



The Black Country Geological Society

NEWSLETTER No. 40 - AUGUST, 1983:

Editorial.

Holiday Time:

This newsletter was prepared in hot summer weather, and early because of committee members' annual holidays. It is a time of year when most of us are doing geology rather than reading about it.

Several of you are going off to interesting volcanic landscapes, and no doubt many more will be well occupied with geology nearer home. The Society wishes to form a collection of photographs of geological sites, so will you have some extra copies done? Alan, Nigel or any other committee member will be pleased to hear about them, and also about any temporary exposures which you see, such as in roadworks.

Although it is the off-season for journalism, our members continue to spot interesting items. Please send in any you see, and "snap-up" things for the collection.

Next Meeting:

July 18th: Meet at the Allied Centre to examine and classify members' rocks and fossils.

September 26th: Lecture by Dr. Trevor Ford, "The Mineralisation of Derbyshire."

Meetings are held in the Allied Centre, Green Man Entry, Tower Street, Dudley, behind the Malt Shovel pub. Indoor meetings commence at 8 p.m. with coffee and biscuits (no charge) from 7.15 p.m. Field meetings will commence from outside the Allied Centre unless otherwise arranged. Those who would like lifts, please contact Nigel Bradley.

Non-members welcome.

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 insurance cover to the level which you feel appropriate. Schools and other bodies should arrange their own insurance as a matter of course.

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Anne Harrison B.Sc., M.B.,
Ch.B., F.F.A.R.C.S.

Programme 1983:

October 17th: Informal meeting. The following Sunday's field trip will be discussed, and member Adrian Collings will give an illustrated talk on Italian volcanoes.

October 23rd: Joint field trip with the Shropshire Geological Society to local sites, at 10.30 a.m. from the Allied Centre.

1. Wetherton opencast Thick coal.
2. Ketley quarry, Kingswinford, Etruria Marl.
3. Wordsley Ridge, Triassic exposures and Western Boundary Fault.

November 11th (Friday): Dr. G. Trosise will explain "Geology and Wine in Western Europe", as a prelude to our sampling some wines.

December 5th: "The Biology of Trilobites", lecture by Dr. P. D. Lane of Keele University.

February 20th, 1983: Field Trip to Cotwall End. Leader Alan Cutler.

We left the Allied Centre for the car park at Cotwall End, where the geology of the area was explained to us. The area is much faulted and folded and is dominated by the NNW trending Sedgley and Dudley anticline, and the Western Boundary fault on the coalfield.

We crossed the Western Boundary fault to investigate the calcareous Enville Beds. This conglomerate is composed essentially of well-rounded pebbles of chert and quartzite, their deposition resulting from flash floods forming fan deposits from the Mercian Highlands. These beds represent the highest group of the Upper Coal Measures and form

the resistant ridge on the west of the valley which we were to investigate later. They rest conformably on the softer Keele beds and in the valley bottom, where part of the stream follows the line of the fault, we could see vertical structures within these beds, some pink, green and very micaceous. The rocks were faulted up against the Coal Measure deposits, which were once worked.

Crossing the stream and the thin strip of Coal Measures, we came to the base of Turner's Hill, which formed the ridge on the opposite side of the valley. It displayed a continuous sequence from Aymestry limestone to Downton Castle Sandstone Gornal Grit. The gentler eastern slope of the valley is also formed of soft red deposits, but these are red Downton marls of the Old Red Sandstone.

Although we found no evidence of it, a bone bed has been identified in the limestone, including teeth and scales of fish. In the Aymestry limestone we found a trilobite among the corals and brachiopods.

A brisk walk, essential to warm us up in the chilly conditions, took us past two ironstone bands which were only discovered during the re-mapping of the Black Country in 1977.

Lunch was taken at the Old Mill in Lower Gornal, after which we examined an exposure of Downton beds behind a small factory. The two groups visible were:-

1. Massively bedded, buff coloured Gornal Grit,
2. Turner's Hill shales. These are similar to the Upper Ludlow shales, except for the faunal content. This showed a high proportion of fragments of brachiopods, eurypterids, and primitive plants. The exposure

was very weathered, so the only collections were icicles by the younger members.

The Gornal Grit was originally mapped as Carboniferous, because of the coal seams claimed to lie below, and the general similarity to the Coal Measure sandstones which lie near the bottom of the Coal Measures.

In 1946 an almost complete fish was found in an adjacent quarry, in a particular horizon of the Gornal Grit. Further investigations produced more fish fragments with Eurypterids, Lingula and plants. The Devonian fishes provided conclusive evidence that the rocks were not laid down in the Carboniferous, and now the Grit is recognised as part of the Downton Castle sandstone. These grits too have an anticlinal structure.

