



The Black Country Geological Society

NEWSLETTER No. 59 - October, 1986:

Editorial:

Earlier this year, a visit was arranged to the basement of Wolverhampton Art Gallery to view the renovation and cataloguing of the Fraser Collection. Those who attended were very well looked after by Rosemary Roden who is in charge. She had given up a Saturday morning but felt well rewarded by the enthusiasm of our members. Slides were shown of the original state of the collection as well as the specimens already catalogued. The Fraser Gallery is complete but not yet operational. Also the builders are in Rosemary's basement but she has offered to be at the gallery some time in the new year if more members would like to see the collection. She is also involved with the mineral collection at Worcester and would welcome us there too within the limits of space, which means a maximum of ten people in each place. No specific dates have been decided upon but when arranged will be put in the newsletter.

In "From the Papers" there is an item on the Dudley Museum geological collection too. Beside it is an intriguing story about one of our members.

Forthcoming Meetings:

5th October: Sunday. Joint field trip with the Shropshire Geological Society, to Staple Edge in the Forest of Dean. Meet at the Dean Heritage Centre Car Park, Lower Soudley on the B4227 at 10.30 a.m.

17th November: Monday. "Magmatic Processes and Mid-Ocean Ridges." Talk by Dr. Reg Bradshaw.

Indoor Meetings are held at the Saracen's Head, Stone Street, Dudley: 7.30 p.m. for 8.00 p.m. start. Field Meetings commence from outside the Saracen's Head unless otherwise stated. Those who would like lifts for field meetings, please contact Graham Worton (Dudley 213207).

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

Chairman

*A. Cutler B.Sc., M.CAM.,
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Field Secretary

N.G. Bradley

Programme 1986:

17th November: Monday. "Magmatic Processes and Mid-Ocean Ridges." Talk by Dr. Reg Bradshaw of Bristol University. On this welcome return visit, Reg will enlarge on one aspect of the popular topic of plate tectonics.

8th December: Monday. "New Zealand Geology and Scenery." Talk by Sheila Pitts, based on a five week tour. This involved sharing a two week holiday with North Island friends who produced as much geology as they could think of, then touring in South Island which is very different, for two weeks. The last week was with the friends again, at Rotorua, and by then they were all fascinated with their own geology.

20th April, 1986. Field Trip to Shelve. Leader Stuart McNicol:

Despite the previous heavy rain, a determined group of 35 enthusiastic geologists made this a very successful trip.

The trip began with an overview of the area's geology, looking out across the scenery from Devil's Chair on the Stiperstones Ridge. Here the white Stiperstones Quartzite was examined. This is the basal member of the Ordovician (Arenig) in the area. The field evidence suggested a high energy environment near a shoreline, with much reworking of the sediment resulting in a quartzite deposit. Glacial features and the tectonic and structural grain of the country were noted. The Stiperstones themselves were once nunataks (rocks projecting through the ice sheet). The next stop was a quarry near Stiperstones Inn (SO364005) where Mytton Flags were examined. These are fine grained, dark grey, micaceous rocks belonging to the next younger stage of the Ordovician (Llanvirn) and represent a less energetic, deeper Water environment.

The baked Hope Shales, also of Llanvirn age, and the associated

igneous intrusion were examined in the small quarry on Burgame Corner (SO 356998) and consisted of fine, grey micaceous sediments into which dolerite had been intruded.

Our first fossil finds occurred at the next location in the Weston Beds at Priestweston (SO 293973). Here steeply bedded fine grained sediments yielded trilobite fragments and burrows. The Weston Beds are Llanvirn in age but are stratigraphically younger than previous exposures.

Some indication of the volcanic activity occurring in the Ordovician was seen next in a roadside quarry (SO 278977) where bedded piroclastics were examined. These ashes represent a period of acidic, explosive volcanism occurring in Caradoc times (younger than Llanvirn). Volcanic activity was quite widespread during the

Ordovician in the British Isles, and the environment is thought to have been that of the edge of a closing ocean with a deep sea trench and subduction zone lying in an ocean to the west of Wales. Above this trench on the continental side, a row of volcanic islands would have been produced, giving rise to the volcanic ash deposits and andesitic lava flows. The stretch of sea between these volcanic islands and the continent to the east, which must have included Longmynd, was the scene of these Ordovician deposits.

