

# I he Black Country Geological Society

#### NEWSLETTER NO. 91 FEBRUARY 1992

Lecture meetings are held at the Saracens Head, Stone Street, Dudley, 7.30pm for 8 o'clock start

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.

#### FUTURE PROGRAMME

#### MONDAY 24TH FEBRUARY

Annual General meeting followed by a talk "Mount St. Helens - ten years on" by Paul Shilston.

Mount St. Helens blew its top on 18th May 1980. Paul was there in the summer of 1990 - ten years later - and will describe the history of the volcano over that period, together with other geological features in the Cascade Mountains of Oregon and Washington states. These include Lassen Volcanic National Park, Crater Lake, Mount Rainier and Newberry Crater.

#### MONDAY 23RD MARCH

Lecture: "Geology and the nuclear industry" by Nigel Monckton, UK Nirex Ltd.

UK Nirex Ltd are responsible for developing disposal facilities for certain categories of solid radioactive waste arising in the next few decades. The proposed disposal method is emplacement in cavities excavated in suitable geological strata at a depth of 200-1000 metres.

The lecture will outline the sources and quantities of wastes arising before discussing the research being carried out into radioactive waste disposal.

This work includes the development of mathematical models to predict the future behaviour of the disposal site, together with geological and laboratory studies to obatin data in support of these models.

SATURDAY & SUNDAY 4TH & 5TH APRIL 10.00am - 5.00pm.
Local History Fair at Dudley Town Hall, St James's Road, Dudley.

This event is to mark the 25th anniversary of the Black Country Society.

#### MONDAY 27TH APRIL

Lecture: "Classic coastal landforms of Southwest England" by Peter Keene (Faculty of Environment, Oxford Polytechnic)

Chairman A. Cutler B.Sc., M.CAM., Dip.M., M.Inst.M. Vice Chairman J.E. Golledge M.A.

Hon. Treasurer Mrs J. Shilston

Hon. Secretary P.D. Shilston M.A., C.Eng., F.I.E.E., M.I. Mech.E. Many members will have seen the coasts of Devon and Cornwall, with their impressive geological structures and spectacular scenery. In addition, coastlines are among the most dynamic geomorphological environments, and they bear witness to many processes and episodes of landscape change, reacting with the underlying geology.

This lecture will emquire into the origins and evolution of coastal scenery. It will interpret the spectacular coastal landscapes of Southwest England in terms of the relation between geology, current marine and land processes, and those features inherited from the Pleistocene.

PETER KEENE is a geomorphologist with a particular interest in geology as it affects landforms, with his main interests in Quaternary and coastal geomorphology. He is also editors of "Thematic Trails", a series of geological guidebooks, and has written several guides including "Classic Landforms of the North Devon Coast", which several members purchased during the Society's weekend visit to North Devon last summer.

#### SUNDAY 17TH MAY

Field Meeting to Leckhampton Quarry, near Cheltenham.

Leader: Dr. Chris Sands.

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Meet 11.00am at the car park for Leckhampton Hill (grid ref: 950189). This is about 2 miles south of Cheltenham, off the B4070 road from Cheltenham to the "Air Balloon" and Birdlip: Coming from Cheltenham, soon after a sharp right-hand bend take a small road on the left (Daisy Bank Road) and the car park is about 150 yards along.

Leckhampton Quarry is one of the most important geological sites on the Cotswold escarpment: This escarpment, which is such a prominent feature seen from the Severn Valley, is mostly in the Inferior Oolite of the Middle Jurassic, and Leckhampton Quarry shows the greatest thickness of Inferior Oolite seen vanywhere in one section. Several of the beds have abundant fossils - brackiopods and bivalves. 300 (2004)

Leckhampton Hill is also one of the best viewpoints for looking at the landscape of the Severn Valley, with its varied geology and distant hills. PROPERTY

DR. CHRIS SANDS is well-known in the West Midlands for the many geological classes he has run, and probably many members have at one time attended one of his evening classes.

#### MONDAY 1ST JUNE

AT DOLL INTO LECTURE

Lecture: "The past is the key to the future" by Colin Reid, Keeper of Geology / Dudley Museum.

