NEWSLETTER No. 162
December 2003

The Black Country Geological Society

The Society provides limited personal accident cover for members attending meetings or field trips. Details can be obtained from the Secretary. Non-members attending society field trips are 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 unless stated otherwise.

MONDAY 26TH JANUARY 2004

Indoor meeting: "You can take a cow to water.....the evolution of whales." by Dr Paul Smith, Lapworth Museum, University of Birmingham.
Paul is a long-standing member of B.C.G.S. and has delivered many a fascinating lecture as well as leading several delightful and informative field trips. We very much look forward to this lecture on the evolution of an animal that is the subject of intense interest at the moment.
Note this is a change to the previously advertised title of "Tropical Carbonates in Polar Climates"

MONDAY 23rd FEBRUARY 2004

Indoor meeting: ' Methane Hydrates' Dr Christopher Rochelle of the Bristish Geological Survey. This is very topical at the moment and may represent one of the greatest energy resources of the next few decades. Chris will bring us up to date on a topic that he spoke to us about a couple of years ago. Furher details will be given in the next newsletter.

MONDAY 29TH MARCH 2004

Indoor meeting: **7.30pm start.** Annual General Meeting followed by "The geology of the Longmynd, Priors Holt and the Knills area" by Mike Williams and Andrew Rochelle. This evening will preview the geological history of the area in readiness for the field trip in the following month.

SATURDAY 24TH APRIL 2004
Field Trip: "The geology of the Longmynd, Priors Holt and the Knills area" led by Mike Williams and Andrew Rochelle.
This trip will look at the exotic landscape of the Pre-Cambrian created by the sedimentary and pyroclastic rocks of the district and will conclude with a visit to the Silurian shoreline exposed at the southern end of the Longmynd. Further details to follow.

SATURDAY 15TH MAY 2004
Field Trip "The glacial and post glacial features of Eastern Shropshire" led by Andrew Rochelle. This will be a visit to the special natural heritage of the Aqualate area. The trip will particularly examine the ice sheet debris in East Shropshire and West Staffordshire and is timed to see the woodlands at their best. Come and see the bluebells.

JULY 2004 provisional - date tbc
Field Trip: "Journey into the heart of a geosyncline' Led by Mike Williams

This trip will take in the scenery and geomorphology of the Elan Valley, into the upper Yswyth valley and across Parsons Gorge to look at fossiliferous rocks and finishing in the turbidite sequences around Aberystwyth. More details to follow in due course.

EDITORIAL

Getting youngsters involved in geology is often a problem, and we are always pleased when students come to our own meetings. However, it is the pre-teen age group that is often most enthusiastic and receptive. They are introduced to some basic properties of rocks at primary school, and the vast array of children's books on topics such as dinosaurs, volcanoes and Earth history is evidence that there is a definite interest market there.

Many of us may have children, grand children, nieces and nephews in this age group, and although by the time you read this it may be too late for Christmas presents, you could enrol them in an organisation specifically designed to foster young people's interest in geology. ***ROCKWATCH*** is a nationwide club for young geologists, run by the **Geologists' Association.** One of its main activities is to organise a large number of field days in various parts of the country, run by geologists who are experienced in teaching young people, indeed many of them are teachers. These field days are usually wonderful fossil and mineral collecting expeditions, but the really good thing for you and I, is that it is required that the child is accompanied by their parent, guardian, or even grandparent, aunt or uncle! One of the great positives about ***ROCKWATCH*** is that the adult is enthused as much as the youngster.

Members also get a magazine three times a year, can take part in competitions, visits to museums, indeed anything that might interest a young geologist. Individual membership for a child under 16 is £10, or for a family it is £15. On joining, the youngster receives a 'Rox file' with hints and information, a ***ROCKWATCH*** badge, coloured geological mini-map, a grain card, magnifier and fact cards. A super present for anyone keen on geology. It is possible to join on-line at www.rockwatch.org.uk or you can write to:Geraldine Marshall,Rockwatch at the GABurlington HouseLondon W1J 0DU

If you are interested in geology then Rockwatch is the club for you!

Image courtesy of the Rockwatch website ref www.rockwatch.org.uk

Bill G.

REPORTS

MONDAY 27TH OCTOBER 2003

Evening lecture: a Volcanic eruption and outburst under Mýrdalsjökull, Southern Iceland, 1999. By Dr. Andrew Russell, School of Earth Sciences, University of Keele.