Intrusive igneous rocks were also emplaced during the Ordovician.

After a welcome stop at a friendly pub, basic igneous rocks with columnar jointing were examined in a quarry at a farm at Kinton (SO 290995). The margins of the intrusion showed hornfelsed metamorphosed rocks, with crinoid ossicles still visible.

The next stop was a stream section at Rorrington (SO299004) where black, fissile shales yielded a sparse fauna of graptolites. These Rorrington Beds represent the basal Caradoc stage of the Ordovician.

More evidence of the acidic volcanic activity was examined in Lower Wood Quarry (SJ 308025) where pale, vesicular lava containing amygdales of white and pink minerals, probably zeolites, occur. The contact with the surrounding sediments, the Spywood Grit of the Caradoc, is seen here. The penultimate stop of the day was

one of the most exciting, with trilobites literally pouring from the rocks at Betton Wood farm (SJ 314024). The sediments here are the Meadowtown Beds, and represent the Llandeilo stage of the Ordovician. The final stop of the trip was in a silage pit, and the associated spoil heap at Brownlow Hall Farm (SJ 322026) exposing fossiliferous Weston Beds of Llanvirn age. For obvious reasons, the group didn't spend much time there! Overall the trip was a full and lively one, with a range of geology to suit hard rock, soft rock and dead bug geologists alike. The problems of taking a convoy of 12 cars to 'C road' locations were taken in our stride in the glorious sunshine. Many thanks must go to Stuart McNicol for a very enjoyable trip, and to our Shropshire friends who helped to make the day a success.

Graham Worton:

12th May, 1986. Aspects of Trilobite Morphology. Talk by Dr. A Thomas of Aston University.

After outlining the basic morphology of the trilobite, Dr. Thomas demonstrated a number of approaches to identifying the mode of life of such an extinct group.

Firstly evidence can be obtained by trying to interpret the function of features from morphology. In the Burgess Shales exceptional preservation of soft parts provides information on trilobite appendages. Elsewhere pyritisation has affected proteins in muscles and is open to study by X-ray techniques. Secondly, evidence of mode of life may be abstracted from the study of trace fossils resulting from trilobite activity. Thirdly comparison can be made with living animals. Fourthly some conclusions can be drawn from the geographical distribution of trilobite species.

Dr. Thomas then demonstrated these methods by a study of opipeuter and agnostid trilobites. Opipeuter has enormously enlarged and remarkable

eyes, some with 2,000 lenses. If the articulation between body and eye is studied and the eye is orientated horizontally, it would appear that in some species the body lies at an angle and probably lay in the mud. The pygidium of such species has very large muscle scars, probably as it had appendages for constructing a burrow. Studies of the fine structure of the eyes suggest they are of two types and of amazing complexity and refinement. The long narrow shape of opipeuter invites comparison with modern actively swimming crustaceans. The widespread geographical distribution from the U.S.A. to Australia and from black shales to algal limestones suggests a free swimming or floating mode of life.

The agnostids, in contrast, are blind trilobites whose cephalon equals in size the pygidium. They are small. Did they move scallop-like by moving cephalon and pygidium together? Were they free-floating or swimming as suggested by their wide distribution? Were they parasitic on floating organisms? If so, where are the organisms to which they were attached? Research seems to pose more problems than it solves.

Dr. Thomas concluded his stimulating and lucid lecture by answering questions.

Kate Ashcroft:

15th June, 1986: Field trip to the Potteries and North Staffordshire.

Leader Dr. E. L. Boardman of the National Coal Board.

The North Staffs. Coalfield is formed by the Potteries syncline, which has its axis NNE-SSW and plunges towards the south. In its southern part the barren Upper Coal Measures outcrop and they overlie the productive Middle and Lower Coal Measure horizons, while in the north, due to the plunging angle of the syncline, these productive measures appear at the surface.

