NEWSLETTER NO. 110
APRIL 1995

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 (NOTE Saturday) APRIL 22nd
Field meeting to the area around Brampton Bryan, Worcestershire. Leader: Dr. Helen Boynton.

Meet at 10.00 a.m. at the village green at Brampton Bryan (grid ref: 371724). This is just off the A4113 Ludlow-Knighton road, about 10 miles west of Ludlow.

The meeting will look at the Pre-cambrian, Cambrian and Silurian formations in the attractive area of the Welsh Borderland around Brampton Bryan and Pedwardine. The general strata of the area are Silurian Wenlock series, but Pedwardine has an inlier of Pre-cambrian grits and conglomerates of the Western Longmyndian series, and also a Cambrian inlier of Shineton shales.

This is a joint field meeting kindly organised by Shropshire Geological Society. They have arranged for a local pub 'THE ROYAL GEORGE INN' at Lingen to provide a PUB LUNCH - probably soup and a ploughman's - for those who book it in advance, and it is hoped that members will take advantage of this facility.

The charge is £3 per person payable to Sue Beale, Shropshire Geological Society, 63 Shrewsbury Road, Church Stretton, Shropshire SY6 6EX (phone 01694 - 723679). A BOOKING FORM WAS IN THE FEBRUARY NEWSLETTER.

WEDNESDAY 26th APRIL. Afternoon visit to salt mine at Winsford, Cheshire. This is Britain's only dry salt mine. THIS MEETING IS FULLY BOOKED.

THURSDAY 27th APRIL (NOTE - THURSDAY) 27th APRIL. Joint lecture meeting with the West Midlands Branch of the Geological Society at the Ward Arms Hotel. The timing of this meeting will be HALF AN HOUR EARLIER than usual - 7 p.m. for 7.30 p.m. start.

Lecture: Mineral exploration and the environment - studies in the Pacific and the Andes" by Professor H. Colley (Oxford Brookes University).

Nowadays mineral companies have to be aware of the environmental effects of their activities and frequently they have had a 'bad press' in this regard. This lecture will consider in particular the impact of mineral exploration and the subsequent extraction of minerals on the environment and Professor Colley will take as examples two areas where he has first-hand knowledge - the Pacific Ocean and the Andes of South America.

PROFESSOR COLLEY is head of Geology and Cartography at Oxford Brookes University. In this capacity he has been carrying out research and exploration in the Andes and previously when he worked for the Fiji Geological Survey he was involved in mineral exploration in the Pacific. He also has a special interest in the training of geologists, equiring whether current university teaching is suitable for the needs of industry afterwards.

SUNDAY 14th MAY. Field meeting to Horton-in-Ribbledale, Yorkshire, organised by The Geological Society of London (Yorkshire Group). BCGS members are invited to attend but must book a place by contacting the Secretary (Ian Prior) at Sheffield on 01142 551480.

MONDAY 15th MAY. Lecture: The origin and use of semi-precious stones" by Barry Taylor (Society member).

BARRY TAYLOR writes "The talk will cover the wide variety of minerals that are often called 'Semi-precious stones'. Specimens and slides will illustrate the extensive spectrum of semi-precious stones and minerals in use for jewellery manufacture. Topics covered will include details of the various environments of formation for these minerals, giving an insight into WHY and WHERE they can be found and HOW they are formed.

The minerals covered will include 'the Quartz Group' with its many varieties quartz, amethyst, citrine, chalcedony, carnelian and agate - and other mineral groups including Garnet, Tourmaline and Feldspar. Also included will be some of the softer minerals that are often to be found in jewellery manufacture.

The talk should be both enjoyable and informative, with something new for everyone."

EVENING FIELD MEETINGS TO THE LICKEY HILLS

The Lickey Hills are an interesting and varied geological area with good exposures of Cambrian Lickey quartzite, a spectacular unconformity with the Silurian Rubery Sandstone, substantial exposures of Triassic strata, and the Lickey Gorge which is probably a glacial overflow channel.

As the Lickey Hills are relatively local we are holding two Monday evening field meetings (7 pm - 9 pm) to cover the best parts of the area. Each evening will be a self-contained visit but if you can come to both - so much the better. THE MEETING PLACE IS NOT THE SAME ON THE TWO EVENINGS.

