NEWSLETTER NO. 118

AUGUST 1996

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 goggles/glasses) and to use it when you feel it is necessary or when a site owner makes it a condition of entry.

Hammering is seldom necessary. It is the responsibility of the hammerer to ensure that other people are at a safe distance before doing so.

FUTURE PROGRAMME

Lecture meetings are held in the Banquet Room (Dudley Suite) at the Ward Arms Hotel, Birmingham Road, Dudley. Phone: (01384) 458070. 7.30 p.m. for 8 o'clock start.

SATURDAY 7th - FRIDAY 13th SEPTEMBER.

British Association - Annual Festival of Science

The British Association for the Advancement of Science runs an annual science festival, at a different venue each year. This year, 1996, it will be held in Birmingham based at the University and will include many lectures, field trips, conferences and other events covering a wide range of scientific interests.

The FESTIVAL HANDBOOK is available now giving detailed information on the week's programme. It is obtainable from the BA office:

23 Saville Row
London W1X 1AB
phone: 0171 973 3500

BCGS members will be helping with some of the field events including:

Monday 9th September. Afternoon field meeting to the Lickey Hills.
Tuesday 10th September. Afternoon and evening event organised by Dudley Museum, including visits to Wren's Nest and Dudley Museum, dinner in Dudley Castle grounds, canal trip to the Singing Cavern with re-enactment of Sir Roderick Murchison's visit on the occasion of a previous British Association Festival, held in Birmingham in 1839.
Thursday 12th September. Afternoon field meeting to Saltwells Local Nature Reserve.

The Society will also have a stand at the Geological Fair on the Monday and Tuesday in the Lapworth Geological Museum at the University.

Dr. ERIC ROBINSON of the Geologists Association will be leading guided geological walks during the week. These will be free of charge, open to anyone, and will include:

Wednesday, Thursday and Friday mornings: 'Geology in the heart of Birmingham' looking at the city's building stones.
Wednesday and Thursday afternoons: 'Geology of gravestones' at Lodge Hill Cemetery, Selly Oak.

SUNDAY 29th SEPTEMBER. Field meeting to Alderley Edge, Cheshire, for Triassic strata and an underground visit to one of the copper mines. Leader: Tony Browne (Manchester Geological Association).

Meet at 10.00 a.m. at the large National Trust car park near the Wizard Restaurant on the B5087 Alderley Edge to Macclesfield road (grid ref: SJ 858773). Alderley Edge village is on the A34 between Congleton and Wilmslow; from the south end of the village take the B5087 up the hill to the Edge, about 1 mile from the village.

Tony Browne writes: Alderley Edge is a ridge of high ground overlooking the Cheshire Plain. The ridge is due to an up-faulted horst within the Triassic sandstones which rise above the surrounding Upper Triassic mudstones; the junction between the Wilmslow and Helsby Sandstones of the Sherwood Sandstone Group can be seen at the outcrop. Mineralisation through the faulted rocks allowed copper to be mined in the Bronze Age and Roman times; during the last few centuries lead and cobalt as well as copper have been mined. Other rarer minerals have been found in minor quantities and the nearby Mottram St. Andrew is the type locality for Mottramite, a rare vanadium mineral.

Alderley Edge also has a mythology involving the Wizard of the Edge, King Arthur (or is it St. George?) and a hundred knights on white horses, an Armada beacon and assorted beings who may or may not be seen on the field trip!

The morning will be spent looking at the surface exposures and the afternoon on a visit down the Wood Mine. The old copper mines are managed by the Derbyshire Caving Club who escort parties underground by arrangement and provide hard hats, lamps etc.; any reasonably fit person should be able to undertake the mine trip.

Wear suitable outdoor clothing and bring a packed lunch. NO HAMMERS.

TONY BROWNE is an honours graduate of the Open University, Treasurer of the Manchester Geological Association and Honorary Associate of Manchester Museum developing the Geology Department's research collection. He is much involved in the local geology scene and is a founder member of the Cheshire and Manchester RIGS Groups.

