



NEWSLETTER NO. 129

JUNE 1998

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/SUNDAY 13/14th JUNE. WEEKEND FIELD MEETING to Hertfordshire based at St. Albans. Leader: Dr. John Catt (Quaternary Geologist, Rothamstead Experimental Station, Harpenden).

This geological weekend will give us a chance to see horizons not normally available to those of us living in the West Midlands, in particular we will visit exposures from the Cretaceous, Tertiary and Quaternary periods. These will include Lower, Middle and Upper Chalk at Totternhoe and other sites, the famous Hertfordshire Puddingstone in situ and in buildings, Lower Greensand at Leighton Buzzard/Woburn Sands and a range of glacial features.

A SHEET GIVING DETAILS AND AN ENQUIRY FORM FOR THE WEEKEND WAS IN THE FEBRUARY NEWSLETTER. Further details from: Paul Shilston 16 St Nicolas Gardens, Kings Norton, Birmingham B38 8TW. Tel 0121 459 3603.

FRIDAY 21st - SUNDAY 23rd JUNE. Geologists Association weekend field meeting to Norfolk. BCGS members are welcome to attend.

SUNDAY 5th JULY. Whole day field meeting to Snailbeach historic site and Old Mine looking at the surface features with an underground visit to the mine. Snailbeach (O.S. Grid Ref: 372022) is approximately 16km (10 miles) south-west of Shrewsbury. Leader: Peter Sheldrake (Retired Shropshire County Council Environmental Dept).

Meet at 10.30 a.m. at the Village Hall car park at Snailbeach. To get there from the Shrewsbury by-pass, turn off the by-pass onto the A488 signed to Bishops Castle, then after 8 miles turn left at Plox Green and continue to Snailbeach. The village hall car park is on the right just after entering the village.

The visit will comprise a one and a half hour tour around the surface features with a lunch stop at the nearby public house, followed by a one and a half hour underground trip. Those who wish to go underground will need wellingtons, hard hat and a powerful torch and clothing which does not matter or overalls. The adit is approximately 5ft high therefore no crawling is necessary. We will go into a large stope with plenty of headroom and up a fairly steep scree slope for the more athletic.

Chairman
A. Cutler B.Sc., M.C.A.M.,
Dip.M., M.C.I.M.
Vice Chairman
G. J. Worton B.Sc., F.G.S.,
A.M.I.Geol., M.I. Env.Sci.
Hon Treasurer
Joan Savage M.S.F.
Hon. Secretary
Ann Nicholds B.A., B.Phil.Ed.(VI),
Dip.COT., SROT.

Mining at Snailbeach dated back to Roman times and lasted until the 1950's. The mine principally produced galena (lead Sulphide) and some sphalerite (Zinc Sulphide) and barytes (Barium Sulphate) and there were smelting activities on the site. The mine site has been restored from a derelict state to provide a fascinating historic display. The visible surface features include a spoil heap of ore and rock, a chimney with a brick flue some hundreds of metres long running from the smelting plant, mine adits and a range of buildings for the mining activity, including the locomotive shed for the mineral railway which ran to join the main line at Pontesbury.

PETER SHELDRAKE has been closely involved with the restoration of the mine and the surface features by Shropshire County Council. He will conduct the tour, both above and below ground. He ran the previous trip to Snailbeach in June 1997.

HARD HATS are required for this field meeting - MEMBERS MUST PROVIDE THEIR OWN.
Lunch at the nearby Public House for this field meeting - The Styper Stones Inn, does do Sunday Lunches and bar meals.

FRIDAY 21st - MONDAY 24th AUGUST. Geologists Association weekend field meeting to the Edinburgh area. BCGS members are welcome to attend. Details and booking arrangements will be announced later.

TUESDAY 1st to THURSDAY 3rd SEPTEMBER First U.K. RIGS Conference. University College, Worcester.

SUNDAY 27th SEPTEMBER. Field meeting to Southam Quarry and Burton Dassett. Leader: John Crossling (Warwickshire Museum).

MONDAY 26th OCTOBER. Lecture: "Glimpses of Namibian Geology" by Dr. A.C. Waltham.
Tony Waltham writes "Precambrian metamorphics in coalesced cratons dominate Namibia's geology. For those not into such basement complexity, the Karoo cover and a series of spectacular geomorphological features provide a magnificent treat for the geological visitor to this lovely country. Wild deserts, wild coast and wildlife offer endless variety, and an interlude across the border takes in the diamond pipes of Kimberley."