MONDAY 12th JUNE. Evening field meeting to the Lickey Hills (part 1). Meet 7 pm at the Lickey Hills Visitor Centre car park, Warren Lane (grid ref: 998754). This will cover the Lickey Gorge, the southern part of the Cambrian Quartzite Lickey Ridge (often called 'Bilberry Hill'), the overfold quarry and exposures of the Triassic Kidderminster Formation (formerly 'Bunter Pebble Beds').

MONDAY 25th JUNE. Evening field meeting to the Lickey Hills (part 2). Meet 7 pm at the Monument Lane car park on Beacon Hill (grid ref: 986759). This will cover the general geology of the area viewed from Beacon Hill, then Clent Breccia (Permian) of the car park, Keele Clay with sandstone beds (upper Carboniferous) of the golf course, the unconformity at Rubery between Rubery\Sandstone (Lower Silurian) and Lickey Quartzite (Lower Cambrian) and an exposed fault in the Rubery Sandstone at Leach Green Lane.

MONDAY 19th JUNE. Lecture: "Alaska and the Yukon - glaciers and gold" by Paul Shilston (Society member).

PAUL SHILSTON writes: "This talk derives from a 3 week visit to Alaska and The Yukon in 1993. It will follow two quite different themes - the superb glacial features in Alaska left after the Ice Age and the 1897-8 gold rush trail to Dawson City in the Yukon.

Alaska is on a plate boundary and has had its share of earthquakes and volcanic activity so we will first look at Mt. McKinley National Park and the Wrangell Mountains. Then there are spectacular views of the existing glaciers - much reduced from their Ice Age extent but still impressive - followed by the aftermath of the ice including muskeg country, kettleholes, river terraces and massive river bluffs resulting from the subsequent changes in sea level, deposits of glacial till and river gravels and wind blown deposits.

For the Gold Rush trail we follow the treasure-hunters from Skagway, crossing the watershed to the Yukon River, then down the river to Dawson City and finally to the goldfields. There are many points of geological interest on the way - not that the miners would have appreciated them - and the talk will also describe the occurrence of gold and how it is collected.

MONDAY 24th SEPTEMBER. Field meeting to Lathkill Dale and Stoney Middleton, Derbyshire. Leader: Dr. Cynthia Burek (Open University).

MONDAY 9th OCTOBER. (NOTE change of date). Lecture: "The geology of the Solar System" by Dr. Bob Owens (National Museum of Wales).

MONDAY 30th OCTOBER. Lecture: "Geology of the Canary Islands" by Dr. John Stanley (Keele Uiversity).

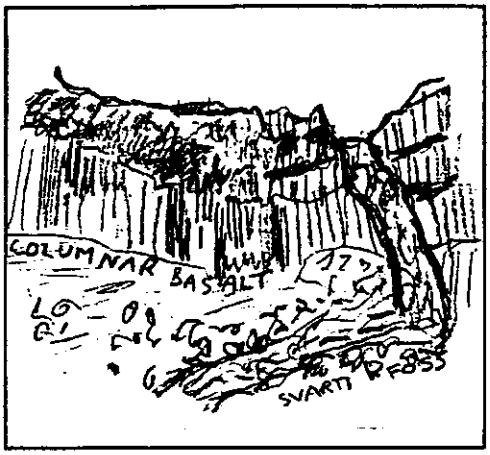
MONDAY 27th NOVEMBER. Lecture: "Thrust tectonics and piggyback basins in the western Spanish Pyrenees" by Dr. Jonathan Turner (Birmingham University).

MONDAY 15th JANUARY 1996. Lecture : "The Great Dyke of Zimbabwe" by Dr. J.I. Langford (Birmingham University).

REPORTS

MONDAY 20TH FEBRUARY ICELANDIC COCKTAIL - FIRE AND BRIMSTONE - WITH ICE BY ALF COLE

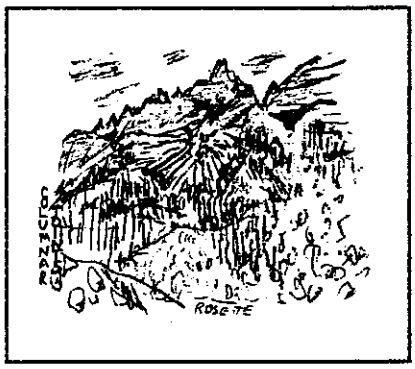
An entirely unplanned sequence of events provided me with a dream ticket to participate in Liverpool University/Polytechnic expedition to Iceland. Besides helping project students, opportunities arose to stray further afield looking for future projects!