The last stop of the day was a disused quarry in the Gornal Grit on the eastern side of Cotwall End valley. Again the rocks were massively bedded and only three beds were visible. We failed to pick out the 3 feet amplitude ripple marks on the prominent bedding plane which formed part of the quarry floor, on the western part of the Gornal Grit anticline.

Our last few minutes of this cold day were spent on the edge of the quarry overlooking the area covered during the field trip. It was a very good day and our thanks were given to Alan for leading such a thoroughly researched and informative trip.

Hilary Logen.

March 18th - 20th, 1983:

Weekend field trip to Weston-super-Mare. Leaders, Bill Draper and Tina Ford of Bristol Museum.

Weston served as the base for this weekend trip, which included some sites in the Bristol area as well. Saturday morning saw our small but enthusiastic group step out across the Bristol suspension bridge to view the Avon gorge. Here in 1906 Vaughan established a biostatic zonation of the Lower Carboniferous. The succession of steeply dipping limestones was seen to be repeated by a series of reverse faults. Hollows near the top of the gorge were filled with Triassic dolomitic conglomerate. The level surface of Clifton Down is believed to be a marine platform of Jurassic age, exhumed in the Tertiary. According to the latest ideas, the gorge itself is a Pleistocene feature, cut when the Avon was diverted by ice from an earlier course to the west.

Looking south, lower ground was seen to mark the Keuper marl outcrop, and beyond it a ridge formed by the Rhaetic, while on the horizon Dundry Hill showed the position of the Inferior Goolite. Shortening our focus, we then examined limestones of the S and D zones, towards the top of the succession. Largely reefal, these were impressively fossiliferous, and also mineralised. Barytes and haematite were present, together with well-formed quartz crystals known locally as "Bristol diamond". Also of interest was a cave formed during the Triassic, and infilled with Rhaetic beds.

Next the party moved to Portishead and the coastal section there. The Portishead Beds are Upper Devonian deltaic sediments, which accumulated on the southern edge of a landmass. Scales of the fish *Holoptychius* were found. An unconformable cover of Dolomitic Conglomerate was seen to have accumulated on a slope corresponding to the present shoreline.

The conglomerate passed upwards into fine Triassic sands.

Walking north towards Woodhill Bay, the lowest Carboniferous limestones of the Z zone were seen, partly dolomitised, and thrown into tight E-W folds. Continuing onto a beach near the Royal Hotel, a downfaulted block of Pennant Sandstone of the Upper Coal Measures was seen to contain abundant Calamites plants, together with some spherical bedding structures which caused much discussion.

On Sunday we first walked to Goblin Combe, a fault-guided dry valley. Middle limestones of the C zone, here oolitic, were seen, together with the now familiar Dolomitic Conglomerate. The real purpose of the walk was to visit a magnificent piece of conservation work, an old quarry cleared up by Tina and Bill, our leaders. Basalt lavas and tuffs were displayed, together with a mineralised fault made colourful by manganese, calcite, limonite, haematite and chlorite.

Volcanics were again our theme in the afternoon, when we visited the coast at Middle Hope. After crossing a Pleistocene raised beach we came to a series of tuffs and lavas interbedded with limestones. Particularly interesting was the end of a basalt flow, where pillows were seen to be frozen as they tumbled over the edge. At other nearby sites, the responses of different materials to stress were demonstrated. These included small-scale thrust and nappe structures in the tuffs.

Members who were not fortunate enough to be present may like to know that Bill and Tina are

each writing geological guides, describing the sites we visited, and which will be available from Bristol Museum.

Nigel Bradley.

April 24th, 1983;

Field Trip to the Peak District Mining Museum:

The party met outside the Pavilion at Matlock Bath at 11 a.m. This imposing building now houses the Peak District Mining Museum, run by the Peak District Mines Historical Society. The Museum houses a wide range of exhibits which deal with the geology, history, traditions and techniques of lead mining in Derbyshire's Peak District.

Without doubt the most eye-catching exhibit is the massive water pressure engine built in 1819 at Coalbrookdale. It was originally installed in the Alport mines to the north-west of Matlock Bath in order to drain the lower levels. Thirty years later it was moved to a mine near the village of Winster where, after lead mining had ceased, it lay until rediscovered by members of the Peak District (Mines) Historical Society. Carefully dismantled, restored and erected in the Museum, it now stands as a monument to the skill of the mine engineers of the last century. For the young at heart there was the chance to experience the "thrill" of grovelling around in the dark, enclosed spaces in the reconstructions of climbing shafts. Before leaving the museum we were treated to a slide and tape show which outlined the history of mining in the Peak District.

