NEWSLETTER NO. 122

APRIL 1997

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.

MONDAY 7th APRIL. Lecture: Evolution and extinction of Trilobites by Dr. Bob Owens (National Museum of Wales).

Trilobites are everyone's favourite fossil and Dudley is the home of the trilobite, so we are always glad to have a lecture from an expert describing their life and times. Trilobites appeared in the Cambrian and lasted through to the Carboniferous so they had a long period of existence; during that time many varieties of trilobite appeared and they are found world-wide. Dr. Owens' lecture will describe the anatomy of the trilobite and will cover the development, success and eventual extinction of the species.

DR. BOB OWENS is a palaeontologist with the National Museum of Wales in Cardiff and has made a special study of trilobites. He lectured to the Society a couple of years ago on his 'hobby' subject "The Solar System" and now we are glad to welcome him speaking on his 'mainstream' topic.

FRIDAY 9th - SUNDAY 11th MAY Weekend in South Wales - organised by the Geologists Association. Leaders: Dr. John Cope and Dr. Richard Bevins.

Meet 9.45 Saturday 10th May near the war memorial in the square in St. Davids.

The meeting will be based at St. Davids, starting on Friday evening and finishing on Sunday afternoon. The visit will look at the Precambrian and Cambrian geology of the St. Davids area; the programme will be flexible depending on weather and tides.

As the BCGS is affiliated to the Geologists Association, there is only the low-level charge of £5 towards leaders' expenses and admin. costs, but members must provide their own travel and accommodation costs. The meeting will be based at a hotel in St. Davids (half board £45 per night) and to book accommodation here phone the leader (Dr. Bevins) on 01222 573281. The Pembrokeshire Tourist Information Office (phone 01437 763110) can provide other hotel and B&B addresses.

Members intending to join the meeting should inform Lynn Allen, Geologists Association, phone 01442 67525. HARD HATS are required for this field meeting. MEMBERS MUST PROVIDE THEIR OWN.

SUNDAY 18th MAY. Field meeting to Shropshire, Wenlock Edge and Leintwardine. Leader: Dr. Paul Smith (Birmingham University).

Meet at 10.30 a.m. at Wenlock Edge Inn (grid ref: 570963) on the B4371 road about 5 miles southwest of Much Wenlock. Preferably park at the roadside NOT in the Inn car park.

The Welsh Borderland is the classic area for study of the Silurian system and it includes most of the localities after which the subdivisions are named, as well as being an area of great natural beauty. This visit will be mainly in the Silurian of Shropshire and will visit a number of key localities probably including:

Ippikins Rock, Wenlock Edge (570965) for general view of Wenlock Edge and its setting.
Hillend Farm (397877) for beds of the Silurian Llandovery series containing Pentamerus brachiopods.
View Edge (416804) for Aymestry Limestone - Silurian Ludlow series.
Mocktree Quarry near Leintwardine (416753) for submarine canyon features in the Ludlow series.

The lunch stop will probably be at the Plough Inn at Wistanstow (432854) about 2 miles north of Craven Arms.

DR. PAUL SMITH is Curator of the Lapworth Museum, Birmingham University, and is a member of the academic staff. He is also a member of this Society and has been very helpful to the Society in many ways.

Members of the Manchester Geological Association will be joining us for this field meeting.

SUNDAY 8th JUNE. Field meeting. *"The Malvern Hills - A Geological Viewpoint"* to the southern section of the Malvern Hills. Leader: Eddie Bailey (Society Member/ Tarmac Quarry Products).

Meet 10.30 a.m. at the main Pay-and-Display car park on the A449 Malvern-Ledbury road at the foot of Herefordshire Beacon (grid ref: 763403). This is near the old "British Camp" hotel, now the Malvern Hills Hotel.

The meeting will be leisurely but will involve some walking and hill-climbing - bring stout footwear/boots and suitable outdoor clothing. NO HAMMERS ! There will be a pub stop at lunchtime, probably at Castlemorton or Birts Street.