Since S.E. Iceland had only recently become readily accessible, it was, at best, only roughly mapped.

After a few days 'getting the eye in' with the students, becoming adjusted to walking on unstable surfaces and encouraged by several visits to the superb columnar jointing at Svartifoss, our attention was turned to Hafrafjell (1174m) which displayed approximately 27 flood basalt flows with occasional intercalated bedded tuffs; in all probably several thousand feet thick. The very numerous dykes (a swarm?) were recorded and lava flows mapped by climbing up a steep gully. Two notable aspects of the sill structures were:-

1. linear jointing with occasional radiating joint systems exposed as a 'rosette' where injection has been along a 'conduit' rather than between the flow basalts.
2. surface veneers (2-3m.) of a shiny black 'flash frozen' basalt known as tachylite.



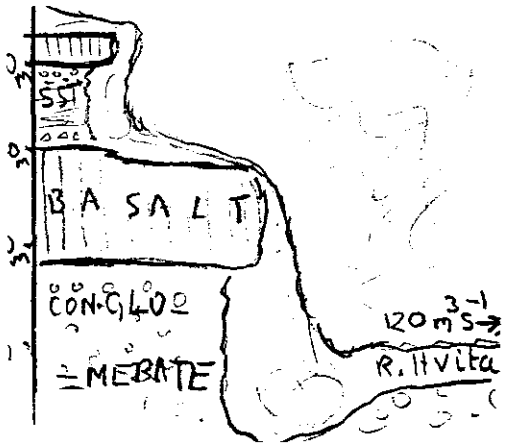
Occurring also were very fine crystalline specimens of zeolitic mineralisation including Laumontite, Thomsonite and Natrolite, all of which are common to basic rocks.

In contrast to subaerial basalts, subglacial eruptions result in glacier borne hyaloclastites or palagonite 'tuff' which is really an agglomerate in which hydrated oxidised basaltic minerals are present in an indurated mass of amorphous orange-brown palagonite containing chunks and shards of basalt glass.

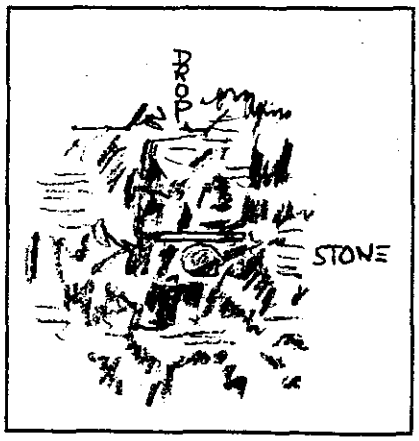
Icelandic glaciers contain and transport huge amounts of black -

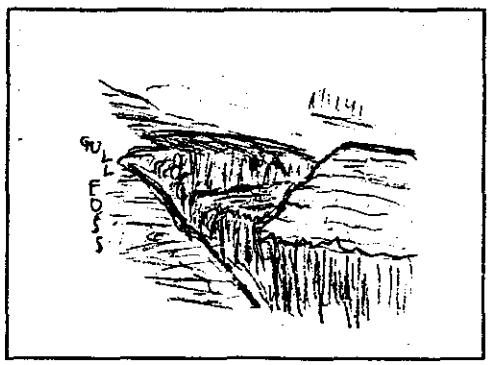
ash which concentrates, as the ice melts, towards the snout, where extreme caution is necessary because the well camouflaged 'black ice' is extremely slippery and makes for perilous and occasionally precipitous going. Almost every glacial feature is to be seen; bergschrund, lateral and terminal moraines, (especially at Kvisker), eskers, dirt bands and cones. The most spectacular proglacial lake is at Breide. It contains many calves, which have dropped their ash into the basin, and it will, in time, fill up and give rise to yet one more stretch of braided streams and rivers. These fluvio-glacial processes, along with periodic purging by explosive Jokulhlaupt events with their attendant 3-5m 'tsunami' like waves, account for the origin of the vast sandur or outwash plain which exceeds 1000 square kilometres and which falls only 5m. in 25km. towards the Atlantic. It is therefore not surprising that the last 50km. of Iceland's prestige highway No.1 was not completed until the mid 1970s.