This evening's lecture took us to the glorious land of Iceland, to massive volcanically induced glacial floods or "jökulhlaups". *(NB. Page references are to that excellent book, "Classic Geology in Europe 3: Iceland" by T Thardarson and A Hoskuldsson.)*

Iceland, situated in the North Atlantic just below the Arctic Circle, sits on the Mid Atlantic Ridge (M.A.R.), and also over a hot spot or Mantle Plume, which raised this section of the M.A.R. to the surface – the only place in the world where the ocean rift systems can be openly studied without diving.

During the past history of the Ice Ages, Tertiary-born Iceland experienced alternate periods of full glaciation and warmer land exposure where vegetation and ocean fauna flourished. Heavy weathering and erosion gave rise to extensive alluvial deposits, and some of these sedimentary rocks contain fossils. Ice-age meltwater from glaciers has caused extensive freshwater currents in the past, penetrating far into the surrounding ocean and even deflecting the Gulf Stream at times. pp.*43-47* But the major earth-forming events in Iceland are the volcanism due to the M.A.R. rift zones combined with Mantle Plume activity. *pp.8-14…*
The major rift zones extend in two lines or volcanic zones SW to NE, through Reykjanes and Westmann Isles, which are joined by two transverse fracture zones north and south, before turning northwards under Vatnajökull towards the Krafla-Mývatn volcanic zone.

The Mantle Plume is centred under Vatnajökull, but at 200 to 300kms wide it's hard to say exactly where the centre is. Volcano Kverkfjöll, north of Grímsvötn, it is said.

Many of Iceland's volcanoes erupt from the land surface, either as central volcanoes or fissure systems: but in times of heavy glaciation that didn't stop them – they carried right on underneath, giving rise to some now visible spectacular formations of palagonite tuffs, e.g. Heimaklettur, Heimaey; and table mountains e.g. Heróubreió, north of Vatnajökull. When these subglacials erupt, melting thousands of tonnes/cubic metres per second, this massive melt eventually forges its escape route in catastrophic floods of water, mud, tephra, boulders and ice blocks the size of houses, called "jökulhlaups" (a gorgeous Icelandic word – lahars with interest!). These travel many kms down mountain slopes and valleys, eventually exhausting onto extensive rubble plains called sandur, and even on into the ocean beyond. These have extended Iceland's southern coastline in many hundreds of kms^2 of fertile – but unstable – farmland.

Dr Russell spoke about especially one such sub glacial volcanic system, the glacier Mýrdalsjökull, Iceland's southernmost glacier, with its resident volcano, Katla, whose name means the Witch. *pp.103-106.* Katla is the second largest and most active volcano after Grímsvötn (which is under Vatnajökull), and the two volcanoes are joined by the mighty fissure systems of Eldgjá and Laki. Study of soil tephrachronology reveals over 100 eruptions during the last 10,000 years. The largest known was in 10,600BC, emitting $10km^3$ of felsic magma, pyroclastic flows, and airborne tephra reaching Scandinavia and northern Europe. In those days Iceland had a special export – tephra!

There were other eruptions in 1720 and 1859, but the most recent eruption was in 1918, when it ejected $\cdot 3km^3$ of magma giving rise to $\cdot 7km^3$ of tephra, and jökulhaup volumes of $3\text{-}5km^3$ at peak discharge velocity of $200{,}000m^3$/second. Most of this flooded out southeast of Mýrdalsjökull, forming the massive Mýrdalssandur Plain with its many drainage rivers. *pp.105*
Other impressive eruptions and jökulhlaups are from Grimsvötn/Gjálp in 1996 over Skeiõarársandur; and further back in time, Laki 1783, Öraefajökull 1362 and Eldgjá 934. All have left their mark in monumental fashion. *pp.107-117*
A lot of these features can be seen in stunning clarity on satellite photos (which can be visited on NASA websites.)

When Katla erupted in July 1999 it gave opportunity for some study; documented by Icelandic volcanologist Sigurõur Pórarinsson. Katla has a large ice-filled summit caldera of 100km^2, which contains several "cauldron" depressions or hot spots, and a fissure, the Kötlugjá. The eruption caused the resultant jökulhaup to flood down via the glacial tongue Sólheimajökull, partly lifting and "floating" the glacier as it poured down, melting the ice and swelling the regular glacial stream beneath it. Its volume reached 1600m^3/sec in half an hour, and peaked at 5000m^3/sec by the road bridge.