The Malvern Hills are a special area for people in the Midlands and for geologists everywhere. This field meeting will visit some dramatic scenery and see some impressive geology, visiting Herefordshire Beacon, Midsummer Hill and Chase End Hill, finishing around 5.30 p.m. It will be a story from the Precambrian onwards, explaining how the rocks we will walk over, and those we will see at a distance, came to be, and putting these rocks and their structures into a global plate tectonic setting using the most up to date readily available data.

EDDIE BAILEY is a Society member who now lives at Wootton Bassett, Wiltshire. He studied geology at Worcester Technical College, then gained an honours degree in geology at Exeter University. He worked for Tarmac Quarry Products in the Midlands and is now Company Geologist for Tarmac Quarry Products, Southern Division. Eddie was born in Worcester and has always had a special regard for the Malvern Hills, their scenery and their geology.

FRIDAY 20th - SUNDAY 22nd JUNE. Weekend field meeting 'The Western Margins of the Peak District' organised by the Geologists Association. Leader: Judy Rigby.

The meeting will be based at Buxton, Derbyshire, starting on Friday evening and finishing on Sunday afternoon. On Saturday the party will study the Carboniferous Limestone areas of the 'White Peak' around Castleton, and on Sunday the River Manifold area and Brown End Quarry at Waterhouses.

As the BCGS is affiliated to the Geologists Association there is no leader's fee or tuition charge but members must provide their own transport and arrange their own accommodation. The meeting will be based at the Buckingham Hotel (half-board £45 per night) and the Leader can also provide some B&B addresses. Members intending to join the meeting should inform the Leader (Judy Rigby). Her phone number is (0115) 926 7699.

MONDAY 23rd JUNE. Evening field meeting (5.30 p.m. - 8.30 p.m.) to Snailbeach Historic Site and Old Mine looking at the surface features with an underground visit to the mine. Snailbeach (grid ref: 372022) is about 16km (10 miles) southwest of Shrewsbury. Leader: Peter Sheldrake (Shropshire County Council, Environmental Dept.)

Meet 5.30 p.m. at the Village Hall car park at Snailbeach. To get there from the Shrewsbury by-pass, turn off the by-pass on to 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 and a one and a half hour underground trip. Those who wish to go UNDERGROUND will need wellingtons, hard hat, a powerful torch and clothes that DO NOT MATTER. The adit is about 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.

Mining at Snailbeach dates back to Roman times and lasted until the 1950s. The mine produced principally galena (lead sulphide) and some sphalerite (zinc sulphide) and barytes (barium sulphate) and there was smelting activity 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.

HARD HATS are required for this field meeting - MEMBERS MUST PROVIDE THEIR OWN.

SUNDAY 6th JULY. Afternoon field meeting to the Ironbridge area (meeting at 2.00 p.m.). Leader: Adrian Collings (Ove Arup/Society member).

Meet at 2.00 p.m. at the White Horse pub, Church Road, Ironbridge (grid ref: 672040). This is about half a mile north of the historic iron bridge.

The meeting will look at some of the old mining sites described in last October's lecture "Underground limestone mining in Shropshire". There was mining in the area for coal, fireclay, ironstone and limestone, sometimes even from a single shaft as it penetrated through the Coal Measures to the underlying limestone. This mining activity lasted for several centuries and today there are outcrops and remains of workings which indicate where all this took place.

The first part of the afternoon will visit the steeply dipping Wenlock Limestone at Lincoln Hill, with its long history of mining and quarrying. As a result of faulting the limestone was mined near the surface on one side of the fault and beneath 30 metres of Coal Measures on the other side.

The second part will look at the Coal Measure sequence at Ironbridge, visiting still visible mining features on the outcrops of the coal and ironstone horizons.

FRIDAY 12th SEPTEMBER to SUNDAY 14th SEPTEMBER. Rock and Fossil Fair at Dudley Town Hall.

SUNDAY 12th OCTOBER. Field meeting to Aust Cliff (near the Severn Bridge) and Hock Cliff near Frampton-on-Severn. Leader: Andrew Mathieson (Bristol City Museum).

MONDAY 27th OCTOBER Lecture by Dominic McCormack (Shell Exploration, Aberdeen).

MONDAY 24th NOVEMBER. Lecture by Dr. R.J. Kennedy (Birmingham City Museum).

MONDAY 19th JANUARY 1988. Lecture on Greenland Geology by Dr. Paul Smith (Birmingham University).