Having failed to find any acidic rocks on Hafrafjell or on Svinafjell, our attention turned to two rather more distant locations at Kota and at Kjos where extensive extrusive dacites were located as well as the (in)famous pumice horizon of 1362 and an obsidian dyke in Kota. No precious metals were found in the river beds, but there was consolation in the rather splendid banded rhyolites.

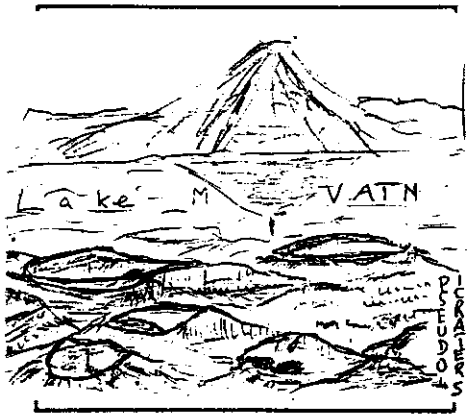


Further afield, across arid desertland, after Europe's most powerful waterfall (Dettifoss) located at the head of the spectacular Jokulsa canyon with its complex walls and abandoned water course in the vicinity of the isolated island of Asbergyi, we came to the Tjornes fossil beds with splendid cross bedded sedimentary structures (and an isolated dropstone!) These beds were formed in a subsiding trough - possibly the initial stage in a spreading

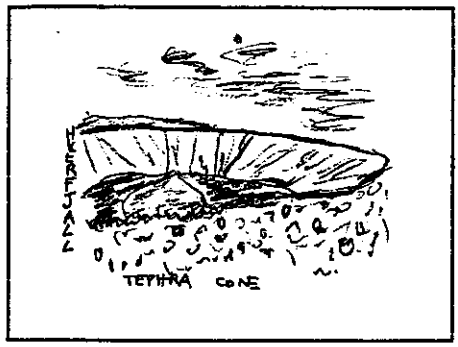




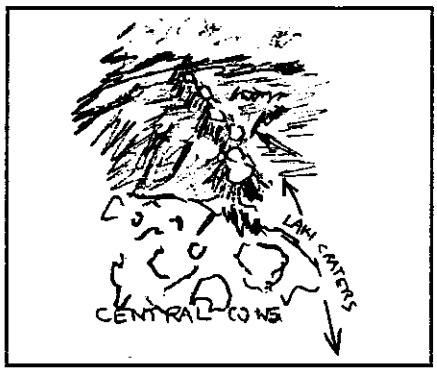
axis but now overlain by flood basalts.



Around the shallow Lake Myvatn is the maze of 'Black Castles' of Dimmuborgir, the pseudocraters at Skutastadir, and the model tephra cone of Hverfjall - all formed as a result of the explosive consequences of red hot lava flowing over large areas saturated with ground water.



Finally,we made an excursion southward along the vast lava flows to the cinder cone at Laki, with its accompanying N.S. linear fissure swarm, the result of a huge protracted eruption series between June 1783 and February 1784, in which vast quantities of acrid and poisonous hydrogen fluoride and sulphurous gases killed almost everything that could not escape. Presumably it was something like the 'Krafla Fires' of 1980, but on a much grander scale.



Plenty of ice, some fire but, sadly, only time for the merest whiff of brimstone - of which there is plenty in Iceland- even in the tapwater! Some other time, perhaps.

Alf Cole.

THE CONSERVATION COLUMN

I have been asked to include a conservation column in the newsletter. Geological Conservation is one of the two principal aims of the Society. This will be a regular feature in the newsletter if I am given the relevant information. The Chairman and others in the Society do much to promote Conservation, but Society members are often not told of these activities. We have many new members and some, I feel sure, would be willing to participate in projects, if only they were well informed and instructed. Some activities are outlined in the Chairman's Report circulated with this newsletter. Alan Cutler, Colin Reid and Graham Worton have published papers on the subject and are nationally recognised as leaders in the field.

The Society has worked by identifying geological sites and getting them SINC status. These are sites recognised in the Unitary Development Plans of the Local Authorities and are recorded on standard record forms of the National Scheme for Geological Site Documentation, the records being held at Dudley Museum. English Nature formally notifies the SINC to the Local Authorities

who then have knowledge of the value of the site before any requests for development come their way. A third tier of sites is to be recognised, SLINCS (Pub Quiz teams be warned!) SLINCS are Sites of Local Importance for Nature Conservation. I believe the Society needs help to identify second and third tier sites in Walsall Borough. Contact Graham Worton if you could help.