DR. TONY WALTHAM is a senior lecturer in engineering geology in the Civil Engineering Department of Nottingham Trent University. Research interests in karst and ground subsidence are frequently allowed to give way to the sheer joy of seeing new places around the world, and chasing new sites for Geologists' Association tours is a major pastime.

MONDAY 9th NOVEMBER. Lecture: "the Miravelles geothermal system, Costa Rica". By Dr. C.A. Rochelle (British Geological Survey, Nottingham).

MONDAY 30th NOVEMBER. Lecture on mineralogy by Spencer Mather (Society Member).

EDITORIAL

The origins of the modern B.C.G.S. derive from an evening class run by Dr. Peter Oliver, then of Birmingham University, who became the first Vice Chairman of the Society. From the beginning conservation was foremost of the society's objectives and enthusiastic members spent many Sundays rescuing sample specimens from vertical sections through the basalts/dolerites at a site at Pouk Hill as the Council gradually used up the huge quarry for landfill. The society liaised with the Council for sample exposures to be retained and from this acorn a sapling oak is growing. Latest news of the health of the tree comes with the news that Dr. Peter Oliver is organising the first U.K. RIGS Conference at Worcester College. In his capable hands so much has been achieved and all who enjoy their B.C.G.S. membership owe him thanks. He will appreciate the work we carry on conserving the wealth of the Black Country's Geology, under the leadership of Graham Worton, Colin Reid, Alf Cole and our present Chairman, Alan Cutler. Here's to the volunteers at Hay Head!

REPORTS

Lecture on Monday 23rd March 1998. Environmental Geology - Examples from Finland. Dr. Roger Dackombe (Wolverhampton University).

Dr. Dackombe explained that he was an environmental geologist engaged as a consultant in Finland and Hungary and has studied glacial sediments and Manx sediments in particular.

He explained some of his current work at Wolverhampton University and the move to the more applied aspects of the discipline. The geology of resources with a consideration for land use and state planning sets the key for courses at Wolverhampton.

Dr. Dackombe introduced his lecture stating the importance of the study of geology relating to environmental conservation, protection and geological processes which can help us understand our environment and point to our mistakes and choices.

Finland is a northern coniferous covered land with little relief. Base geology comprises granites, gneiss and schist, clothed in till and glacial debris. This is a young landscape with ice cover finally retreating north only 10,000 years BP. The Late Weichselian Glaciation has left a legacy of perched boulders, eskers, moraines and tills. Isostatic rebound is still occurring at a rate of 4 to 5 mm per year. Finland has an area of 338145 km², a population of 5 million of whom 450,000 live in the capital Helsinki. 65 % of the Finnish population live in an urban environment and the population density is 16 per km². 65 % of the land area is covered by managed forest. There are 200,000 lakes and 30,000 islands.

The country has a long cold winter, when little biological degradation takes place, storing potential contamination for release with the spring thaw, when a flush of acid melt water is evident. There are no indigenous supplies of oil or coal and the basic fossil fuel contaminants are from wood and peat burning. Fresh water lakes and rivers are contaminated with biological agents from peat and forests and are not used for water supplies. Pollution from the timber industry is evident throughout the river and lake transport system. Soils are thin and do not buffer acidity, weathered bedrock containing little or no limestone.

Contamination of ground water resources gives cause for concern. Ground water is often supplied from esker aquifers. Eskers often provide a highway route and sites for industrial development. There is thus potential for pollution of the ground water resource. Research has shown that ground water quality is declining, humus, iron, manganese, sulphate and nitrate loads showing increases in populated and industrial areas. Chloride contamination from road salt can also be observed. Recharging of the esker aquifer is on a small scale and is thus subject to local contamination.

A project by the local Polytechnic, that has support from Wolverhampton, has investigated a site used for processing forest products and has shown heavy contamination by phenols, chromium, copper and arsenic. The Finnish Geological Survey has produced mapping identifying possible sites for ground water exploitation and other areas where pollution is a problem.

Finland is a large sparsely populated country, with little heavy industry, but suffers unique problems of ground water contamination which require constant monitoring from environmental geologists.

Andrew Rochelle.

Monday 27 April 'Hidden Secrets of some Carboniferous Corals' by Dr. John Nudds (Manchester Museum)

Dr. Nudds restricted his lecture to fossils from Ashfell Edge cutting which lies beside the A685 outside Ravenstonedale.