MONDAY 7th OCTOBER. Lecture: Underground limestone mining in Shropshire by Dr. Ivor Brown (Consultant).

Ivor Brown writes: In Shropshire both Silurian and Carboniferous Limestone have been mined using underground methods, and evidence of this still remains at Ironbridge, at Lilleshall near Wellington and in South Shropshire.

This illustrated talk looks at all these areas but studies in greater detail the workings at Ironbridge. Here the beds have been worked for over 300 years and their working has played an important part in the development of this historic area. The talk will describe the mines, underground and surface, as seen by contemporary visitors, the present day remains and the recent work carried out to make safe the mining area.

DR. IVOR BROWN is Shropshire-born and followed at least four generations of his family into the local mines, training as a mining engineer and obtaining qualifications from North Staffs Polytechnic and Manchester and Leicester Universities, including PhD for research. After over 40 years in mining and minerals planning he retired in 1993 to work on his own. During his career he spent 10 years in the mines, 8 years as a lecturer in mining and quarrying followed by 6 years as Land Reclamation Engineer with Telford Corporation responsible for mining and site investigations in the New Town area. This was followed by 16 years of responsibility for mineral and waste disposal planning in West Yorkshire, Leeds and latterly Staffordshire. He has also carried out consultancies in Eastern Europe, Bahrain, India and Indonesia and has written many technical papers.

MONDAY 21st OCTOBER. Lecture: Conserving marine reptiles at Whitby Museum by Kate Andrew (Ludlow Museum).

Whitby Museum has a useful collection of Jurassic marine reptiles but over the years their quality had deteriorated. Several specimens were suffering pyrite decay, all were filthy with the grime of ages, and many were coated with varnish which had become virtually black. Most of the specimens were wall-mounted; they included 5 ichthyosaurs, a plesiosaur, 3 slabs with marine reptile vertebrae, 3 slabs of reptile parts and also 2 slabs with dinosaur footprints.

Kate Andrew's lecture will outline the conservation work she carried out on these specimens during visits to Whitby in May 1995 and March-May 1996 to restore them to something like their original glory. She will describe some of the problems and solutions involved in this type of conservation work.

KATE ANDREW is now curator of geology at Ludlow Museum but for most of her career she has been a geological conservator, restoring and cataloguing specimens of all types at many locations at home and abroad. Institutions that have benefited from her efforts include The Museum of Nature at Ottawa in Canada, Whitby Museum, Bromley Museum in Kent, the Sedgwick Museum in Cambridge and the Horniman Museum in London. While based at Birmingham City Museum & Art Gallery she acted as a free-lance conservator for several years and during this time worked on the Dudley Museum collection entering 9500 items onto its computer. She was also Runner-up for the prize of the National Award for Conservation 1994.

Early NOVEMBER (date to be advised). Proposed visit to gypsum mine at Fauld near Burton-on-Trent.

The visit has not yet been arranged but would be on a mid-week evening in early November, starting at 6.30 p.m. and lasting about two and a half hours. The party is limited to 10 persons and those interested are asked to return the 'EXPRESSION OF INTEREST' slip elsewhere in this newsletter. Further details will be sent to them in due course.

MONDAY 25th NOVEMBER. Lecture: Ancient miners, modern collections by Dr. R. Ixer (Birmingham University).

This lecture will look at the evidence for copper mining in the Bronze Age from a mineralogist's point of view and will have a link with our Alderley Edge field meeting in the previous September.

Dr. Rob Ixer writes: In the last decade there has been a gradual realisation that copper mining during the Bronze Age was widespread in the British Isles and included such famous mineral localities as Alderley Edge near Manchester, Parys Mountain in Anglesey, Great Orme near Llandudno and Ross Island off the southwest coast of Ireland.

In the absence of run-of-the-mill ore from these mine sites archaeologists have used material from Museum collections as a basis for their studies. A number of resulting false trails and red herrings will be followed and good but representative mineralogy will be shown to be the key in determining Bronze Age mining and metallurgy.