There was a compound flood pattern as various debris-dammed lake basins on the NW side of Sólheimajökull filled to capacity, only to release their head in turn as the main force subsided. Some of the flood also breached through crevasses in the glacier, exiting spectacularly down the main glacial flow. Debris including massive blocks and ice blocks had been carried on the powerful flow, to be dropped suddenly as the tumult changed course. The resulting alluvium shows little or no sorting until lower down towards the sandur outfall, but the sedimentary patterns here will soon be obliterated by the rains, leaving the sandur plain smooth once more.

Later photos of the area in March 2003 show the glacier now retreating, revealing much of the debris, the sub glacial caves and river tunnels, and the 150m wide cavern left by the lake basin Jökulsárgil's own surge current. They await another imminent eruption – Katla's magma chamber shows uplifting of 11cm/year since October 1999 and rumbles from below are increasing. In danger this time could be Pórsmörk valley and the river Markarfljót if the jökulaup turns westward – or even Vík in the south. These Katla hlaups are known to be even more devastating than the infamous Grímsvötn floods. A seismic register in Vík can announce a flood in 45 minutes! They are ever ready to close the southern roads at a moments notice.

The slides shown were of great interest to me as I was there in March this year with Chris Darmon's trip, exploring under some of the caves, and some of us climbed quite a way up on top, passing some hefty cracks as we went. We also saw a notice warning of Katla's growing restlessness. How risky were we?!

But all was quiet and brilliant sunshine on that day… Ananda Shamo

MONDAY 24TH NOVEMBER 2003

Members' evening.

These evenings are always most enjoyable and informative, and this was no exception. The Museum is such a pleasant venue and once again wine with a small buffet was much appreciated. In expectation of a full evening it was decided to start early at 7:30pm. However, the society's projector had other ideas, as it has developed an appetite for the old cardboard slides. It will willingly accept them but refuses to project them. So there was a bit of a delay while Gordon set up another projector, but this did save the embarrassment of those members who had not realised that we were starting earlier anyway!

The first part of the evening had an Icelandic theme, and was called 'Viking visions'. This wonderful island is a must for geologists, and the combination of ice sheets and volcanoes is a potent brew for spectacular features. There is no need to go into any more detail as Ananda's splendid report above gives a real feel to the island.

Gordon Hensman gave an interesting view of travelling to Iceland by showing us pictures of the south coast when approaching by ferry. As he told us, it is what the Vikings would have seen, and as most of us would now travel by air, the shots from sea level adds to the impressive scale of the landscape.

Alf Cole took us inland and in many cases on to the ice. His excellent slides homed in on the detail of the landscape, particularly around the margins of the ice. Ananda Shamo gave us a chance to look at some specimens of basalt and related products of the volcanoes. These were passed round, and it was interesting to note how the densities varied so much depending upon amount of gas in the eruption.

Andrew Rochelle continued the highly illustrative theme, when he used his camera linked to a television screen to show us digital images of our 2003 field trips. As he pointed out, if you want good weather, come on a B.C.G.S. field day, and his pictures of Llangollen and the Aberystwyth coast were all to a background of blue skies. The Aberystwyth trip was particularly interesting, not only because of the spectacular scenery from the Silurian Aberystwyth Grits, but also because we used the excellent rail service from Wolverhampton to Aberystwyth; much more relaxing than driving the long distance.

Closer to home, Peter Parkes showed us his pictures of the Wren's Nest, and in particular the Seven Sisters Caverns. This important area continues to change, just 40 years ago you could walk across the complete cave entrance, and Peter had on show some very old sketches and photographs of that locality. That is not possible now, and as more limestone slips and collapses on the prominent bentonite layer in the formation, so it will continue to change. As Peter pointed out, there are not many pictures of this locality, and so his sequence was not only interesting, but extremely valuable historically, for which he deserves congratulation.

The lecture part of the evening was completed by Bill Groves who switched from slides to overheads. Bill gave us a fascinating review of how attitudes to teaching and examining earth science have changed over four decades. This took some of us back to our school days. We broke up at 10:30, but we were still not finished and Graham Worton gave us a quick glimpse of the new geological gallery that is under construction in the Museum, and it sounded very exiting.

Gordon said in his programme that his aim was for an 'informal evening', and he invited us to 'question, prod, needle and interrogate'. He succeeded and this was an excellent evening.

Bill Groves

CONSERVATION COLUMN

Provisional Notice of the 7th UKRIGS Annual Conference

For a little while I have been discussing the possibility of holding the 7th annual RIGs conference in Dudley in 2004 with the UKRIGs executive. I am very happy to announce that further to more detailed discussions I can confirm that Dudley will be the venue in 2004. Provisional dates have been set as the 2nd 3rd and 4th September 2004.

