



The
Black
Country
Geological
Society

NEWSLETTER No. 153

JUNE 2002

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 at Dudley Museum, St James's Road, Dudley. Phone (01384 815575)
7.30 for 8 o' clock start.**

SUNDAY 7th JULY 2002. Field meeting: Snailbeach lead and zinc mining area near Shelve, Shropshire. Meet at Snailbeach car park at 11.00 am (GR SJ 373 023, OS 1:50 000 sheet 126)

The trip will examine the mines at Snailbeach and provide views of the Shropshire landscape. At the mine there are interpretive boards and information explaining the structures and life in the mining industry of the area. There is the possibility of underground visits here. A short walk will include many mining features and take in the Lord's Hill Baptist Chapel (1833). At the spoil heaps, samples of the minerals mined and their host rocks can be obtained. We will stop at Stiperstones Inn for lunch where good food is available. The afternoon session will be spent at The Bog Mine, where another reconstructed and interpreted mining complex and a field study centre are present.

SUNDAY 21st JULY 2002. Field meeting: Joint meeting with the Shropshire Geological Society. Sunday 21st July 2002 Clent Hills and St George's Land,.Leader: Graham Worton
Meet at 10 15 am. Park off Elgar Road/Vicarage Road (off High Street Pensnett, A4101) and walk up to the steel cross next to the church on the summit of Barrow Hill, Pensnett, OS Grid reference SO 917817.This will start with a view across the south-western Black Country from atop the intrusion at Barrow Hill, Pensnett, and will look at exposures that tell the long story of the Black Country from the Upper Carboniferous to the Ice Age.

Chairman
G.J. Worton B.Sc.,
C.Geol.,
F.G.S.

Vice Chhairman
A. Cutler B.Sc.,
M.C.A.M.,
Dip.M., M.CIM.

Hon Treasurer
S. Fairclough B.A.,
PGCE.

Hon Secretary
S.H.Worton B.Sc.,
PhD.
F.G.S., Grad. M.
Inst.W.M.

Meetings Secretary
G.W.J. Hensman



SAT 21st and SUN 22nd SEPTEMBER

2002. Dudley Rock and Fossil Festival
The biggest geological event that the Midlands region will see for years. It will take over both Dudley Museum and Art Gallery and the adjacent Town Hall. It will feature all kinds of activities, a children's discovery area, special

events and trips with many exhibitors and dealers. Celebrating the whole sphere of geology and Earth science there will be something for everyone.

If you would like to enjoy the privileges offered to volunteers who help to warden the event, please contact Graham Worton at Dudley Museum on 01384 815575.

The BCGS is sponsoring the event and has a large stand at the event. If you have material that could be sold at the event to raise funds for the society please let us know.

MONDAY 30TH SEPTEMBER 2002 Lecture: David Brew "Shoreline Movement and Shoreline Management in the Wash, Eastern England" This lecture will examine the processes that change the shape of the coast in the Wash and measures taken to manage that change.

MONDAY 28th OCTOBER 2002. Lecture: Dr Ian Sutton "Yellowstone, its Evolution and Geology." This lecture will look at one of the world's most famous geological areas. It will explain how it was created, how it has evolved and describe its spectacular geological features.

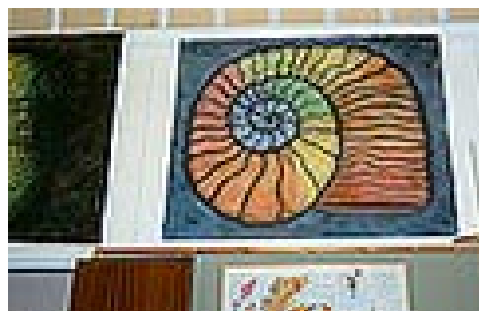
NOVEMBER 2002. Members evening at the Museum. Your chance to have a guided tour of the Museum followed by a series of short talks given by Society members. This will be open to anyone who would like to share something of interest. Date & details to follow.