I will be showing a number of slides - mainly of Ross Island and Great Orme - and will discuss mineralogy and ore generation to show how non-discriminating archaeologists are!

DR. ROB IXER is the senior mineralogist at Birmingham University's Earth Sciences Department with an impressive track record in his field. He has been a good friend of the BCGS for many years and we are very pleased that he will be again speaking to us.

MONDAY 20th JANUARY 1997. Lecture: Environmental Geology - examples from Finland and the U.K. by Dr. Roger Dackombe (Wolverhampton University).

MONDAY 17th FEBRUARY. Annual General Meeting. Followed by two short lectures by Society members who have visited the locations recently:

Easter Island by Sheila Pitts
Geology of Gibraltar by Paul Shilston.

MONDAY 17th MARCH. Lecture: Mineral exploration in Europe by Dr. Christopher Morrissey (RTZ Mining & Exploration Ltd.)

MONDAY 14th APRIL. Lecture: Evolution and extinction of Trilobites by Dr. Bob Owens (National Museum of Wales).

SUNDAY 18th MAY. Field meeting to Shropshire. Leader: Dr. Paul Smith (Birmingham University).

Reports

Lecture: 'New Zealand north to south' by Paul Shilston. Thursday 25th April 1996

Given in place of the advertised lecture 'Monitoring Active Volcanoes' by Professor Bill McGuire which was cancelled owing to illness.

This lecture derived from a four week visit to New Zealand in 1995 and gave a selection of geological snapshots of this varied and interesting country. New Zealand is on an active plate boundary between the Pacific and Indo-Australian plates, and this has caused considerable geological activity in the past and up to the present day (see fig. 1)

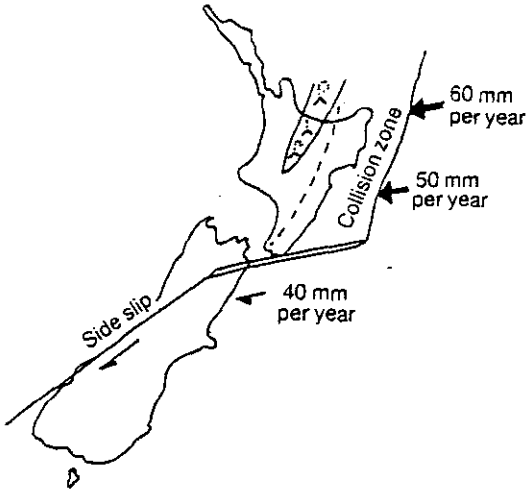

Fig. 1
New Zealand with plate boundary.

The trip began at the city of Auckland which has at least 60 volcanic cones, all developed within the last 60,000 years, the last only 800 years ago. They are dotted all over the landscape and form excellent viewpoints to see this most attractive city. A typical one, Mount Mangere, was used by the Maoris as a defensive settlement (like our hill forts) and it also provided easily-worked building stone for a local church built in 1857 - old by New Zealand standards.

Murawai Beach, not far away on the north-west coast, has a range of exposures resulting from submarine volcanic activity:- pillow lavas, basalt columns with feeder tubes which have cooled into sets of radiating columns, a black sand beach (now an iron ore source) and a wave-cut lava platform. This area also supports sea-birds including one of the largest gannet colonies in the southern hemisphere.

Still on the North Island, the well known site at Rotorua is directly on a subsidiary plate boundary and shows spectacular thermal features - hot springs, steam vents, geysers and mud pools - while the after effects of the massive 1886 eruption of nearby Mount Tarawera can be seen in a village partially buried in ash deposits and in a chain of hot springs and pools. One pool - 'infernal crater' - has a temperature of 80 deg C and is highly acidic with a pH of 2.1, not the place for a quick dip!