From the Mining Museum a short walk took us to the Temple Mine, again run by the P.D.M.H.S. In its earlier days it was a working,

but latterly unprofitable, lead mine which is now being used to demonstrate past lead mining techniques in a realistic environment. Our guide pointed out a number of features of interest, whilst at the same time giving us the history of this particular mine.

After lunch we drove to the Magpie Mine near Sheldon, another P.D.M.H.S. venture. The surface remains are thought to be the best example in Britain of a 19th century lead mine.

In the agent's house our guide gave us an introductory talk. A number of blackened beams in the house bore witness to a local farmer's contempt for industrial archaeology, since he recently tried to burn the house down! From here we embarked upon a tour of the surface remains. Space precludes a detailed description of the whole site, but we saw remains dating from the 17th century right up to a diesel driven winding engine from the last attempt at working the mine in 1951. Other highlights were the 1869 Cornish Engine House, and the story of a widow's curse placed upon the mine as the result of a dispute in which three miners from an adjacent mine died in 1833.

While there was much of great interest to be seen during the day, the most memorable thing must be the enthusiasm and great effort which the P.D.M.H.S. have put into preserving, researching and explaining to the public an important part of our industrial heritage.

Mick Coles:

Evening Classes 1983-84:

Introduction to Geology and Palaeontology: R. J. Kennedy. Dudley Technical College. 10 meetings. Mondays 7.30 p.m. October 3rd.

The Meaning of Fossils: R. J. Kennedy. Mondays 7.30 p.m. 10 meetings. Jan. 16th. Dudley Technical College.

Fees for each £9.00. Full time students, senior citizens and the unemployed, half fee.

Sutton College of Further Education:

O-level geology, Thursday evenings 7 - 9 p.m.
A-level geology, Tuesday evenings, 7 - 9 p.m.
O-level geology, Thursday mornings, 9.30 a.m. - 12.15 p.m.
Enrolment, September 5th, 6th and 7th.

Committee Meetings.

Monday September, 12th at the Park Inn, Sedgley.

Monday November, 7th at the Allied Centre.

Welcome to New Members:-

Mr. and Mrs. E. Blackwell, Wolverhampton.

Wrens site 'fits bill' as nuclear waste 'dustbin'

FROM THE PAPERS:

Abandoned Black Country limestone workings have been identified as a possible site for a nuclear waste "dustbin."

An expert on nuclear waste disposal says the workings underneath the Wrens Nest National Nature Reserve in Dudley have rare geological properties needed to store the waste.

Mr. Ted Stephens has in-pointed six prime sites for dumping medium level nuclear waste in an article for New Scientist magazine.

Although Wrens Nest is not included on his short-list, he believes it could be a contender for the dumping site if the most likely choices are blocked by objectors.

The limestone workings, which date back over 200 years, and a disused coalmine at Stubbers Green, near Aldridge, are the only two sites in the West Midlands which his researches have identified as suitable for storing the waste.

"The nuclear industry is basically looking for a large hole in the ground to store the stuff," he said. "Wrens Nest fits the bill because there would be not danger of water pollution and it is fairly central for nuclear power stations throughout the country."

"Of course nobody is saying which sites are under consideration, but I have spent the last five years researching this subject and have been able to identify potential sites simply by looking at geological areas which meet the requirements for storing nuclear waste."

A spokesman for NIREX, the nuclear industry's waste executive body, said well over 100 sites had been looked at as potential storage areas but no extensive geological tests had yet been done.

"I have no personal knowledge of the Wrens

Nest workings but if it was geologically suitable for storing this waste, it is conceivable that at some stage in the future a proposal for this site might be put forward," he said.

"At present we are relying on published information before making any direct investigations ourselves, and it will be an extremely lengthy process getting approval

for any site we find suitable."

Mr. Stephens, a qualified physicist who is a leading writer for science and environmental magazines, said Wrens Nest was not on his short-list published in the New Scientist because it was in a built-up area and was probably not stable enough for the storage plans.

Tasmanian cave gives clues to the Ice Age

From Tony Duboudin
Melbourne

Another cave has been discovered in the Franklin river valley in the wilderness area of southwest Tasmania which might possibly contain the oldest information on Ice Age communities. The cave is situated in an area which would be flooded if the Gordon-below-Franklin dam construction goes ahead.

