the low lying continental mass was split to form Africa and South America. The increased volcanic activity consequently covered the surrounding Palaeozoic rocks with a thick layer of extrusive igneous rock. Tension in one region of the crust produced compression in another, with the result that a subduction zone was produced along the western side of South America. The Pacific plate being forced under the continental plate. The outer edge of the continental plate became 'frayed' and was pulled down with the Oceanic crust. The low density molten continental material returned to the surface via volcanic fissures and produced a chain of island arc volcanoes.

The activity along the edge of the continental plate caused tension cracks and weaknesses to develop behind the island arc, thus leading to magma rising and 'back arc sea floor spreading'. This resulted in an ophiolite sequence of sheet dykes and pillow lavas with a basement of coarse acid igneous rocks. In this sheltered back arc marine basin two types of sediments were deposited. A very unusual Flych type deposit was formed in the outer regions of the basin. It consisted of extremely coarse igneous and

sedimentary material, and is believed to have been formed on the slopes of marine/sea level andesitic volcanoes. Erosion by waves and earthquakes have formed a unique marginal sediment on a par with turbidites. These beds characterise an extremely unstable sedimentary environment.

However further inshore shelf assemblages similar to those which prevailed in our own Ordovician are believed to have existed. The shale and sandstone sequences have yielded fossils ranging from ammonites and fishes to tree trunks.

Further plate tectonic movement split S. America from Antarctica. Thus breaking the chain of island arc facies. South Georgia happened to be a section of this link and so provides the full cross section of the island arc.

The second part of the lecture was taken up with numerous first class colour slides, which enlightened many of the members as to what South Georgia really looked like. Images of barren windswept snow landscapes were immediately abolished. South Georgia had snow capped mountains, huge glaciers, vast expanses of green tussock grass, beautiful cloud formations and many varieties of sea birds, penguins and seals.

All sense of proportion was lost when we were shown 200' high glaciers taken from 10 miles away, huge icebergs and glowing mountain sunsets. The slides showed everything from the celebrations aboard ship on crossing the equator to bull elephant seals in the tussock grass, whaling stations, south American oil rigs, Cape Horn Ship wrecks and Albino fur seals; to name only a few items.

Members were able to examine the large scale detailed geological maps drawn up by T. Pettigrew and his colleague on their 'six month field trip' to Annenkov island just off South Georgia.

If the Committee took action now it is conceivable that Doug Bedson's 'Society field trip to South Georgia' could be a

reality before the turn of the century!
Graham Hickman (G.H.)

Hon. Secretary

As you will now be aware Dave Wraight has resigned from this post because of the pressure of work from his many activities. The Society is indeed grateful for the considerable effort that he has produced to enable B.C.G.S. to become recognised.

Taking Dave's place until the A.G.M. is John Colledge of 62 Red Hill, Stourbridge. Tel. Stourbridge 6907.

Field Meeting - Cotswolds, Sunday 14th August

This was the first trip to the Cotswolds organised by the Society and provided a continuing story of the Jurassic succession following the July visit to Aust.

Our first stop was at the Tuffley Brickworks Quarry at Robins Wood Hill, Gloucester. The hill is a small outlier of the main Cotswold escarpment and the upper part of the Lower Lias is exposed in the bottom of the quarry with the typical clays and nodular beds being evident. The quarry seemed to be much more overgrown than in previous years but there are still more than ample exposures to be studied and members were able to collect a number of varied fossils from the weathered material. Above these beds are those of the Middle Lias which occupies the rest of the exposed quarry face. A few members managed the climb to the top although the overcast conditions spoilt the otherwise fine view. The hill is dappled by the Upper Lias and Inferior Oolite although neither group is exposed.

We left the hill and drove eastwards up the main escarpment encountering torrential rain on the way and stopped at the Air Balloon pub for lunch. Fortunately the rain eased and our next stop was the Sanitorium quarry at the south end of Leckhampton Hill. The quarry displays limestones of the lower Freestone which is part of the lower Inferior Oolite, the next series in the succession. The limestones are largely unfossiliferous but it was interesting to see several features notably solution enlarged joints with calcite coatings, current bedding and 'bored' horizons the work of annelid worms.

We then drove up the hill for a brief stop

at the Upper Quarry the floor of which is covered with specimens of the fossil *Ostraea*; the floor represents an old sea floor of the middle Inferior Oolite.

As time was pressing we moved off eastwards to our final halt of the day at Naunton Railway cutting. There is no longer any railway track remaining and the exposures are considerably more overgrown than formerly. The location is a classic one and displayed a fine section of the Inferior Oolite including the Fullers Earth beds. We were only able to inspect a small but interesting part of this series namely the Upper *Trigonia* and *Clypeus* grits. The latter yields good examples of the well-known Echinoid and we were able to find several weathered-out specimens of these unusual and fascinating fossil sea urchins. (A.C.)