This lecture is one of our events to mark the 150th anniversary of the old Dudley & Midland Geological Society. This date is close to the anniversary of the Society's first regular meeting, held on 7th June, 1842. โดย สเปรี คริ ยิซึกเซรีม คลิ คลิเ

Exactly 150 years ago, Sir Roderick Murchison gave a visionary inaugural speech to the first Budley and Midland Geological Society. In this he proposed the establishment of a geological museum in the town, to display fossils and artefacts relating to the areas's unique geological heritage. It was the beginning of a rather short-lived 'Golden Age' when both Society and Museum flourished.

After almost a century in the doldrums we are now experiencing something of a renaissance in Black Country geological activity, due in part to the establishment of a permanent geological post at the Museum, to maintain the collection and promote local geology.

In his talk, illustrated by slides, Colin will be looking back to the early days of the museum service in recent years. He will also be looking ahead to exciting developments planned both in this 150th anniversary year, and in 

After the lecture, members who are interested can adjourn to Dudley Museum (across the road from the Saracens Head) where Colin will show selected items from the collection not on display, and also the new geological displays in the Museum which have attracted so much attention

JUNE - field meeting (to be arranged).

#### SUNDAY 20TH SEPTEMBER

Field meeting to Church Stretton, Shropshire. Joint field meeting organised by Shropshire Geological Society.

#### SUNDAY 18TH OCTOBER

gardina same Field meeting to Walsall, Hayhead limestone mines and quarry, and Barr Leader: Peter Whitehead, Head of Earth Sciences, Bluecoat Comprehensive School, Walsall.

Meet: 10.30am at Hayhead Nature Trail car park, Longwood Lane, Walsall (grid ref: 042986). This is about 2 miles ENE of the centre of Walsall. Longwood Lane is off the A454 road from Walsall to Aldridge.

OCTOBER/NOVEMBER (date to be decided). Canal barge trip through the newly re-opened Dudley Canal With geological and historical commentary, where

#### MONDAY 16TH NOVEMBER

Lecture: "Silurian geology from the Pentlands to Pembroke" by Dr. Derek Siviter, University Museum, Oxford. 

SATURDAY/SUNDAY 28-29TH NOVEMBER, GEOLOGY PAIR in Dudley Town Hall to celebrate 150 years of the Dudley Museum geological collection.

# EDITORIAL SAME BEST OF BOOK

I have been grateful for the quantity; of material I have been offered for the pewsletter, impressed by the quality of the articles In have eneceived and amazed by the energy and enthusiasm of busy people who have been willing and eager to contribute. Our Society flourishes from the good will and professionalism of its committee and I hope that people will volunteer to stand for the committee as new blood would be welcomed. We need an energetic committee to express the views of the membership and to fulfil the aims of the Society in promoting geology in the area and in supporting and at times leading the way in Geological Conservation.

I would like to express my thanks to the Geological Curators Group for arranging such a stimulating and friendly seminar. Alan Cutler's talk stressed the work of our Society in forwarding conservation of the Geological Collection and geology sites and a provided eloquent testimony to the achievements of the Society.

\* \* The A.G.M. will be held on the 24th February. There have not

- \* been many changes to officers and committee members in the last at a \*\*
- \* few years. We would welcome any offers to stand and any nominations.\*
- \* These should be given to the Secretary or declared at the A.G.M.

#### REPORTS

#### Gold Deposits of South Africa, 2nd December 1991

We were entertained to a most informative lecture on the subject of South African mineral deposits in general and gold in particular, by Society member Malcolm Callow.

Malcolm recently spent several years in South Africa following his geological studies at degree and MSc level in the UK. He has clearly studied and travelled widely in southern Africa as his lecture amply exhibited, with his excellent slides, geological maps and specimens.

The mineral deposits of southern Africa are truly prodigious with, quite apart from gold, much of the world's chromium, large deposits of platinum, iron, manganese, coal and of course diamonds. Malcolm's lecture whilst covering the gold deposits also touched on many of these minerals.

Mineralised areas are concentrated around a number of stable 3000 million year old Cratonic masses which have had areas of movement and activity around their edges. There is a huge range of rock types associated with these Cratons and their surrounding areas, with granite plutons, extrusive volcanics, gneisses, igneous intrusions of acid to ultrabasic types and sedimentary rocks.