Moving now to the South Island, the first stop was the beautiful Marlborough Sounds area, a drowned landscape caused by subsidence of the land and the post-glacial sea level rise, with the various islands showing clearly as the tops of remnant hills. Further down the coast where the plate boundary leaves South Island and heads out to sea, there is very deep water close

inshore and this is a sure place for whale watching; food for the whales is brought to the surface by upwelling currents, so even whales are subject to the geology!

The Moeraki Boulders created a lot of interest; these are like giant footballs which are found along the beach, and although Maori legend has them brought from the sea by supernatural forces, actually they are calcite concretions formed in the mudstone cliffs and gradually revealed as the soft mudstone is eroded by the sea.

The Mount Cook area is a spectacular region of mountains and glaciers and showed many interesting geological features. The glaciers have been receding since the Ice Age and the various stages of retreat could be seen by terraces on the valley side, while each terrace had characteristic vegetation showing how long the vegetation had had to become established. Mt. Cook itself (12280 ft. 3740m) dominates the area and in the morning our party trudged up in the rain to the glacial lake at its foot hoping for a view; not much to see, but later in the day the sky cleared and the whole panorama was revealed in all its glory.

Milford Sound on the south-west coast is in the 'fiordland' area with steep cliffs plunging straight down into the sea. The Sound itself is a typical fiord, glacially deepened during the Ice Age, and having a maximum depth of 500m of water in its body but with only 25m depth at its seaward entrance. Along the sides were many streams with hanging valleys, producing impressive waterfalls as they plunged into the waters of the fiord.

Finally to Stewart Island, off the south of the South Island. Here the rocks were mostly diorite and schist; hard rocks were needed here to resist the full force of the Southern Ocean and the party were rewarded by views of albatross, ocean birds which circle the ocean and cover thousands of kilometres each year. At Oban, the village on Stewart Island, there was one of those signposts showing the distance to far-off places - South Pole 2552 miles, cape Horn 3969 miles, Scunthorpe (*Scunthorpe ?*) 10348 miles. Why Scunthorpe? well the landlord of the small hotel in Oban came from Scunthorpe and he liked to be reminded how far away it was!

So from the sublime to the ridiculous, that was the end of our trip - *New Zealand north to south.*

Paul Shilston

Evening field meeting to Saltwells on Monday 17th June. Led by Alan Cutler

A group of 20 or so people gathered outside the Saltwells Inn on the car park on the warm and sunny evening. The trip began with a summary of the general setting of Saltwells and the Carboniferous and Silurian rocks that we were to see.

The first stop was Doulton's Clay Pit to see Coal Measures rocks. Here clays below the famous Thick Coal were formerly extracted to produce earthenware and sanitary wares as well as special firebricks for the local glass making industry. A warden from the reserve accompanied us and gave us a wonderful insight into the diverse and colourful fauna and flora of the nature reserve. The wetland at the bottom of the clay-pit was in full bloom with southern marsh orchid and wild yellow iris thriving in the permanently wet conditions provided by the springs from the wall of the clay-pit which displayed a wonderful Coal Measures cyclothem sequence.

From here we moved along the old mineral tramway to see Upper Ludlow marine shales with shelly fossils. The structure of Saltwells was described as an anticline or upfold with a number of faults which cause the outcrop of Silurian rocks to occur immediately next to Coal Measures rocks of the Carboniferous in the core of the fold. From the Tramway we moved north to Brewins Bridge canal cutting where ever-younger rocks were seen along the way including the deltaic sandstones of the Downton Castle Sandstone unit and red and green mottled micaceous marls of the Temeside Shales indicating a silting up of the sea and change to continental conditions at the end of the Silurian. In this exposure a pebble bed and very thin layer/traces of coal were seen and the unconformity between the Silurian ~400 M years and the Coal Measures ~300 M years was seen. One of the faults of the anticline is also present here and has been injected with basalt magma, seen as a dyke, probably during the Carboniferous (Etruria Marl times). From here we returned to Saltwells Wood to see remnants of old bell pits which roughly mark the line of the coal outcrop in the woods.

In summary this was a very full and informative evening brightened by nature in full bloom. Many thanks to Alan and Alan for an entertaining and enlightening evening.