MONDAY 23rd FEBRUARY Annual General Meeting.

EDITORIAL

The AGM has been held and Paul and Judith have stood down from their positions of General Secretary and Treasurer respectively. We are so grateful for the time, enthusiasm and attention to detail they have given to their posts. Their efficiency has contributed greatly to the good standing the society is held in. One of the little known secrets of the Society is how much of the newsletter has discreetly and promptly be sent to me by Paul. I hope that their support for the Society will continue and that we will be allowed to call on them in our hours of need.

We are pleased to welcome Ann, the new General Secretary and Joan, the Treasurer. The Society has always functioned happily and we hope members will give the new officials every support and that their years of service will be happy and rewarding.

REPORTS

Monday 20th January. 'The Geology of the Isle of Lundy'. Lecture by Clive Roberts.

We were all prepared to be quite disappointed when our secretary, Mr. Paul Shilston, announced that the scheduled speaker for the evening had been forced to cancel. However, our disappointment soon vanished when we were introduced to Mr. Clive Roberts from the School of Applied Sciences at Wolverhampton University, who had stepped in at the last moment. Mr. Roberts said how pleased he was to be able to address us - there was much to be said for more intercommunication between Geological Societies.

The Open University had promoted Mr. Roberts' early geological skills and now he was preparing for his Ph.D.

His theme was 'The geology of the Isle of Lundy' and he set out to give us a conducted tour with the aid of a series of excellent slides.

The first one was of Lundy itself, a tiny island 5.6 km (3.5 miles) by 0.4 km (0.25 miles) in the middle of the Bristol Channel and composed of - mainly - tertiary Granite. What had caught Mr. Roberts' attention, though, was the number of basaltic dykes that ran across the island. It was the study of these dykes that was to form the topic of his thesis.

The main dyke swarm cuts through the granite perpendicular to the spreading centre, with a roughly N.E. - S.W. trend and there are at least 500 dykes. There were problems in getting to the dykes, the top of the island being a peneplain overlain with some 3m of peat.

The outcrops of dyke material were poor and Mr. Roberts enlisted some of his O.U. friends to help with the clearing and documentation. The coastal areas of the island were also difficult to reach; the land slopes down from steep, rugged cliffs on the west side, some 100m high. On the eastern side the slope is gentler and there is a small landing stage at the foot of the scree slopes. The scree is somewhat protected by the rhododendrons which grow wild all over the island. In the scree there is evidence of greisenization which gives a clue to its terrestrial origin. There are some interesting mineral assemblages there, too.

The basaltic dykes, which are exposed in many places round the coastline, have weathered, leaving granite buttresses. Some of the granite is coarsely crystalline and contains some orthoclase. It is unlike that of Dartmoor. Some of the finer-grained granite has phenocrysts and is cut by pink aplite.

Limestone blocks appear in the contact between the granite and the shale, but they are not fossiliferous. Mr. Roberts said that there was FAME waiting for the first person to discover a Lundy fossil!

All across the island the dykes, varying in size from 10cm to more than 200 of 1m in width, are points of weakness. There is evidence of the Variscan Orogeny in the chevron folding. Mr. Roberts thinks that the dykes were intruded along the joint planes into cold granite, for had the granite been warm it would have mixed with the basalt. He found fine grained chilled amygdales in the rock and a few 'rogue' feldspars.

As many tests as possible had been instigated but many of them were inconclusive. Gravity modelling was not too successful because the dykes were too small. Tests on magnetism proved better, the basalt having a higher magnetic potential than the granite.

Geochemical tests suggest three different signatures. He said had he been able to date the rocks more accurately he would have been more convinced that they arose from one magma chamber which had produced slightly different lavas through fractional crystallization. Another interesting feature was that the dykes were not parallel and that there were fewer in the centre of the island. By extending the line of the dykes they appeared to have a focus in the Bristol Channel. Could this be the site of the magma chamber? There is also the possibility that there is some connection between the lavas in Lundy and the mantle plume which is believed to underlie Iceland.