Sometimes there is an urgent appeal for working parties to engage in recording or site clearance. Register your willingness to participate with Graham. Give him you name, address and telephone number on a sheet of paper. Graham has a very efficient telephone answering service on 01384 213207.

Recently published, is a Code of Practice for Early Consultation entitled 'Geology and development in Dudley'. Colin Reid claims that this is 'very radical, even revolutionary, one might say!' The code sets out the procedures developers should follow wherever their proposals affect existing geological features or are likely to expose fresh sections through the bedrock. The code is very wide ranging and covers the conservation of existing designated geological sites as a first option. Conservation by recording of temporary exposures will be required through planning condition or legal agreement where physical preservation cannot reasonably be achieved. The Council considers it reasonable for developers to fund geological recording work arising from their proposals. The code's definition of developers includes Local Government, Statutory Undertakers, Government partments and Private Sector developers. A very wide range of activities is listed and clear obligations are placed on the developers. The process should begin with a search of the Geological Site Database for Geological Assessment.

We are very grateful for the many hours of work done for conservation in the area and the time spent in meetings and liaison with other organisations. Let's spread the load!

NEWS IN BRIEF

1. ANNUAL GENERAL MEETING

At the AGM held on 20th February the following officers, committee members and hon. auditor were elected to serve for 1995:

Chairman: Alan Cutler Vice Chairman: Graham Worton
Secretary: Paul Shilston Treasurer: Judith Shilston
Committee members: Sue Fairclough Chris Jowitt Peter Smith

The Chairman's Annual Report is included with this newsletter.

2. THE FOSSILS OF THE BURGESS SHALE

From the Smithsonian Institute comes the first illustrated guide to the Burgess Shale. High in the Canadian Rockies, the Burgess Shale contains remarkably well preserved Cambrian Fossils, 80% of the genera being soft bodied. The Musculature and inner organs of soft-bodied creatures are preserved in this extraordinary fine silt. The book illustrates specimens from all the major types of fossils, describing the structure of each and indicating how the creature lived in its underwater environment. To order, contact International Book Distributors, Campus 400, Maylands Avenue, Hemel Hempstead, Herts HP2 7EZ. Tel 0442 881900 or try your local bookseller. In the U.S.A. it retails at $39-95.

3. English Nature has published its Environmental Management Policy Statement and has issued the Society with a copy.

4. WELCOME TO NEW MEMBERS

Kevin Treadwell - Edgbaston
Ron Parkes - Bridgnorth
Amjid Lone - Acocks Green
Peter & Rita Stacey - West Bromwich

5. MUSEUM NEWS

Congratulations again to the Museum. Dudley's 'Time Trail' was a finalist in the Museum of the Year Competition.

The latest exhibition, 'Monsters of the Deep' had 15,000 visitors in its first three weeks. It has specimens from the National and the Royal Scottish Museums. From Easter it will also have the first public showing of the prehistoric marine reptile Liopleurodon (Piosaur) from Peterborogh. The exhibition lasts until 2nd September.

6. The talents of our members amaze. I've recently been offered a number of Geological Crosswords. The first is included in this issue. Answers to me with your name and address, and in the interest of market research (does anyone read the newsletter?) I offer a bottle of supermarket plonk to the person whose correct solution is the first out of the hat.

EDITORIAL

A member of BCGS who has been studying an Open University Geology course for a number of years has been telling me of her enthusiasm for her latest module on 'Planetary Geology'. Apparently her work on 'Sedimentary Processes' is constantly eroded by the gravitational pull of the planets. Her enthusiasm prompted me to watch the Horizon programme on the Geology of Venus. It was truly fascinating. The whole surface of the planet is of the same age. How then can heat escape from the interior? There is no evidence of Plate Tectonics or of an evolving outer skin. I was fascinated also to hear the experts, faced with the same data, interpreting it in totally different ways and reaching apparently conflicting conclusions.

I obtained my degree in 1959, in the Dark Ages, before the discovery of Plate Tectonics. I can recall my highly distinguished Professor arguing that there was no possible mechanism for Continental drift. Well, at least, I console myself, my studies were post Lyell, Hutton and Darwin! Whatever the speed of evolution one cannot but be impressed with the rate of development in Geological ideas.