Gold deposits probably originated in many of the igneous rocks in very low concentrations but have since been concentrated in later sedimentary deposits. These can be of sea floor or continental origin; for example, those in the Witwatersrand area are pebbly rocks associated with alluvial fans at the sides of an intermontane sea; the gold having been trapped between the pebbles as detrital grains.

South African gold mining areas included Barberton and the Witwatersrand basin south of Johannesburg. Mining began in about 1888 and many mines are now worked out. However, further deposits have been detected by geological and geophysical techniques. Many gold mines are now very deep and working conditions can be poor; with improved processing technology gold grades of less than 5 grammes per tonne can now be economic and this has led to some old waste tips being re-processed.

Many of Malcolm's slides also amply demonstrated the beauty of the southern African countryside. The large number of questions asked at the end( f Malcolm's lecture gave testimony to a very informative and entertaining evening and many were left wishing for a follow up field trip.

STEVEN HUGHES

#### The Rock and Fossil Roadshow, 7th December 1991

Two friends who had never visited the Dudley Museum and Art Gallery and I, equipped with little knowledge of geology, went to see the Rock 'n' Fossil Roadshow. We can, therefore, give an idea of the impact of the exhibition on untrained people and, perhaps, also on children.

Our first impression was, when we arrived at about 11.30, that the entrance hall was crowded. Many visitors were leaving and many were arriving, and I even missed Rosemary's mugs in the display cabinet. The second impression was of a medium room with just about the right amount of people and stands representing various educational and commercial concerns, also local geological and gemstone societies. I noticed a fair number of children, some with knowledgeable parents willing to explain and some who wanted to

stay for the film but were reminded by mother about lunch. I think that the quantity of rocks, minerals and gemstones was adequate and not overwhelming for the children and the uninitiated. One of the stands offered magnified views of minerals under a binocular microscope, another a chunk of magnetite with a magnet attached to it. The identifying stall appeared busy, and successful as children and indeed adults like to heart "Yes, it looks like an Ammonite here, yes it is, it is". I was delighted to find part of my country displayed on a map with, on a table, among various educational earth science booklets devised for the new curriculum, a portfolio on the Chaine des Puys. Unfortunately for others, it had not been translated into English! Sir Humphrey Davy would have admired the collection of miners' lamps, some of them for sale. I must not forget to mention the Artificial Fossils, so very realistic that one could easily believe they were the genuine articles, and the various reasonably priced specimens on our own stand. We liked the mugs designed by Rosemary Roden , with Ammonites and Dinosaurs. I hope she sold many. People migrated to other rooms in the Museum, children tried to answer a questionnaire and everybody enjoyed looking at minerals fluorescing under ultra-violet light.

The atmosphere of the open day was friendly, help was always at hand by experts at the slightest show of interest. Thank you Colin for the fifth show. I shall come again, probably with grandchildren.

GINETTE BEER

## Mining the Heritage Seam - Geological Curators' Group Seminar and AGM - Dudley Museum, 4th and 5th December 1991

After almost five eventful and, I would like to think, productive years as Dudley's first permanent Keeper of Geology, it's hard to believe that the last time the Geological Curators' Group met in Dudley - in December 1985 - my post didn't even exist.

Leafing through the notes taken at the 1985 meeting, when a part-time post looked the best bet, if a bit of a long shot, made me realise just how far we've come here in Dudley in a very short period of time. Those who attended the GCG Seminar in December undoubtedly went away with exactly the same impression. Over 80 delegates attended the Seminar, making it possibly the largest ever provincial meeting of the Group. In fact, GCG members were outnumbered by local delegates, including eight local councillors and over dozen members of BCGS.

Entitled "Mining the Heritage Seam" the Seminar provided a forum to discuss the steps being taken to promote and conserve the Black Country's exceptional geological heritage. John Powell of the British Geological Survey set the scene with an excellent introduction to the geology of the Black Country, outlining some of the highlights of the Survey's recent thematic mapping project in the area. Delegates were particularly impressed by slides of the superbly preserved conifer stems (apparently the earliest known fossils of their kind) discovered by the Survey team in volcaniclastic deposits at the Redland Brick Quarry in Tansey Green.