In a road cutting at Ashfell Edge six regional stages are visible and the Ashfell Sandstone and Ashfell limestone were of particular interest. From the surface of the shale of the Arundian stage Ashfell Sandstone Dr. Nudds showed corallites of a colonial coral formerly known as *Lithostrotion martini* now renamed *Siphonodendron martini*. They were colonial, cylindrical and showed growth increment bands. Increment bands arise as a result of daily changes in light (which would affect the algae living in the outer cells of the organism) or temperature as well as monthly changes associated with the lunar cycle. In the cool season or at night the corals secrete less limestone and so monthly and daily bands are visible on the surface of the corallites. Devonian corals studied at a different location show 400 daily bands in a year while these in the Lower Carboniferous have 391. This would indicate that the earth is slowing down on its rotational axis. Tidal friction is a major cause of this. When a graph is drawn of the rate of slowing down, the slowing down is shown to accelerate in the Lower Carboniferous due to widespread occurrence of shallow shelf-seas.

Siphonodendron martini has a solid rod columella, major and minor septa (28 septa in each order) and dissepiments. In some areas many corallites did not reach maturity only growing to 3mm. in diameter. Three ecotypes of the fossil are identified probably representing growth stages in the coral. The third ecotype is characterised by small radius, only twenty septa and a single row of dissepiments. Some samples showed rejuvenescence i.e. the corallites reached adult dimensions then stopped growing only to recommence with smaller radius and more juvenile features.

Growth amounts measured were from 4½ mm a month in the limestone down to 2½ mm a month in the calcareous shales where reduced growth also affects the diameter of the corallites. In the shale, rejuvenescence took place and there was little evidence of asexual breeding. There were no monthly bands as the increase in sedimentation probably also restricts the breeding. Extra nutrients brought in by sediments would be expected to reduce breeding. Alternatively reduced light may have affected the algae living in the outer cells of the organism, have reduced breeding and thus eliminated the monthly banding.

Just above the base of the overlying Holverian stage are lycopods, club mosses, preserved in three dimensions. Probably living in saline lagoons representing the marine regression that characterises each stage boundary, the ground rapidly hardened to produce exceptional preservation.

Over Ash Edge and from the Brownber Pebble Bed which represents the base of the Arundian stage is found the earliest evidence of *Siphonodendron martini*. *Dorlodotia briarti* was found here, a fossil previously known from Belgium. It has large dissepiments, a rod like columella and septa which do not reach to the edge of the corallite. Doing serial sections it was found that both *Siphonodendron* and *Dorlodotia* are found. i.e. two genera within one corallite. The variation is not genetic. Is one a juvenile? Does the early *Dorlodotia* have septa to the periphery and at a late stage of maturity do the septa shrink from the edge of the corallite and large dissepiments appear to give rise to the fossil known as *Siphonodendron*. Dr. Nudds' hypothesis is that *Dorlodotia briarti* is the ancestral species characteristic of the Chadian stage. Later, *Siphonodendron* of the Arundian stage misses the mature stage of its ancestral *Dorlodotia* and is an example of reverse neoteny, whereby a descendant adult shows features of the juvenile stage of its immediate ancestor. The base of the Arundian is showing intermediate colonies.

Thus we were treated to an intriguing story of palaeontological detective work elegantly elucidated by Dr Nudds.

Elizabeth Calcott and Kate Ashcroft.

Sunday 10 May The Cambro-Ordovician Geology of the Church Stretton Area Leader: Dr Paul Smith of the Lapworth Museum and Birmingham University.

The itinerary opened with a visit to Comley Quarry SO 484 964 This classic locality is a quarry which was opened up to extract fossils by Lapworth, Groom and Cobold. The Lower Cambrian shows an explosion of life forms, a result of a sea level rise which flooded the continents and provided a vast area of shallow photic seas. Dr Smith placed the area in its Cambrian context as a slither of a continent, Avalonia, broken off from Antarctica. Rapid sea floor spreading and the doming that resulted displaced sea water. In Comley Quarry one sees sandstones and limestones overlying the Uriconian Volcanics. The sandstone is very micaceous denoting its volcanic origins and the red limestone is rich in micro fossils as well as brachiopods and trilobites. Conservation practices have allowed the quarry to be conserved and protected by thick layers of vegetation.