Book Review

Any mention of the Limestone Industries of the Black Country and almost invariably Wrens Nest or Castle Hill come to mind. But as all local geologists will know an equally large Silurian inlier occurs at Walsall. The Wenlock and Woolhope (Barr) limestones which outcrop there provided an important industry spanning several hundred years reaching its zenith in the seventeenth and eighteenth centuries, when the demand for limestone as a flux became paramount. Unfortunately this industry has never been fully documented and precious few monuments remain today.

However, Henry Green, in a new booklet* published by the Black Country Society, has assembled an impressive collection of information about the Walsall limestone Industry. The first few chapters form an interesting historical background going back as far as Roman times and including a chapter devoted to a visit to Walsall by the seventeenth-century historian Robert Plot. A chapter covering the elementary geology is included. The rest of the booklet is mainly concerned with descriptive accounts of the more important mines.

In his conclusion Mr Green is almost apologetic about the lack or scarcity of information available but he is to be commended on his detective work in producing a highly readable text. Having been engaged recently in similar researches I know well the problems and difficulties which he has undoubtedly met and the considerable time that can be spent in library archives.

One small comment is that a general map (albeit small-scale) of Walsall showing the geology and the location of the mines would have been useful to those not very familiar with the town itself. Nevertheless it is a modestly priced booklet and intending recipients could drop a few hints to younger members of the family between now and Christmas.

* (The Limestone Mines of Walsall, H.E.Green 48pp. price 75p, from book-sellers or from the Black Country Society (plus 12p postage),

December 7th or 14th. Lecture by the Black Country Mining Group.

Birch Coppice - September 4th

A few members visited the opencast site at Birch Coppice to look at the exposures of Middle Coal Measures and glacial deposits. Interesting aspects of sedimentology and structural geology were observed during the two hours at the site. Upright fossil tree roots and the glacial unconformity were two of the features to draw interest.

Programme for 1978 and the end of 1977

December 8th. Members' Evening. 'Travels in Iceland' by Sheila Pitts. Dudley Library 7.45 p.m. Tea and biscuits 7.15 p.m.

January 12th. Informal discussion on the geology of the Malverns and surrounding areas as a prelude to the next field trip. Dudley Library 7.45 p.m. Tea and biscuits 7.15 p.m.

January 15th. Field trip to the Malvern Hills. Leader Dr P.G.Oliver. Meet at Dudley Library at 9.00 a.m. or at Gullet Quarry (G.R. SO 762 381) at 10.15 a.m. This is a 'hard hat' trip; helmets will be for sale. Bring a packed lunch.

February 16th. Dr Bill Gaskarth. 'The Geology of the Black Hills of South Dakota'. At Aston University. 7.30

MARCH 16th. - FILM EVENING + AGM.
April 13th. Discussion on Charnwood trip.

April 16th. Field trip to Charnwood Forest.

May 11th. Members' Night - Geof Davies: 'The Hydrogeology of South Shropshire.

May 20th and 21st. Weekend field trip to Llangollen.

June 15th. Informal meeting.

^{SUNDAY}
June 18th. Field trip to Cheddar.

July 16th. Local field trip.

September 21st. R Hamblin of the Institute of Geological Sciences - 'Geological re-survey of Telford Newtown'.

October 15th. Field Trip. Leader Dr P Toghill. Welsh Borders.

November 17th. Social.

Visit to Birmingham University Geological Museum on 15th October 1977

On arriving at the entrance to the Museum we were amazed to find that not only had Doug Bedson got the date right but also he was the first to arrive and was waiting to greet us. Surely a day to be noted in the history of the Society!

Doug, who is of course a member of the Society, is the Steward of the Geological Department of the University, and he had very kindly agreed to show us the various activities of his department.

Some of the members were quite content to spend the whole of the afternoon browsing around the exhibits of the Museum, whilst others were taken in small groups to see the Beetle Laboratory, the Rock-cutting rooms and the Carbon 14 dating room. We were also allowed to see the Holcroft collection of Wren's Nest crinoids and trilobites which is normally kept locked away in a cupboard.

In the Beetle Laboratory, the fossil beetles are processed out of the peat deposits in which they are found. They are then examined under the microscope and, by comparing the fossil remains with present day beetles, the climatic and other conditions in which they lived can be determined.

Doug explained in some detail how the rocks were cut and mounted in thin section on slides. He also explained how the Carbon 14 dating process was operated, but we were disappointed that samples were not available for inspection.

There was too much to see in one visit but the University have agreed that a further visit can be made by the Society at a future date. We must take them up on this.

(E.B.)

Informal Nights

The informal meetings are now partly intended to form a base for field trips i.e. preliminary discussions, map interpretations, rock and fossil indentifications. You will see how this fits into the programme listed before. Members are invited however, to bring along slides, specimens, etc. and to raise any topic for discussion.

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Geological Lectura

Members may be interested to note that Colin Knipe (one of our Associate members) is giving a lecture entitled 'Black Country Geology' to the Friends of the Black Country Museum on Wednesday 14th December at 7.30 p.m. in the Banqueting Suite, Dudley Town Hall. Members of the Society may attend under reciprocal arrangements between us.