My own presentation dealt with the evolution of the borough's geological service, our achievements to date and plans for the future. Besides discussing the various facets of the service being progressed within the Museum (collections management, exhibition, educational outreach, special events etc.), the talk also touched on developments outside the Museum in which I have been involved in my role as "borough geologist" - notably the Black Country World exhibits and new Wren's Nest geological trail and field guide.

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I also revealed our plans for a new £350,000 Interpretation Centre at Bluebell Park on the east side of Wren's Nest (due for completion in 1993) and new interpretive concepts devised by Graham Worton and myself for both the existing Geological Gallery at Dudley Museum and for a future gallery. This raised the yet unresolved matter of the future siting of the geological service. My feeling has always been that a new Geological Museum should be built at Bluebell Park as a second phase development of the Wren's Nest Centre. However, in light of recent proposals to move the borough's glass and art collections to Himley Hall, it seems more likely that the Geology Collection will remain at Dudley Museum, albeit with slightly more space. The talk ended with a plea to resolve the uncertainty over this situation and an affirmation of my desire to provide a comprehensive and enduring geological service commensurate with Dudley's unique status in the world of geology.

Some of the design ideas described in this presentation are reproduced in the accompanying illustrations, which have been skillfully drafted by Graham Worton. They involve the creation of detailed dioramas depicting the various environments in Dudley's geological past. By juxtaposing each environment with the evidence for its existence - fossil-rich beds of rock, and illustrating how differing layers of sediment accumulate through time, we aim to illustrate the link between past and present in a simple, yet strikingly visual way. Word links such as SEA-BED -> FOSSIL BED, and FOREST -> FOSSIL -> FUEL will further emphasise this transition.

Through this method the visitor will be encouraged to "read the rocks" in much the same way as a field geologist does. Finely modelled rock faces will be employed to display original fossil material in its 'natural' environment and to replicate features such as life and death assemblages, sedimentological structures and structural features such as folds and faults. Visitors will be 'led' to interpret the displays depending on their level of interest or experience. Ample scope will also be provided for 'hands-on' learning, particularly for children and the visually handicapped.

(It is hoped to publish a more detailed account of these concepts in a national magazine later in the year).

As part of Alan Cutler's Seminar presentation on the role of the Society in geological conservation will be precised later in this issue I need not allude to it here, except to say that, judging from the comments afterwards, our Chairman, and the Society, continue to command the highest respect for their role in protecting the area's geological heritage.

During a buffet lunch at the Museum, delegates were able to inspect a number of new displays in the Geological Gallery, notably dioramas depicting the area during the Carboniferous and Quaternary periods respectively. The former, created by Ian Hughes the Geochrom manager, is one of the finest exhibits of its kind.

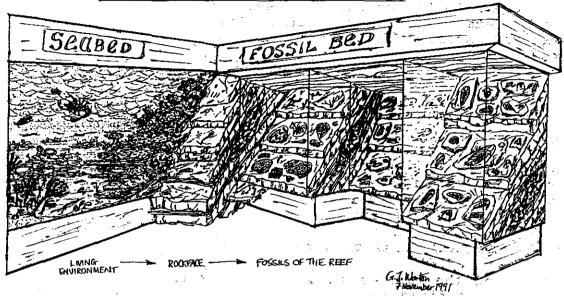
Delegates also had a preview of the Rock 'n' Fossil Roadshow, and demonstrations of new computer databases to aid in recording and monitoring local geological sites. Dudley MBC's own Geographical Information System (GIS) drew particular interest. Local SINC and SSSI boundaries have been digitised on OS map backgrounds and stored with data from other disciplines, e.g. planning, grounds maintenance, utilities etc. This information will soon be available to many users throughout the corporate network, and will provide an early warning system against potential threats to all geological sites in the borough.