Graham Worton

Evening field meeting to Kinver on Monday 1st July. Led by Alan Cutler

About 15 people gathered in the overcast conditions on Kinver High Street to see the red beds of the New Red Sandstone continent which outcrop around Kinver. The trip began with a brief introduction and scene-setting and then a look at the Bridgnorth Sandstone at the Hollows where fossil sand dunes can be seen with spectacular cross bedding formed by blowing winds in the hot deserts of the New Red Sandstone continent. From here we moved to Kinver Church standing proud of the hill above the village. We came here to examine the Kidderminster Conglomerate which caps the hill top and being harder than the sandstones underneath produces the hill. The conglomerate is formed of rounded pebbles and coarse gritty sandstones. It is thought that these deposits were laid down in flash floods from the highlands to the south, possibly as far away as France. The well rounded pebbles suggested a long transport.

The next stop was a little to the west of Kinver on the boundary fault of the Wyre Forest coalfield where Enville beds and Clent Breccia are exposed. Here the rocks consisted of sandy material with angular purplish fragments of volcanics. It was explained that these rock fragments had not travelled far and had retained their angular edges. It is thought that these rocks represented scree slopes of steep valley sides which were composed of much older volcanic rocks.

The last stop of the trip was to the Kinver rock houses, where David (the pharmacist and local historian to Kinver) explained about the rock dwellings which are now National Trust property. These were opened up and we were taken by torchlight into the dark passages and hollowed-out rooms of the dwellings.

A thoroughly enjoyable evening was had by all. Many thanks to Alan and David, and the weather for staying dry!

Graham Worton

Editorial

The summer is racing past and I'm already being asked to advertise classes for the Autumn evenings. Also, the long awaited British Association Meeting will soon be a reality and Society members once again will be taking part in a national geology event. I hope the long hours of preparation and careful planning of the few will be rewarded by happy fellowship for many. The Conservation Column records yet more efforts to preserve our geological heritage by the ever busy Colin Reid, Alan Cutler, Graham Worton and Alf Cole. Graham has, mid the hurly-burly, found time to produce a very clever Conservation Logo for us and asks others to design alternatives. As always we owe a big debt to Secretary, Paul Shilston, for co-ordinating all our efforts. But new activists are desperately needed to ease the load. Could this mean you?

Conservation Column

Things may have appeared to have gone quiet on the conservation front this summer but in the background a lot has been happening. On the collections front Colin Reid has now finalised his faunal listing of the fossils from the Wenlock (Dudley) Limestone. We have 599 different beasties in our rocks (so far) of which the type locality of 190 is Dudley and 63 are found only in Dudley. Pretty impressive statistics! The British Association for the Advancement of Science (BAAS) visit in September will be treated to this knowledge and a description of the overwhelming importance of the unique nature of Dudley's geology and fossils which are the key to Dudley's World Heritage bid.

On the actions front, one of our members, Alf Cole, has done some excellent P.R. with a company developing a site near Hay Head SSSI in Walsall. Alf 'salvaged' many Silurian fossils from the excavations and is liaising with the company involved to have geological displays in the foyer of the building and to gain permission for parties to visit while some of the 'spoils' are still available for study. I personally am trying to raise another working party to re-visit the Brewins Bridge SSSI of the Saltwells local Nature Reserve. You may recall a little while ago we gave the section a face-lift. If I am able to get a canal barge/BWB permissions I will call for helpers in the next newsletter.

In the meantime you might like to read a paper or two in the new publication *'Geology on your Doorstep'* which is the proceedings of a one day conference in London, January 1995. Three of the papers were given by ourselves talking about what happens here in the Black Country. I've given copies to Kate and they may hit the pages of this newsletter in the future. Lots of nice things were said about the BCGS at this conference and we had several references in other papers given there too.

One thing that you could do, if you're interested in conservation and artistically inclined, would be to sketch a geological conservation logo for the Society. I've done one myself and we would love to see any other ideas that you might have and publish them in the newsletter. After all, a picture paints a 1000 words and that's quite enough of mine. Until next time.