EDITORIAL

Art and Geology and Geoart

Art and science in recent years have sometimes seemed to be increasingly separate disciplines. Yet both are attempts to observe and investigate the world around us, and both can increase our appreciation of it and enrich our lives. There is no doubt that geology is still perceived by the majority of (adult) people to be a difficult, disciplined subject that needs training to get into and enjoy. In stark contrast, the arts seem to be very widely appreciated as a pleasurable pastime that anyone can be involved in with little or no training. Almost all children find geology and natural history to be hands-on, fun-stuff that they can explore with no equipment or training at all. The children also teach us the importance of imagination and creativity in the interpretation of the things that we find.

In terms of the midlands 'scene' there is a growing interest in 'palaeoart' both from the geologists and the artists. Recent projects have included exhibitions of paintings and models accompanying the Jurassic Sea Monsters exhibition at Dudley Museum. There has been 'installation art' in Jo Nadin's 'Fossils Grow Slowly' exhibition also at Dudley, glass trilobites have been made by Lynn Rivers a glass student at Stourbridge, Trilobite effigies have been included by Steve Field (Dudley's Borough artist) in bridge buttresses on the Dudley Southern by-pass as works of public art and there is currently a school's geology and art project called 'The Waves Project' which has art on display at the museum (picture above). The theme of this years Rock and Fossil fair is also 'Art of Stone' and will feature sculptors.



We would love to hear about other local arts and geology connections so please get in touch if you know of anything that our members and affiliates might like to know of.

REPORTS

MONDAY 29th APRIL 2002.

Lecture: Professor Aftab Khan, Department of Geology, University of Leicester. "Lithospheric Structure and Dynamics of the Kenya Rift."

I recall in 1968, when I was teaching at a school on the edge of the Western arm of the African Rift Valley in Uganda, giving a lecture to the School Geographical Society in which I discussed whether the rift was the result of tension or compression. Was it pulled or was it pushed? It was an exceedingly short lecture. More than thirty years later, following Professor Khan's lecture, I believe I could say a little more.

120 million years ago as a result of the formation of the Mid Atlantic Rift, South America and Africa had drifted apart and Gondwanaland was broken up. 60 million years later India and Africa were also separated. East Africa is the only place in the world where continental rifting is currently taking place and its study may well shed light on processes taking place on other planets in the solar system. The rift system is three pronged, the Red sea, the Gulf of Aden and an extensive rift through eastern Africa reaching as far as the Zambesi. In the Horn of Africa is the Afro-Arabian Swell and large amounts of volcanic material have been extruded. Palaeomagnetic studies indicate that the Aden igneous rocks are young, and geomagnetic stripes in the Red Sea show the magnetic reversals and offsetting by transform faults familiar to us from the Mid Atlantic.

Professor Khan's study concentrates on the eastern arm of the bifurcating rift in Kenya. It is a domed area where volcanoes are many and earthquakes relatively few. The Rift Valley is volcanic but the rocks to either side are Precambrian, Archaean to the west and Proterozoic to the east. The rift in fact lies along a very old suture line. The rift valley contains many volcanoes, some freshwater and many salt lakes, and is bounded by bold fault scarps made of young lava flows. The largest volcanoes such as Elgon and Kenya lie well away from the rift itself. Early ideas of the rift's formation were of an area down fallen between normal faults resulting from crustal stretching. Gregory, however, as a result of low gravity anomalies measured in the rift, postulated that compression was the overriding process. Indeed a wider world view shows the area to be surrounded by spreading ridges where the plates are moving in towards the East African area. Professor Khan's work began in the 1960s with extensive gravity surveys. This required very accurate height measurements obtained from detailed surveys or the East African Railway Company. Gravity measuring equipment was heavy and in limited supply so the work was arduous.

A complex pattern of Bouguer anomalies arose. Although the area in general was of low gravity, in the middle of the rift ran a line of gravity highs. Associated with this gravity high are volcanoes (including some of sodium carbonate ash) and geothermal activity. Seismic surveys have revealed more of what lies beneath the surface. Beneath the rift at depth the mantle rocks slow down seismic waves because of abnormal heating. These hotter mantle rocks are rising to give near surface rocks of abnormally high density.