Rosemary Roden, now a freelance curator was the only speaker of the afternoon session. She gave a thoroughly enjoyable account of her peripatetic work at other museums in the area, notably at Wednesbury, where she was largely responsible for the 'Timestones' Gallery, which opened in 1990. A new

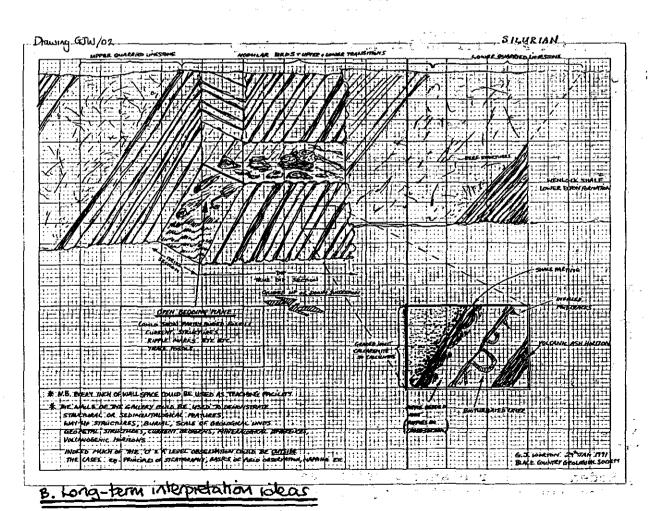
# SKETCHES OF NOVEL DISPLAY AND INTERPRETATION IDEA'S FOR DUDLEY MUSEUM SERVICES

#### 1. THE SICURIAN

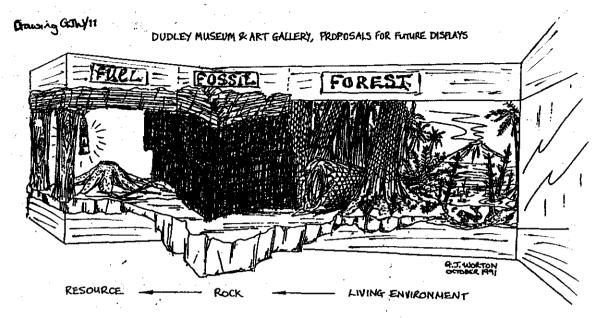
Drawing GJW/10
DUDLEY MUSEUM & ART GALLERY PROPOSALS FOR FLYURE DISPLAYS



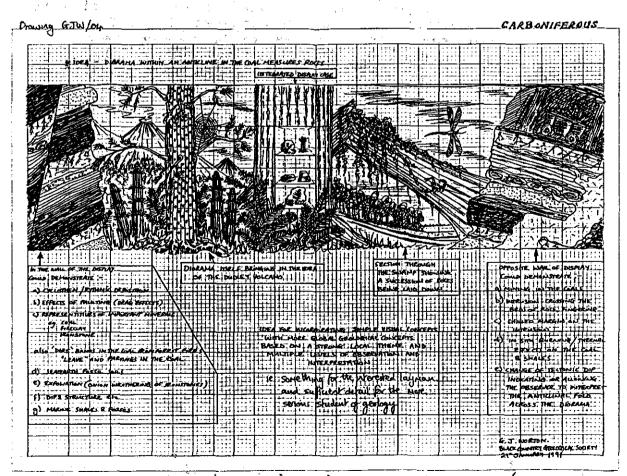
### A. Concept for current gallery displays



#### 2. THE CARBONIFEROUS



### A. Concept for current geological gallery



B. Longer-term interpretation ideas

gallery, housing the Fraser Collection (formerly in the basement of Himley Hall) is being built under her supervision at Wolverhampton Art Gallery and Museum. This will be opening shortly and promises to be a beautifully designed exhibition.

The field day on the Thursday attracted over 50 people. It was particularly heartening that 30 members of GCG stayed over for this. As anticipated, a tour of Black Country pubs on the Wednesday evening provided too tempting a carrot for many!

Those who had not seen 'Into the Thick' or the Singing Cavern experience before were extremely impressed by the spectacle. "I didn't know there was so much here" was the frequent comment. The day ended with a visit to the site of the proposed Interpretation Centre at Wren's Nest. I'm happy to report that not only did our visitors go away enlightened; they enjoyed themselves as well. I wonder what will be here for them to see in another six years?

COLIN REID

#### B.C.G.S. and Conservation

\_ur Chairman gave a talk to the Geological Curators Group on the role of our Society in conservation.

I suspect that only a few members are aware how much has been achieved so I would like to summarise Alan's talk to give the work wider recognition.