To the west there is the Western Anticline, with a similar direction of axis and plunge, giving rise to the impressive outcrops at Mow Cop.

Dr. E. L. Boardman is NCB geologist for the North Staffs. area, and his

itinerary visited half a dozen sites giving a good impression of the area. He started at Park Hall (929450) which is just outside the coalfield and gives a general view of it, showing the low-lying area of the syncline and the higher ground beyond. Park Hall has several quarries in the Trias used for sand and gravel aggregate. These showed typical Kidderminster and Polesworth formation (Sunter Pebble Beds), with cross-bedded and horizontally bedded formations. The pebbles were transported from the south by a braided river system; for a present day equivalent Dr. Boardman quoted the Nueces River in S.E. Texas, running in semi-desert conditions. Location two was at Chesterton (843504) at a quarry on the axis of the Potteries syncline. The quarry is at the top of the Etruria Marl of the Upper Coal Measures, and was used for brick-making material. The red colour of the strata was not a continental red bed mechanism, but represents oxidation conditions caused by drainage of the Coal Measure swamps due to uplift. Under these conditions no coal is produced. Coal is only found when swamps are poorly drained, preventing oxidation. Location three at Mount Pleasant (851564) was on the axis of the Western Anticline and was a quarry for a particular mineral. Dr. Boardman asked which? Fortunately members were able to identify barytes. This quarry was at the top of the Millstone Grit (Rough Rock Group), while the nearby Mow Cop summit (857572) was in a lower Millstone Grit horizon, corresponding to the Chatsworth Group, and the relationship between these was demonstrated by Dr. Boardman using a plasticene model. Location five was not very impressive, just an exposure by the roadside (852586) but it represents the only local exposure of the Red Rock Fault - a major fault between Permian and Carboniferous with a downthrow of 500 to 2,500 metres. This fault runs northwards for over 100 kilometres. Finally a quick visit to Pot Bank quarry (859593) which was worked for Ganister to line furnaces and

kilns in the Potteries. Traces of roots were found indicating this was the seat-earth for Coal Measure plants. Altogether this made a very interesting day, and our thanks are due to Dr. Boardman for leading this field meeting.

Paul Shilston:

Courses for the Public:

Bristol University:

- (a) Brush up your Minerals and Rocks. Dr. R. Bradshaw. Nov. 29th and 30th. Wills Memorial Building, Queen's Road, Bristol. Fee £12. 886 HQ18 SJ.
- (b) Minerals and X-rays. Dr. R. Bradshaw. Jan. 31st. Feb. 2nd. Location as above. Fee £12.
- (c) Weymouth Anticline. Weekend from Dorchester. Fee £15. Mostly in the field. Dr. J. Cope. 086 G001 SJ.
- (d) Mineralogical excursion to Paris - famous mineral collections. Coach from Bristol. £105. Nov. 6th evening - Nov. 9th. Dr. R. Bradshaw and Dr. A. Hawkins.
- (e) Field excursion to Eastern Canada. Sept. 17th - Oct. 5th, 1987. Limited to 35 people. Dr. R. Bradshaw and Dr. B. Williams. Itinerary on request.
- (f) Volcanoes of Southern Italy. Easter 1987. approx. 10 days.
- (g) Urchfont, Devizes, Wiltshire. American West, geology, natural history. Weekend, £51. Jan 23/25th, 1987. W86 HQ12 SJR.

All details from:-
Dept. of extramural studies,
Wills Memorial Building,
Queen's Road,
Bristol BS8 1HR.
Tel. 0272-303629.

University of Birmingham:

Geology of the British Isles. 10 meetings, 2 field visits, Wed. Oct. 1st

7.30 p.m. United Reform Church,
Park Road, Sutton Coldfield. £17.
Dr. Chris Sands.

University of Warwick:

History of Geology. 20 meetings.
Dr. D. Gobbett, £28. Room 001,
Science Education Building,
University of Warwick, Wed.
7.30 p.m. 8th Oct.