Professor Khan spoke about the Kenya Rift International Seismic Project and in particular the experiments carried out between 1985 and 1994. These show that there are abrupt changes in the depths to the Moho (the interface between the crust and the mantle where the composition and consistency of the rocks change dramatically). The project involved seismic surveys along the length of the rift, transversely across it and outside of the rift area. Explosions were made using up to a ton of explosive placed either in 50 metre deep boreholes or under water and the seismic effects and positions were recorded digitally at 1 km intervals. Predictive models were made and then modified to accord using the actual seismic results. Along the rift seismic velocities are low. But the controlled explosions give precise information for the less deep areas. For structures up to 50km deep earthquakes have to be used and are combined with heat flow studies to make interpretations.

At the top of the mantle below the rift, waves with speeds of 7.6km per second indicate mantle rocks which are partially melted. The whole of East Africa seems to be underlain by hot asthenosphere down to a depth of 150km from which bands of hot rocks ascend. There remains much to study in the Kenya area but research attention is now being focussed on Ethiopia and the Horn where the transition from continental to oceanic rifting takes place. Kate Ashcroft.

SUNDAY 4th May 2002.

Field visit to the Aqualate area on the Shropshire/Staffordshire border

Fourteen members attended and studied various aspects of geomorphology associated with ice sheet deposition, post ice sheet deposition and periglacial features. Some of the most stimulating discussion centred around the deposition of Kames and Eskers and the development of the Gnosall glacial overflow channel. Some erratic boulders were visited and were identified by members as granites from the North of England. Aqualate Mere, a National Nature Reserve, was the focus of the days visit and a splendid day ended with views of the mere and a discussion on its formation. The display of bluebells on this beautiful May day was magnificent.

Andrew Rochelle

CONSERVATION COLUMN

Sustainability Fund: We are still thinking about the opportunities that may exist through this new fund for working on our local sites. We are also discussing possible joint bids and projects with our neighbouring counties. More on this in the next issue

UKRIGS Conference 2002: *Providing Geodiversity*

The date and venue have been set for this years RIGS conference. It will be held at the Loreto Centre, Llandudno, North Wales from the 2nd to the 5th of October. It will focus on key themes including:- Raising Awareness, Education, Tourism, Sustainability. It will be the usual high quality presentations and field trips with invaluable opportunities to share ideas views and experiences with others from across the country. This is a great chance to get informed and involved don't miss it. Further details available from DR Cynthia Burek Email c.burek@chester.ac.uk or Wendy Owens on 01352 715531

Dudley Museum Update



The 'geological heritage development fund' has made its first purchase. This is a slab of complete Silurian (Much Wenlock Limestone Formation) Eurypterids (Sea Scorpions) from the Ukraine.

The collection has only contained some fragments found in our local rocks until now and these have not been of display quality that would be useful for public interpretation. The attached picture shows our new acquisition which will be on display shortly.

Gallery 4; Buried treasures of the Black Country

This small geology gallery has now entered phase two of its launch. Much of the artwork from the three schools that were involved in the 'Waves Project' is now on the walls and is wonderful bringing colour and imagination from the young to the gallery. It also now features fossil identifier lists which allow the gallery to be used as a place to bring finds for identification by comparison to the representative material on display. Phase three will open at the beginning of September to coincide with the Rock and Fossil Fair.

Don't forget that the BCGS collection is held at the museum. If you have any material that you think should ultimately become part of this please let me know.
Until next time..... Graham W

OTHER NEWS ITEMS

Earth Alert 2002

The GA's Earth alert conference and Fair is scheduled for the Spa Complex, South Bay, Scarborough for the 24th to the 26th August 2002. It features a host of speakers covering the Rocks and Landscapes of Yorkshire, Petroleum Geology of the North Sea, and Geology and The Environment. Further information: www.earthalert2002.com

BNRR/M6Toll motorway Exhibition

Archaeological finds spanning the last 10,000 years and therefore encroaching on geological timespans, are to be on display from the 1st to the 29th July. The exhibition is at The Forest of Mercia Innovation Centre, Off Pool Road, Chasewater. Featuring drawings, finds and photographs it will be open between 10am and 4pm daily.

CONTACT US

Hon. Secretary:
Dr Sarah Worton
158 Oakham Road
Oldbury
B69 1QQ
Tel 01384 235946

Editorial Team
Dudley Museum and Art Gallery
1 St James' Road
Dudley
DY1 1HU
Tel 01384 815574
Or email Museum.pls@mbc.dudley.gov.uk