Concern for the threat posed to local sites acted as a catalyst for the formation of the Society in 1975. Our calendar of activities reported in newspapers and radio promote geology in the area. In 1977 following widely publicised criticism from Professor Brower of America on the deplorable state of the Dudley collection, members of the Society, Peter Oliver, Peter Parkes and Graham Hickman rescued the Dudley Geology collection from the Museum cellars. In the summer vacations, student Graham Hickman was employed in sorting, reconciling labels with specimens, and attempting to return order to the collection. A number of M.S.C. schemes were organised following advice sought by Alan Cutler.

The Society wrote letters to councillors, held meetings with officers, enlisted the support of M.P.s urging the establishment of a permanent eological curator. When our campaigns highlighted the educational and tourism benefits that might accrue from permanent curation and when the Society hosted the Geological Curators' Group meeting in Dudley in 1985 and councillors began to appreciate the national interest which could be generated by Dudley's collection, a ten year campaign resulted in the appointment of Colin Reid as Keeper of Geology for Dudley.

The Society embarked on its site conservation programme in 1975 in the face of growing pressure for waste disposal sites and redevelopment. One early success was a compromise worked out in 1976 to pressure a small but significant exposure at the southern end of Powk Hill Quarry, a dolerite quarry being used for landfill.

The Society by 1978 drew up a list of over 90 significant geological sites from a combination of fieldwork, members' knowledge and postal questionnaires. Two thirds were in Dudley. The list was supplied to the planning and leisure services department at County and District levels. The Society was and still is consulted on a variety of planning applications on an ad hoc basis.

The information was transferred to the standard record forms of the National Scheme by Nigel Bradley. In 1982/83 the records went to the record centre at Stoke City Museum but now we have our own record centre at Dudley Museum.

We maintained links with the Nature Conservancy Council, Peterborough, and the staff at the regional office near Shrewsbury.

The fear that geological conservation is secondary to biological conservation caused us to participate in the Nature Conservation Consultative Group, an initiative of Dudley Council, an advisory body to Council committees, and resulted in geological sites being included in the draft Black Country Nature Conservation strategy, commissioned by the Black Country Development Corporation.

When two West Midland sites lost their SSSI status, Alan Cutler, with help from the officers of the Nature Conservancy Council managed to obtain SINC (Sites of Importance for Nature Conservation) status for them, establishing the precedent that Geological Sites could have SINC status.

Throughout 1987 the necessary supporting documentation was prepared for twenty five sites selected in Dudley. Later four were selected for Walsall and three for Sandwell. BCGS provides the data but notification is performed by English Nature. The SINC sites do not have statutory protection but to are recognised by the district councils and incorporated into publis. I policy plans, which state that there is a presumption against development which would unreasonably prejudice the nature conservation status of the site. Criteria for assessing sites for SINC status are intrinsic scientific interest or educational value. Some may have historical value.

At times the Society has been active in site maintenance, e.g. in cleaning up the Brewin's Canal Section SSSI in conjunction with a Dudley Canal Trust.

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Alan closed by stressing the advantages a Society has in understanding conservation: the large pool of individuals from which to draw, individuals with local knowledge, independence of political opinion, opportunities for publicity and stability despite the movement of individual members. Alan urged the effectiveness of linking geological conservation to the strengths of other branches of natural history.

Progress in Geological Conservation can be measured by the appointment of full time wardens at Wren's Nest Nature Reserve and a management agreement between NCC and Dudley Metropolitan Borough. The brand new handbook and triguide has a large input by Society members and of three local nature reserves two have substantial geological interest. Dudley has two new geological SSSIs.

The status of geology in the Black Country has been raised by the efforts of BCGS.

Summary by K.M. Ashcroft of a paper prepared and read by Alan Cutler to Geological Curators' Group.

#### Dudley's Geological Societies

1992 marks the 150th anniversary of the establishment of the Dudley Geological Society and also the formation of the Dudley Geological Collection. Both collection and society, which flourished during the latter half of the nineteenth century, have had chequered histories.

To be strictly accurate, what we refer to as the Dudley Society was in fact two societies. Whilst the second society replaced the first, there was an unconformity, a time gap of perhaps a few years between the demise of one and one establishment of the other.