Mr. Roberts obviously had great enthusiasm for his subject and his range of slides showed how many features of geological interest could be found in so small an area as Lundy Island. As well as pictures of dyke features there were pictures of Elephant Rock, which is also of granite (not as good as some apparently!), with round millstones of granite very similar to those of Millstone Grit elsewhere. There are Devonian slates and sediments on the south coast, where there is a trachyte dyke which has stopped a lot of the erosion at the southern cliff-face.

Mr. Roberts concluded an entertaining as well as very informative lecture with a slide of a glorious sunset. There was time for a few questions and answers and these brought a really successful evening to a close.

BARBARA RUSSELL

The Society congratulates Mr. Roberts on passing his viva and is pleased to note that he will soon be awarded his PhD.

Monday 17th February. Easter Island by Sheila Pitts.

This short talk was based on a visit to the island in November 1995, and began with the location of the island. geographically it is a remote sub-tropical island in the Pacific, and forms the Polynesian triangle together with New Zealand and Hawaii. Geologically it is on the Easter hot line of seamounts and islands, just east of the East Pacific Rise. It is formed from three volcanoes, which became extinct between 2.5 and 1 million years ago.

We were given a photographic tour of the island, starting with the first view of the large statues and platforms for which the island is famous. These are nearly all carved from a lapilli tuff, and some have "top-knots" of red scoria from a different quarry. The statues are often whitened on the seaward side, because the tuff absorbs salt, and sometimes stratification is visible. All the statues now standing have been re-erected since 1960.

The main volcano for the statues still has many of them on the outer and inner slopes of the crater. These are in various stages of completion, and there is a transport track down to the biggest group of statues, fifteen of which were re-erected in 1992. Long after they had fallen, a tsunami in 1960 flung them far across the low ground between the coast and the volcano.

We crossed to the north coast, where the only sandy beach was the site of the original Polynesian landing. It now has a grove of palm trees planted early this century. Much of the island's coastline otherwise is of black vesicular lava, which contrasts strikingly with the white waves breaking.

The youngest of the three volcanoes was the centre of the religious cult of the birdman. This area has many petroglyphs carved on basalt depicting the half man half bird. There is a restored village of ceremonial summer buildings, also of basalt. Below the vertical cliffs which form one side of the crater lie the small islands on which nested large numbers of sooty terns. The birdman each year was the first to descend the cliff, reach the islands and return with a sooty tern egg intact. The crater lake has many grassy peat islands which add to the surrealism of the place.

At the final location, attention was distracted from fallen statues by the presence of walls which are identical with Inca walls on the distant South American mainland. Easter Island was colonised from S.E. Asia and archaeologists believe there is no connection with South American cultures. But there are strong sea currents off South America, westerly winds which vary with the season, there were migrating birds to follow, and somehow the New World sweet potato became widespread in Polynesia. We were left to wonder about this particular aspect of one of the eternal mysteries of Easter Island.

SHIELA PITTS

Monday 17th February. Geology of Gibraltar by Paul Shilston

The Rock of Gibraltar obviously has intimate connections with geology and this talk outlined the main features. The location of the rock at the western outlet of the Mediterranean is on a major boundary between the African and Eurasian plates, and it is also on a thrust zone curving round from Morocco across the Strait of Gibraltar then eastwards into Spain. This thrust, together with northward movement of the African plate, is believed to have caused the uplift from the Rock of Gibraltar in the last 20 million years or so.

Geologically Gibraltar comprises 3 main zones which are quite distinctive and have their own characteristics. From south to north they are:

* the southern plateaux. There are 2 separate plateaux and each is believed to be a wave-cut platform formed when the sea level (relative to the land surface) was much higher than it is now.
* the main ridge. This is the main part of the Rock and forms a sharply ridged crest rising to 1390 ft at its highest point.
* the isthmus. This is a low-lying area only some 10 ft above sea level which now carries the airport runway.

The Southern Plateaux

These two plateaux are of Jurassic limestone with the strata the 'right way up'. They both have the appearance of wave-cut platforms; 'Europa Flats' is 100-150 ft above present sea level, bordered on its north side by ancient sea cliffs which lead to the higher plateau - the 'Windmill Hill Flats' 300-400ft.