Graham Worton

Items in Brief

1. Welcome to new members
Malcolm and Carol Ormerod - Leominster

2. Rock and Gem Show '96
Saturday and Sunday 5-6th October 1996. At Cheltenham Racecourse, Prestbury, Cheltenham. There will be exhibitors displaying and selling a fine array of rocks, gems and jewellery, and a local club section with demonstrations.
Further details from: HD Promotions
Events House
Wycome Air Park
Booker
Marlow, Bucks SL7 3DP
phone: (01494) 450504

3. Change of address
Member Graham Hickman who gave us a lecture 'Tales of a travelling geologist' at the AGM last February has now gone back to work in Houston, USA.
His new address is: 2003 Rosalyn Court
Sugar Land
Texas 77478 USA

4. Cambridge University - Continuing Education
Courses at Cambridge 1997. Fees £115 residential, £58 non-residential.
Details and booking: Cambridge University, Board of Continuing Education
Madingley Hall
Madingley
Cambridge CB3 8AQ
phone: (01954) 210636

(a) 7-9 March 1997. The building stones of England.
(b) 16-18 May 1997. Rocks, minerals and fossils: an introduction to geology.
(c) 30 May - 1 June 1997. Understanding global climatic change.
(d) 26-28 September 1997. Further geology.

5. Natural History Museum, London. Field study trips abroad 1997.

Details and booking: Miss Jane Goode
Adult Education, Department of Exhibitions and Education
Natural History Museum
Cromwell Road
London SW7 5BD

(a) Geology of the Western USA and Hawaii. 3 weeks, June 1997.
(b) Geology of the East African Rift Valley. 16 days, February 1997.
(c) Geology in the Canadian and Northern USA Rocky Mountains. 2 weeks, September 1997.

6. A/S Level Geology at Halesowen College. Course code 126AS142 9609Z

Halesowen College will be offering A/S level Geology as an evening class from September '96. The 30 weeks course will take place from 6.30 - 9.00 on Monday evenings, starting 16 September. The Course Fee is £75.00, but this does not include examination fee or the cost of fieldwork for those who wish to be assessed.

Assessment will be by end of course exam (80%) and internal assessment of fieldwork (20%). An A/S level is worth 'half an A level', but the level of work is the same. The course will follow the ULEAC syllabus and will cover the following topics:

Earth structure; the Rock Cycle; Igneous, Metamorphic and Sedimentary Rocks; Rock forming minerals.

Classification and Interpretation of Igneous Rocks; Origins of Magma; Volcanoes and Associated Features.

Weathering and Erosion of Rocks; Transport of Sediment by Wind, Water and Ice;

Analysis of Sedimentary Rocks; Reconstructing Ancient Environments; Fossils as Environmental Indicators.

Radiomentric Dating; Continental Drift and Sea-floor Spreading; Plate Tectonics; Global Patterns of Volcanoes

and Earthquakes; Ancient Continental Collisions and Fragmentations.

The Geological Time Scale; Sequencing Geological Events.

Interpretation of Geological Date; Maps, Borehole logs and Cross-sections.

Water resources; Coal, Oil and Natural Gas; North Sea Oil; Salt Deposits; China Clay.

Geological Exploration Methods; Exploitation of Natural resouorces.

Prediction and Control of Earthquake and Volcanic Hazards.

For more information about the course, please contact the Head of Geology, Alan Richardson: telephone 0121 1451 ext. 232.

For a Part Time Prospectus and an application form, contact the College Information Centre: telephone 0121 550 1452 ext. 519. Note: this course does not appear in the prospectus.

7. 'Restless Rocks' Bristol, 26 October 1996

West of England's Geologists' Association 21st Anniversary Symposium, University of Bristol, School of Chemistry will include lectures, displays and demonstrations. Enquiries to 'Restless Rocks' c/o John Toller 0117 969 6834.