And lastly for the most
adventurous:-

Trans-Saharan Excursion. £1,500.
15-18 days from approx Jan. 15th
1987. From Niger to Algeria. De-
tails Dr. R. Moody, Kingston
Geological Services, Millenium
House, Eden Street, Kingston,
Surrey, KT1 1BL. Limited to 12
people. "ARDUOUS" (Don't forget to
write it up!).

Catalogue of Natural Science
Collections in the North East.
Available from:- North of England
Museums Service, 27 Sutton St.,
Durham, DH1 4BW. £9.50.

Geological Curators' Group.
Meeting at Geology Museum, 18
Queen Square, Bath. £1.00. Oct.
3rd. 9.30 a.m.

Warwickshire Museum:
John Crossling, Keeper of
Geology, hopes for letters of
support to save Webster's Clay-
pit, Coventry from infilling. It
has an exposure of the Carbon-
iferous Enville Formation,
containing the only known site
where the primitive conifer
Walchia has been found. He would
like letters sent to him at
Warwickshire Museum, Market Place,
Warwick, CV34 4SA BUT address
each to:- City Architect and
Planning Officer, Tower Block,
Much Park Road, Coventry CV4 5RT,
marked 'For the attention of Mr.
Harper.'

Field Secretary:-

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38 Vale Road,
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Hon. Secretary:-

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See over for 'From the Papers'

Kate escapes the alligators

Traveller Kate Ashcroft has returned home safely to Sutton Coldfield after a trip to Peru almost ended in disaster.

The 27-year-old college lecturer was marooned on a rock in an alligator-infested river after the wooden boat she was travelling in crashed into rocks in the darkness.

Miss Ashcroft and 15 fellow passengers scrambled to safety.

They climbed on to the rock 300 feet from the shore and waited for two hours to be rescued.

The group watched helplessly as their luggage slipped off the boat and was taken downstream in the powerful fast-flowing Tambopata, a tributary of the Amazon.

Miss Ashcroft, lecturer in charge of geography and geology at Sutton Coldfield College of Further Education, said: "The accident was potentially very dangerous but fortunately the rock was available to us for refuge.

"Had the rock been submerged or had the boat turned over the



Kate Ashcroft and the remains of her luggage.

story would be different."

Most of the passengers' luggage was recovered a few miles downstream. Miss Ashcroft's suitcase was found gaping open and held together only with baler twine.

The accident happened before daybreak as Miss Ashcroft was starting on the first leg of the journey home to England.

The last stop of the month-long trip was at a wildlife reserve in a tropical forest accessible only by river.

The boat upset meant she missed her flight home and was delayed for two days.

Miss Ashcroft of Worcester Lane, Sutton, has travelled a great deal but her first trip to South America would probably be her last, she said.

P.S. Kate says the shipwreck was the highlight of the tour. She didn't have time to be scared, and thinks the rock was probably basalt. She really thought about it, and wondered about whether it was a laccolith. But packing and unpacking wet clothes each day had rather less interest, and she wasn't very keen to describe the state of her sleeping bag. Do members think we ought to send her on the Sahara trip?

Shiela:

Dudley &
District
Chronicle.
12.9.86.

Boost for town's fossils

DUDLEY'S world-famous fossil collection is being put back in the limelight with a £10,000 shot-in-the-arm.

Members of the borough's leisure services committee have agreed to transfer the sum, which was originally earmarked for a geological visitor centre at Mons Hill School, Wrens Nest, to updating facilities which house the collection.

The cash has been made available because the school does not have the space.

It will now be used to adapt a room at Dudley Museum to provide suitable environmentally controlled storage; the refurbishment and development of the existing geological display gallery to modern standards; and the establishment of a loan service of study collections for use in schools.

A report to the committee said that the fossil collection was internationally famous and as recently as the 1960s was considered to be one of the three best in the country.

Over the years the collection has suffered as a result of lack of a curator and the associated professional supervision. In 1983 an effort was made to sort, catalogue and conserve the 8,000 items in the collection by means of an MSC-funded scheme which lasted for two years.