The initial stimulus for the establishment of a society derived from the 1839 British Association meeting in Birmingham. Several local collections were brought together as a display for the benefit of the visitors on an excursion to the Dudley caverns, causing much excitement as many new specimens were brought to scientific attention for the first time.

During the next two years an organising committee canvassed support so successfully that by the time of the first general meeting, held on Monday 17th January 1842 at the Free Grammar School, Dudley, the society had 150 subscribing members, and many titled patrons. That first meeting must have been a particularly auspicious occasion for not only were there many titles and noted academics present but the inaugural address was given by Roderick Murchison. Murchison, who was already a celebrity, was to achieve even more fame in due course as Director General of the Geological Survey. He also presented a copy of his Silurian System, published two years earlier, to the society, which is now preserved in the Dudley archives.

The society's next meeting and also its first full meeting was held on 7th June 1842. Initially they met at the society's rooms for a 12 noon lecture about the igneous rocks found in the South Staffordshire Coalfield. Lunch in the form of a "cold collation" was served at the Dudley Arms at 1.30 bllowing which the party visited the Rowley Hill to inspect the quarrying operations, presumably including the Hailstone Quarry.

Perhaps the most significant feature about the Dudley and Midland Geological Society is that it established the first geological collection and museum in Dudley, in what was the Britannia Inn located in the High Street. Unfortunately, the collection has had a chequered history during its 150 years existence and many specimens have been lost to other institutions such as the Natural History Museum and Birmingham University Geological Museum. Some specimens have been broken or decayed, some have been pilfered and some have been victims of outright theft even as recently as the early 1980s. Yet in its infancy the collection achieved widespread, indeed international fame.

Sadly, apart from details of two meetings held in the spring of 1842 by the society's Wolverhampton branch, nothing more is known about the first society or its final demise. It had however ceased to function and the museum closed well before the second society was founded in 1862, 130 years ago this year.

1	To	be	continued).

ALAN CUTLER

#### ITEMS IN BRIEF

- 1. Rock and Mineral Fair. Chalterley Whitford Mining Museum (Stoke on Trent). Saturday 28th March 1991. 10.00am 4.30pm.
- 2. 'Dawn of the Dinosaurs'. Leicestershire Museum and Art Gallery, New Walk, Leicester is showing the exhibition from Plymouth City Museum to celebrate the 'discovery' of the dinosaurs 150 years ago from Saturday 29th February to Sunday 26th April 1992 (closed Good Friday). 10.00-5.30pm Monday to Saturday, 2.00-5.30pm Sundays. A Dinosaur Birthday Party and Grand opening is on Saturday 29th February 10.00am to 3.30pm and sounds fun. See the fossil bones Richard Owen used to piece together the dinosaur in 1842. Admire Plateosaurus and Coelophysis, and the giant "newts" Mastodonsaurus and Paracyclotosaurus
- 3. University of Nottingham, Department of Adult Education
  Details from: Mrs H. Blackburn, University of Nottingham, Dept of Adult
  Education, 14-22 Shakespeare Street, Nottingham NG1 4FJ
  Telephone: 0602 483838

- (a) Understanding geological maps. Weekend course 29 Feb-1 March 1992. At Nottingham University. £16 non-residential.
- (b) The Mendips. Weekend geological excursion 24-26 April 1992. Based at Street, Somerset. £88 including accommodation.
- (c) Geological highlights of the N. Alps. Geological study tour. 30 May -13 June 1992, £595.
- (d) Askrigg Block and eastern Lake District. Weekend geological excursion 3-5 July 1992. Based at Carnforth. £92 incl. accommodation.
- (e) The Lothian region of Scotland. Geological excursion 18-23 September 1992. Based at North Berwick, east Lothian. £188 incl. accommodation.
- (f) Geology, wildlife and wilderness of the Yukon and Alaska. 3 weeks July/August. Cost approx. £2000.
- 4. University of Hull, Department of Adult Education. Details from: Mrs Sheila Rogers, 4 Middledyke Lane, Cottingham HU16 4NH. telephone: 0482 841990 day or evening.

Geology and scenery of Southern France. Field visit 13-20 June 1992. Based at Lodeve in Herault Department of Southern France. £470 approx.

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