I will provide more details in the next newsletter.

Wrens Nest Update

Seven Sisters Siteworks

There is no change at Wrens Nest. The works is still on hold while the bats take their rest for the winter. I will announce working party dates for the collecting side of things at the stockpile locations in the February newsletter.

Wrens Nest NNR will be 50 years old in September 2006

The Wrens Nest National Nature Reserve was the first of its kind to be declared in 1956 for its exceptional geology and palaeontology and remains as a testament to those people who recognised how special this site was and who had the vision and drive to secure its future.

In recognition of the importance of this to UK geological Cconservation, a small group of us have been putting our heads together in order to stage some fitting celebrations for the

The passing of these last 50 years have seen many changes at the site and also great changes in the perceptions about geological heritage, its protection and its use. Undoubtedly such changes will continue and the site will evolve, so perhaps now is a good time to reflect on a few

things. This is the perfect opportunity for everyone to come together and review where were are now, in our time, with the science of these rocks, the management of such heritage in the urban setting and the human history that envelops the site and continues to write the future of the reserve and its surrounding communities. I don't think that we should wait for the next 50 years to elapse before we do this.

We have come up with a suite of ideas that we think would form the core celebrations and would make this a key event for looking forward for geological heritage.We think that we should do the following

- Geology Festival and Scientific conference and proceedings
- Geoconservation conference and Earth Science Teachers Conference also to run in the two weeks surrounding the anniversary
- Establish Community arts projects/ sculpture trail/ themed bridges etc on the reserve
- Have secured European Geopark Status and possibly havebuilt the trilobuilding visitor centre
- Produced a publication recording the history of the last 50 years, with particular emphasis on the community memories
- Possible complete and publish the Palass guide to the Fossils of the Much Wenlock Limestone of the UK
- Associated special exhibitions and events
- Special commemorative products (eg Wrens Nest anniversary beer!)

We have begun the process of wider consultation and grant application for some of the ideas above. We are currently visiting potential venues now and seeking further ideas, advice and support for the delivery of the celebratory events.

If you have any thoughts or would like to be involved in some way in any of the above as we progress towards the celebrations over the next three years **please get in touch**. This is something very special and we want this to be a fitting tribute for this wonderful heritage.

Brewins Bridge gets a facelift

In recent months I have been discussing how best to interpret the exceptional geology in Brewins Bridge SSSI canal cutting at the side of the Dudley Number 2 canal at Netherton with English Nature and British Waterways. Thanks to the enthusiasm and support of English Natures officers working with the facelift fund we will be establishing an interpretive panel on site in the new year We also hope to carryout some site management works as well to return the cutting to top form. The site being long and thin with features at both ends poses its own set of challenges to us and I will explain a bit more about this in the next newsletter. As one of our most important educational sites and potential geotourism resources we are it has been a project that we have wanted to sort out for many years, so our thanks go to all those involved for their initiative and support in making this happen.

Dudley Museum Update – *Exhibitions*

The New Permanent Geology gallery

The new geology gallery has a name**.** It will be called '*UnEarthed*'' – the most popular choice of those who responded. We now have electrics, a floor, walls and cases in position with a rapidly evolving interpretive plan and educational resources. The opening date of the new gallery is set at 14th February 2004 (a valentines day opening for this personal labour of love!) The 14th is the Saturday which starts the half term week. I have arranged a couple of activities for the week to celebrate this long-awaited event.

Fig. 2 The state of the gallery today, now fully in the process of transformation into 'Unearthed'

We are staging some 'fossil magic' for young families to come and make a fossil cast on Tuesday 17th of February between 11am and 2pm. On Thursday the 19th Feb I will be doing a morning of rock and fossil identifications and guided tours of the new gallery and On Friday the 20th Feb I'll be running an 'Over and Under Dudley' trip with the Dudley Canal Trust into the singing Cavern and up onto Wrens Nest. For further details please contact the museum reception on 01384 815575

Rock and Fossil identification mornings;

In association with the Launch of the 'UnEarthed' gallery I will also be a formalising a programme of 'identification mornings' at the museum which will be widely publicised. For your information the following dates will be the first for the new year.

Thursday 19th Feb 2004	11.00am to 1.00pm
Saturday 20th March 2004	10.00 am to 12.00 noon
Thursday 15th April 2004	11.00am to 1.00pm
Saturday 22nd May 2004	10.00 am to 12.00 noon

So, if you have any specimens that you would like identified then please make a note of the dates and times and come along and join us

GEOBABBLE

Have you ever dreamt of finding that fossil that has never been found before? New species do turn up occasionally, but it is rare among the common groups. However, just imagine that you discovered a new species of trilobite or brachiopod, and you had to give it a name, what would you do?