The limestone cave about 2,000ft long called Deena-Reena (Aboriginal for "teardrop") was found last year by Dr Jim Allen and Dr Rhys Jones from the Department of Prehistory at the Australian National University.

Its significance was not fully realized until an analysis of carbon samples was completed five weeks ago. The announcement of the cave's discovery and of its possible importance was made on Tuesday by Mr Barry Cohen, the Federal Minister for Home Affairs.

Preliminary results from the tests on carbon deposits suggest that Deena-Reena cave was occupied by humans more than 20,500 years ago at the peak of the Ice Age.

Dr Allen said that the cave contained up to 15ft of deposits including stone tools, animal bones and carbon from hearths.

Letters to the Editor:

In view of members' interest in the Wrens Nest and its associated problems, I asked one of our most interested members for his comments on the news item on the previous page.

Dear Sheila,

This is another example of misleading writing about limestone workings! Mr. Stephens admits he has not visited the workings on which he expresses an opinion. He says "The nuclear industry is looking for a large hole in the ground to store the stuff," and later, "Wrens Nest fits the bill because there would be no danger of water pollution."

He has ignored or was not aware that:-

- a. nearly half a million tonnes of quarry sand has been used to infill the major parts of both the Thick and the Thin Red Workings,
- b. the sand was introduced by hydraulic stowage,
- c. there is an underground canal about a third of a mile long into the workings,
- d. a pervious dam was constructed between the sand infill and the canal,
- e. any water draining into the workings will drain through the sand and the dam into the canal and then into the Dudley Canal Tunnel.
- f. Wrens Nest is on the water shed between the River Trent and River Severn. The canal goes into both catchment areas and overflows into various streams and river

tributaries,

- g. it was for this reason that foundry sand was rejected as an infill material, since foundry sand can contain for example small quantities of phenols.

Mr. Stephens does agree that a deposit of nuclear waste in a built-up area is unsuitable.

Douglas Warren:

North Staffs. Group of the Geologists' Association:

Secretary:- S. M. P. Alcock,
43, Yoxall Avenue, Hartshill,
Stoke-on-Trent. Tel. 47450.

The Secretary has invited our members to join in on their field trips:-

1. Sunday 24th July, N.E. Staffs.
2. Saturday 10th September, Ingleton.
3. Sunday 2nd October.
Elbolton area of Grassington.

Please contact the Secretary.

British Natural History:

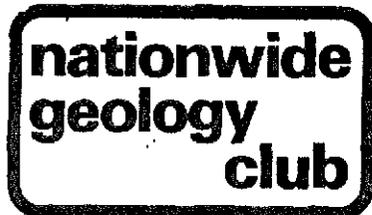
There is a new permanent exhibition at the Natural History Museum at South Kensington, London. It includes conservation, identification, urban wastelands, woodland, seashore, highland, downland and many other habitats. It is full of information about 2,000 plants and animals.

Geological Curators' Group:

Autumn meeting, 9th and 10th Sept.
Buxton Museum and Art Gallery,
Derbyshire. £10.

Collections, archives, documentation,
Buxton stored collections and short
talks.

Contact Mick Stanley, Derbyshire
Museum Service, County Offices,
Matlock, DE4 3AG.



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ABOUT THE CLUB

We are a group, about 450 strong, welcoming everyone from the complete novice to the professional geologist. The Club is member run, with an annually elected Committee, and is a non-profit making registered charity No. 278359. Membership is open to all aged 11 or over by 31st August 1983. There is no maximum age. Membership for 1983 is available from October 1st 1982.

FIELD TRIPS

These are regularly held, and are usually Youth Hostel based. They vary in price from only £1.50 for a day trip up to around £50 for a week. A field trip brochure, giving full details will be sent to all members free of charge (available January 1983). Teachers may obtain a copy of our special information sheet on receipt of a S.A.E.

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Information from:-
Christine Rayner,
36 Severn Way,
Cressage,
Shrewsbury.

British Association 1983:

Details from Dr. L. B. Halstead,
University of Reading, RG6 2AR.

Brighton, Geology Section.
Aug. 21st-26th. Includes:-
Landforms of South Downs,
Footprints of Dinosaurs,
Deep Crust, Disasters,
Weald Geology, Sussex wines,
Geothermal Energy.

Peak National Park Courses:

Peak National Park Study Centre,
Losehill Hall, Castleton, Derbs.
S30 2WB.

1. Caves of the Peak, £46.
18-20th November.
2. Mines of the Peak, £48.
2-4th March.
3. Minerals, Rocks and Fossils.
£46. 21-23rd October.

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