Equally unprepossessing was the second locality, the Hope Bowdler Unconformity (SO 474 294). Here Harnage Shales of Caradocian age rest on the Uriconian. Movements along the major Church Stretton fault may have caused the variations in the age of the sediments directly overlying the volcanics. The shale contains clasts of volcanics and is rich in ostracods.

After a leisurely lunch at Cardington the Onny Valley section (SO 429 852) was followed beginning with the oldest rocks at the western end where the Uriconian was revisited and found to be overlain by Coston Beds, coarse cross bedded calcareous sandstones containing trilobites, brachiopods and conodonts (fish teeth). A thin bed of red squidgy clay was interpreted as bentonite. Further from the Uriconian the beds become finer. The Caradocian is interpreted as the highest sea level ever, a time of maximum onlap, a result of high heat flow and rapid rates of sea floor spreading. The *Alternata* limestone is very fossiliferous with an abundance of brachiopods, some trilobites, bryozoans and conodonts.

We then viewed the famous river cliff section: an unconformity of Silurian Llandoveryian rocks overlying the Caradoc which proved that Murchison was wrong in claiming that there was no major break between the Cambrian base and the now re-classified Llandeilo rocks. The day produced much discussion and we appreciate how Dr Smith placed the Geology in the context of the Victorian controversies it generated and showed how the sedimentation relates to its position in the plate tectonic activity of its day.

Kate Ashcroft

CONSERVATION COLUMN

Alf Cole is applying to the Royal Society and British Association for a Millennium Award to support his work in creating an Earth Science, Local Industrial Heritage and Archaeological Trail in Walsall at Hay Head SSSI (Walsall). He has been working with a team of volunteers to clean up some faces and hopes and expects that members of BCGS will join him in November or December. It is hoped that excavation adjacent to the Silurian exposure will reveal the Eastern Boundary Fault line between the Carboniferous and the Silurian. The work would be best done when a minimum of green foliage is present so Alf suggests possible dates as Sundays: 29th November or 6, 13th or 20th December. Helpers may bring a garden spade but all other tools will be provided. Contact Alf on 01922 634899 for further details.

Graham Worton and Alan Cutler will be assisting in a project to re-assess Dudley's SINCs (Sites of Importance for Nature Conservation.)

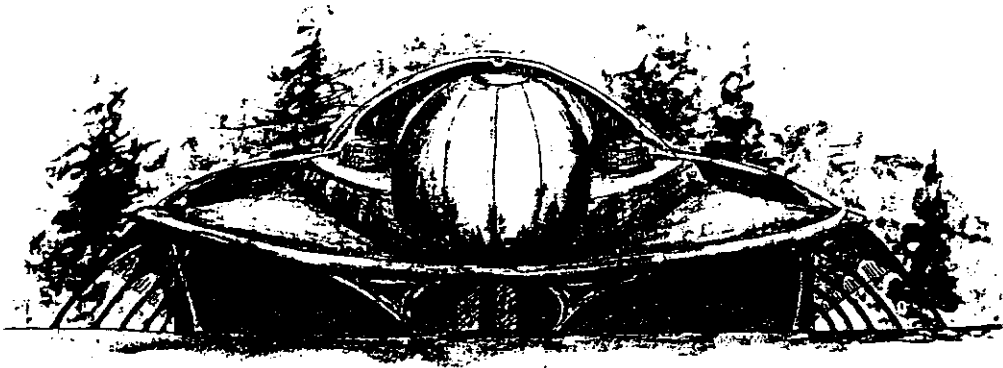
'A Future for Fossils' a two day symposium on the sustainable management of our fossil heritage will take place in Cardiff on 14th and 15th October. Registration (if completed before July 10th) is £20 for two days. Further information and registration details from Mrs. Liesbeth Diaz, Department of Earth Sciences, Cardiff University, P.O. Box 914, Cardiff CF1 3YE. Tel 01222 874830. This conference is organised by English Nature, the National Museum of Wales and Cardiff University.

Work on Step Pit Cavern at the Wrens Nest has ceased. Await further developments.