The plateaux were probably formed during the Quaternary (i.e. in the last 2 million years) and their wave-cut appearance implies that the sea-level was much higher than at the present time, but there is little evidence from elsewhere in the region that the sea-level was high enough at any time to explain the height of the plateaux so almost certainly there have been considerable up and down movements of the land mass. As Gibraltar is on an active plate boundary and thrust zone this is quite possible.

The Main Ridge

The Main Ridge is the most spectacular feature of the Rock, rising to a height of 1390ft with a 45 degree slope on its western side and a steep scarp to the east with much scree at its base. The Main Ridge is composed of massive beds of Jurassic limestone with a dip 45 degrees to the west, and it is now clear that these beds are *overturned*, with the oldest beds at the top. There is a major fault between the Main Ridge and the Southern Plateau to allow for the plateau beds to be the 'right way up'.

As often occurs in limestone areas there is a large system of natural caves inside the Main Ridge caused by solution of the rock by rainwater percolating through. Some of these are open to the public and the local orchestra gives concerts in St. Michael's cave as it has very good acoustics. These natural caves have been used also for military purposes and, in addition, there is a complex system of artificial tunnels and galleries built by the military over the centuries for storage and defence.

Finally, much of the scree slope of the ridge has been covered by some 30 acres of galvanised iron sheeting to catch rainwater and augment Gibraltar's vulnerable water supply. The run off is conducted to reservoir tanks deep inside the rock which give a total storage of 16 million gallons.

The Isthmus

At the northern end of the Main ridge, the Isthmus is a flat low-lying area of sands and clays. The rock is 60ft below the surface suggesting that when the sea level was lower the rock was eroded by marine action. Subsequently, during a rise in sea level after the Ice Age, sands and clays were deposited while Gibraltar stood out as an island separate from the Spanish mainland.

Summary

For a relatively small locality Gibraltar offers a range of interesting geology; there are many geological exposures and much of it is fairly easy to interpret as its geology relates easily to the physical form of the land surface.

PAUL SHILSTON

Visit to Wolverhampton Museum and Art Gallery to see items from the Fraser collection. Saturday March 1st.

Rosemary Rhoden, Geological curator, gave an introductory slide show about the collection. Dr. Fraser was a Victorian polymath. He had a literature degree, was a medical man, a first class botanist and geologist and a

member and official of many local societies including the precursor of our own. He left his magnificent geological collection of thousands of specimens for the enjoyment and education of the people of Wolverhampton. Bequeathed in 1911 they spent twenty years in the art gallery before being moved to make way for the School of Art. They moved from the old library in Waterloo Rd to Wolverhampton Technical College. In 1970 they went to Himley Hall and were stored in damp attics and cellars. When Rosemary Rhoden first saw the collection it was in a dreadful state (as are so many of the great Victorian collections). Each time it had been moved more damage had been done. For many years now Rosemary has been cataloguing and conserving the collection. Identification is by no means easy, despite many of the specimens having their original labels. Changing palaeontological and stratigraphical nomenclature means that the specimens may need identifying by academics in specialist fields. The specimens are packed in special boxes cocooned in special foam and with non-acid paper for wrapping and labels to reduce decay. Processing each specimen takes at least half an hour and the specimen is catalogued using a difficult computer programme.

We were then taken to view the Geological gallery, Doctor Fraser's fossils. It is very small but beautifully laid out. Decorated letters form a frieze. The cases which are very deep are designed for children. One shows Dr. Fraser's study with his medical implements, fossils and botanical drawings. There are magic windows through which a fossil assemblage is converted, when a light switch is pressed, into the appropriate environment i.e. a Silurian Sea or a coal swamp. The Geological clock is unfortunately awaiting repairs. In one case the nature of fossils is explained and another shows a lake environment and asks which of the items shown are likely to be fossilised. The eagerness of the children visiting the museum demonstrated the fascination it had for them.

We thank Rosemary for the interesting visit, for the hospitality and provision of tea and coffee but above all for her work in looking after a valuable local collection.

K.M.Ashcroft.

It was with special pleasure that Ken and I joined other members of the B.C.G.S. to visit the Wolverhampton Art Gallery to see the Fraser Collection.