Editor

Kate Ashcroft
48 Worcester Lane
Sutton Coldfield
B75 5NB

Tel: 0121 308 6783

Secretary

Paul Shilston
16 St. Nicolas Gardens
Kings Norton
Birmingham
B38 8TW

Tel: 0121 459 3603

BLACK COUNTRY GEOLOGICAL SOCIETY

ANNUAL REPORT FOR 1994.

Membership

The rate of membership growth stabilised in 1994, yet produced another record end of year total of 117 members compared with 114 in 1993. The membership profile comprises 77 (73) individual, 13 pairs (13) family, 8 (8) student, and 6 (7) Associate members. 1993 levels in ( ).

Programme

The Society held 14 meetings during the year, 9 lectures, and 5 field meetings, and we record our thanks to speakers/leaders for their services and giving us another successful year.

All meetings continue to attract large audiences particularly lectures reflecting a happy transition to the Ward Arms. A successful innovation for 1994 was the joint meeting with the West Midlands branch of the Geological Society, which is to be repeated in 1995.

Exhibitions and Conferences

(a) Black Country Living Cemeteries

The society mounted a display stand and Paul Shilston gave a presentation on the geology of gravestones, at this one-day conference held at Sandwell Council House, Oldbury in July.

(b) Dudley Rock & Fossil Fair

Once again the society had a major involvement in the organisation of this national event. Society members helped in various ways including initial layout planning for the fair, stewarding, as carpark attendants, 'front of house' ticket sales, selling promotional rock of a sweeter type and leading guided walks and field trips. In addition the society had its own display stand with a special feature on building stones as well as the usual details of activities and rock specimens for sale. One of the most pleasing aspects of our involvement was the high number of members who volunteered their services to help make the fair so successful once more.

(c) ESTA Conference, September

The Earth Science Teachers Association held its annual meeting at Birmingham University. Several members played an active role as reported in the Newsletter.

(d) Protecting Wildlife Sites

The Chairman attended this conference organised by the County Trusts in Coventry at the end of November.

Published Works

Paul Shilston: Geologising upon the grave in Urban Wildlife News

Alan Cutler: Local Conservation and the role of the Regional Geological Society, in Geological and Landscape Conservation, Geol. Soc. 1994.

Colin Reid: Conservation, Communication and the GIS - an urban case study. (op.cit)

Graham Worton: A person on the inside - opportunities for geological conservation in local engineering projects. (op. cit)

Conservation

(a) Consultations

During 1994 the Society was consulted by the following organisations:

(i) Rendel Geotechnics - Wall Heath bypass Spur Road

(ii) Land Use Consultants - Stewardship Sites in the Brownhills area.

(iii) Forest of Mercia - Geological sites in area under consideration

(iv) Wolverhampton MBC - SINCs and SLINCs in Wolverhampton

(vi) Sir William Halcrow & Partners - Western Orbital Route

(vii) Rendel Geotechnics - Bromsgrove sector of Western Orbital Route

(b) Planning

The Society receives a weekly list of all planning applications in Dudley MBC for comment where we believe there are geological conservation implications.

(c) Representation

The Society is represented at meetings of Dudley MBC's Green Forum and Heritage & Tourism Forum. This helps to promote the needs of conservation by developing geology as the main thrust of Dudley's heritage and tourism strategy. In addition the Society is represented at the English Nature/ Dudley MBC annual liason meeting.

(d) SINC System review

At the instigation of English Nature a series of three meetings in Birmingham were convened to review the SINC system - procedures, criteria, responsibilites etc involving all West Midlands local authorities, the Urban Wildlife Trust, and other nature conservation organisations as well as the society. Following the review, the society becomes the major partner organisation for geological conservation.

(e) (i) The Black Country Nature Conservation Strategy

The BCNCS was finally published in April, and launched at a special function at Molineux, Wolverhampton. Geology is firmly treated as an integral part of the strategy which must be viewed as a major advance for geological conservation. The strategy has already attracted much interest from our contemporaries nationally and regionally.

(ii) Dudley Countryside Strategy

This strategy, which the society commented upon at draft stage, was published in 1994. It sets out a framework for land use policy together with a number of specific actions.

(d) Staffordshire RIGS Group

At the end of the year the society was invited to join a new group being set up to look after the regionally important geological sites in Staffordshire. An inaugural meeting was held in January at which the society was represented.