The first UK RIGS Conference is to be held in Worcester from 1st to 3rd September. The conference programme includes: the background to RIGS, the strategy, working relationships, practical difficulties, improving the system, information technology, exhibitions, workshops and fieldtrips. Two delegates from each group will be greatly subsidised to attend the conference, which is sponsored by University College Worcester, English Nature, Wildlife Trusts, GA, Geological Society, the Environmental Agency, Worcestershire and Herefordshire County Councils. The contact address is Dr. Peter Oliver, Director, Hereford and Worcester RIGS Group, Department of Geography, University College, Worcester, Henwick Grove, Worcester, WR2 6AJ Tel..01905 855184

ITEMS IN BRIEF

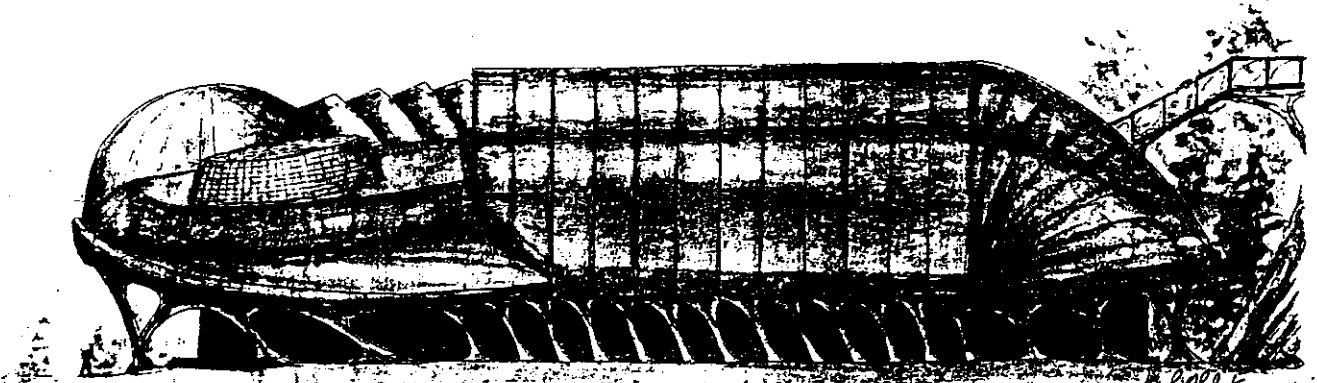
1. Welcome to new member
Gill Gouldbourn - wife of Phil - Kings Norton.
2. Colin Reid and Graham Worton attended a conference in Belfast entitled 'Tourism in Geological Landscapes' and talked of their hopes for the development of geo-tourism in Dudley. Graham launched a plan called 'Origins' for a striking development of a trilobite building entrance to the attractions at Castle Hill, Dudley. (See the enclosed plan.)
3. The Director of the Palaeontological Collections Division of the Palaeontological Society of America has written pledging his support for Dudley's World Heritage bid.
4. Holiday Guides. Geologists' Association Guides may be just what is needed for your next holiday. Southern Cyprus, The Isle of Wight, The Late PreCambrian of the Scottish Highlands and Islands and many more titles are available to members (I think that includes BCGS members) for £10.00 including post and packing. Order on 0171 434 9298
5. Dinosaurs have invaded Birmingham including the world's biggest T.rex. (with teeth as big as butchers' knives, it stands taller than a double decker bus!). The dinosaurs move, they roar, they do everything but eat you! They can be seen at the Gas Hall, Birmingham Museum and Art Gallery until 6 September. There are art workshops, cartoon dinosaurs, a scaly skin laboratory, Dinosaur rubbings and identikit Dinosaurs. All activities are suitable for children aged 3 and over but all children must be accompanied by an adult. For details ring 0121 303 1966.
6. Help needed by Secretary of BCGS!
The Amstrad PCW 8256 printer attached to an elderly word processor of the same name has at last turned up its bail bar and died. If anyone has a functional compatible printer to spare Ann Nicholds would be most grateful to hear from them on 01564 778181.



FRONT ELEVATION

Note
 Preferred option combining
 all desired functional/
 Subject areas (eg observatory)
 Also the structure has
 classic archwork for
 load transfer and
 smooth finish

Graham Winton
 18.2.97



SIDE ELEVATION

Graham Winton
 18.2.97

Objectives are 1. functionality 2. Eyecatching 3. flexibility of internal use

BLACK COUNTRY GEOLOGICAL SOCIETY 1997	470	ORIGINS BUILDING	ORIGINS - DOORWAY TO CASTLE HILL ATTRACTIONS
	CE	Drq N° Castle Hill/BGS 02	
	NOT TO SCALE	18.2.97	Graham Winton

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