In the 1950s I worked at the WOLVERHAMPTON TECHNICAL COLLEGE in the Chemistry Department. My boss was Mr K. Russell who worked partly for the National Foundry College and partly for the Tech.

One day, a number of tea-chests arrived on the lower "marble" of the Tech., together with 3 mahogany-topped display cases. Mr. Russell told me I would be needed to help him unpack the tea-chests, containing the fossils of "THE FRASER COLLECTION". I'd never seen a fossil before and I was intrigued by the diversity of them.

As we worked together we became friends and that friendship has lasted 46 years, 45 of them as KEN and BARBARA RUSSELL.

When I returned to what had become WOLVERHAMPTON POLYTECHNIC in 1968 the first thing I looked for was the Fraser Collection. Alas, the cases and fossils had gone, and, although I asked around, no one seemed to know what had happened to them.

It was good to see some of the fossils again and know that they are in good hands.

Barbara Russell and Ken Russell.

ANNUAL GENERAL MEETING

At the AGM held on 17th February the Chairman, Alan Cutler, was unable to be present and his Annual Report was presented by the Vice-Chairman, Graham Worton. The Treasurer, Judith Shilston, presented her report on the Society's finances. Both reports indicated that the Society was in a healthy condition.

The Secretary, Paul Shilston, who had been combining his post of Secretary with that of Meetings Secretary, resigned from the Secretary's post but offered to stand as Meetings Secretary. The Treasurer, Judith Shilston, resigned from her position as Treasurer.

The following members were elected to serve as officials or committee members for 1997:

Chairman:	Alan Cutler	Vice-Chairman:	Graham Worton
Secretary:	Ann Nicholds	Treasurer:	Joan Savage
Meetings Secretary:	Paul Shilston		
Committee Members:	Sue Fairclough	Chris Jowitt	Peter Smith

Hon. Auditor: *to be co-opted at a later date.*

Paul and Judith Shilston were presented with a framed picture "The Spirit of the Black Country" in recognition of Paul's 17 year run as Secretary and Judith's 9 years as Treasurer. They expressed their surprise and thanks for the gift which they would treasure.

Since the AGM a chartered accountant among the Society's members, Martin Normanton, has agreed to become the new auditor. We are pleased to welcome him and trust he will find our accounts in good order!

ITEMS IN BRIEF

The Internet

Amir Kanwar has moved the Society's Internet site and is currently re-working the site to greatly enlarge the information that will be available on it. He hopes in the near future to present the site at one of our meetings. Meantime anyone who would like a viewing at his workplace is invited to contact Amir on Tel (work) 0121 2536016 or Home 01922 648547. Details of the new site are to be found at the end of the newsletter.

Welcome to new members

John Parfitt of Birmingham.
Colin Nicholls of the University of Birmingham.
Dr. Des Bowden of Newman College, Birmingham.

Courses

Geocourses of 24 Gascoigne Avenue, Barwick-in-Elmet, Leeds LS15 4LW advertise a course on the Geology and Scenery on the islands of Mull, Staffa and Iona from 21 to 28 June 1997. Tel: 0113 281 2906.

Rock 'N' Gem shows

Rock 'N' Gem shows advertise three shows : Tel 0194 450504. 19/20 April at Kempton Racecourse; 18/19 October at Cheltenham Racecourse; 1/2 November at Kempton Park Racecourse

Classes in the West Midlands

Details and booking: Mrs H. Down, School of Continuing Studies, University of Birmingham, Edgbaston, B51 2TT phone 0121 414 3413

(a) Field geology in the Midlands by John Armitage.
10 meetings 10am -12 noon from 15th April 1997. Classes and field meetings at Crystal Leisure Centre, Bell Street, Stourbridge.

(b) Field geology in the Midlands by John Armitage.
10 meetings 7.30pm - 9.30pm from 15th April 1997. Classes and field meetings at Compton Grange Adult Education Centre, Compton Road West, Wolverhampton.

Geological Walks and Talks in Shropshire

Details and booking: Dr. Peter Toghill or staff, Gateway Education & Arts Centre, Chester Street, Shrewsbury, SY1 1NB phone: 01743 355137.

6 meetings from 7.30pm - 9.30pm at the Gateway Centre, Chester Street, Shrewsbury.
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