Newsletter

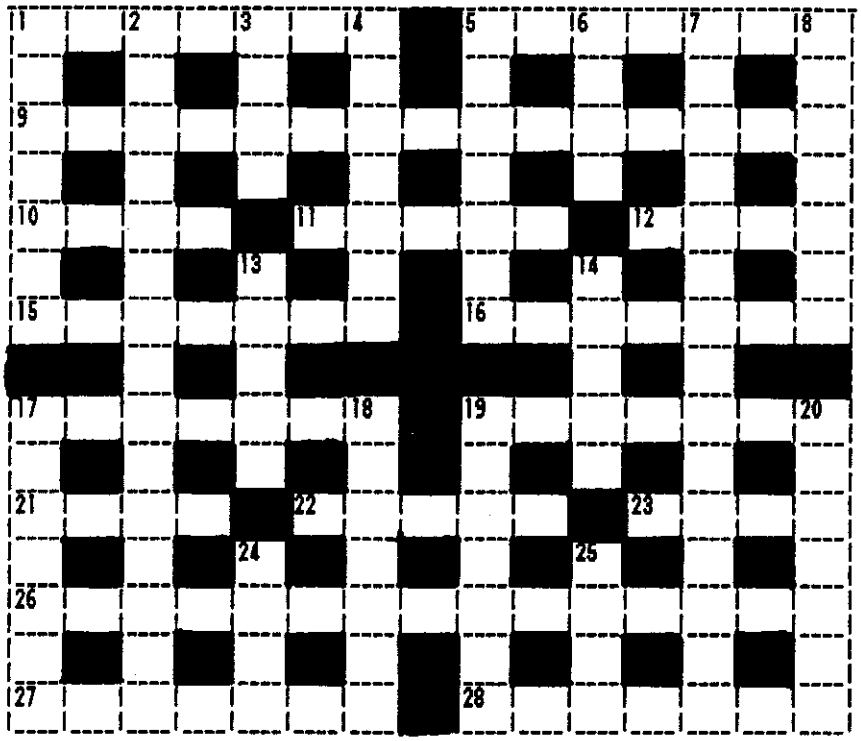
The Newsletter goes from strength to strength providing that vital link between members. Our thanks to Kate Ashcroft editor, and everyone who helps in the time consuming tasks of typing, copying, collecting, addressing and filling envelopes.

Summary

The Society has enjoyed another fruitful and successful year. Our varied programme with its wide appeal has kept the society lively and forward looking. Our conservation effort locally is still spasmodic and would benefit from participation of more members. Nevertheless the society is still at the forefront of local conservation activity and the increasing importance attached to geology by the local authorities is testament in itself. We look forward to the future with considerable enthusiasm.

A (MAINLY) GEOLOGICAL CROSSWORD

COMPILED BY: TAMIA



ACROSS

1. Compound of nitric acid with alkali (7)
5. Formed between 225 and 500 million years ago (7)
9. Composite cones (15)
10. Icelandic sagas were such tales (4)
11. Geologists sometimes dig these holes (5)
12. Cut these sections to throw light on the matter (4)
15. The gradient curve of Teutonic river (7)
16. Alaska's Miss Ice in a bad way after such an event (7)
17. The water particles travel parallel to the channel in one of these flows (7)
19. Springing back of rock after an earthquake is an elastic one of these (7)
21. One hundred forerunner of a mineral aggregate forms the heart of the matter (4)
22. To make a (non-geological) choice of course (5)
23. Use this stone for the laundry ? (4)
26. Birding hotspot on these ancient Russian-sounding volcanoes (8,7)
27. The dinosaurs did this (4,3)
28. Unanalysable component of the main four (7)

DOWN

1. Highly active condition of elements at the moment of liberation (7)
2. End remains (8,7)
3. Previously neat now disordered (4)
4. Non-geologists grudgingly contemplating the good fortune of others (7)
5. These forms are too hard to sleep on ? (7)
6. When high water level is low (4)
7. An English leader takes a French woolly jumper to a hard place (1,5,9)
8. Smells like garlic when struck with a hammer (7)
13. A pair of these whose lattice is differently orientated (5)
14. A non-geologist waits in a place where forgotten things collect (5)
17. A Carboniferous plant gregarious on moist surfaces (7)
18. This MC has the outer bloom of iron ore (7)
19. A crawler but with backbone nonetheless (7)
20. Accumulated matter for safe keeping (7)
24. A reformed soil falls into a fermenting chamber (4)
25. A calf which floats away from mum (4)