This is not as simple as you might think and there is a strict code that you must follow; it is called the 'International Code of Zoological Nomenclature'. Most species would have been described for the first time in the nineteenth century and so a strict classical format is followed, and many are derived from Latin or Greek sources. This means that the endings of the genus and species must agree. For instance, in the brachiopods there is *Spirifer ambiguus* and *Composita ambigua.* The endings differ because Spirifer is masculine and Composita is feminine. This takes me back to O-level Latin!!

Let us assume that we are going to name our new species after ourselves, or some geological hero, and this was often the case. *Palaeosmilia murchisoni; Didymograptus murchisoni; Megalaspidella murchisonae; Murchisonia bilineata; Murchisonia turbinata;* it is perhaps appropriate that Murchison's name appears so often. What about the other founders of geology; *Lapworthura miltoni; Olenellus lapworthi; Placoparina sedgwicki; Angelina sedgwicki; Cephalaspis lyelli,* all appear in the Palaeozoic. Some went for the 'double whammy', *Broeggerolithus broeggeri.* If we are more modest we could follow those who have name the fossil after where it was first found, and there are several examples in the early rocks. *Obolella comleyensis; Reuschella horderleyensis* and *Pentamerus dudleyensis.*

However, some of the most interesting names try to capture some other aspect of the animal, usually what it looks like; *Protospongia fenestrata* is a Cambrian sponge that looks like small windows, the Latin for window being 'fenestra'. *Horridonia horrida* is a big, spiny Permian brachiopod; *Lonsdaleia floriformis* is a massive coral that looks like a group of flowers, and I expect the person who found *Hyolithes magnificus* thought it was pretty good. The trilobite *Placoparia zippei* does look like a zip, but it has been renamed *Placoparia cambriensis;* a shame! Other descriptive names for species abound, *globularis, lenticularis, spinulosa, grandis, gracilis, pyramidale*, and any coral with a columnar structure can be called *basalis* or basaltiformis.

If fossil identification was at its formative stage now, it would be interesting. We could have sponsors, imagine Calymene banksi or Dalmanella tescoensis!! For me though, I would have to name my discovered fossil after my cat, even though it could end up as Dalmanites lollypopiensis!!!

**All the names in italics can be found in 'British Palaeozoic Fossils', 1975 edition. (British Museum [Natural History]).

Bill Groves

OTHER NEWS

The chairman and the committee would like to take this opportunity to wish all our members and friends a very happy Christmas and a peaceful and prosperous New year. We would particularly like to thank all those who have been involved in the practical side of events and activities which have made 2003 a great year for the society.

CONTACT US

As ever we would love to hear your news and views so please put pen to paper or fingers to keyboard and give us your thoughts.

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BCGS Website now at www.bcgs.info

ANNUAL GENERAL MEETING 2004

Notice is hereby given of the **twenty ninth Annual General Meeting** of the

BLACK COUNTRY GEOLOGICAL SOCIETY

To be held at Dudley Museum at 7.30pm Monday 29th March 2004

AGENDA

1. Apologies for absence
2. Minutes of the AGM held on 31st March 2003
3. Statement of accounts and Treasurer's report
4. Chairman's annual report
5. Election of officers and committee
   a) chairman
   b) vice chairman
   c) treasurer
   d) secretary
   e) meetings secretary
   f) field meetings secretary
   g) three committee members
   h) auditor
6. Any other business

Current Committee members:

Chairman:	Graham Worton	Vice-chairman:	Alan Cutler
Treasurer:	Sue Fairclough	Secretary:	Sarah Worton
Meetings:	Gordon Hensman	Field Meetings:	Andrew Rochelle
Members:	Barbara Russell	Alf Cole	Mike Williams
Auditor:	Martin Normanton		

All posts are honorary and available for re-election. Nominations may be made to the secretary or declared at the AGM.

SUBSCRIPTIONS 2004

Your next subscription is due on **1st January 2004**. Subscriptions can be paid at the January meeting or sent to the treasurer:

Mr Mike Williams, The Bungalow, Parkdale West, Wolverhampton, WV1 4TE

SUBSCRIPTION RATES:	**Individual**	£15	per annum
	'**Family'**	£20	per annum
	Full time student	£5	per annum
	Group/Company	£30	per annum

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