The Black Country Geological Society

NEWSLETTER No. 42 - December, 1983:

Editorial

Bookshop:

At recent meetings members have noticed the increase in items for sale, especially books, at reduced prices. The easy availability of what might otherwise need ordering is one of its other attractions. On page 2 is a letter from Peter Knight explaining the expansion of these services.

As with other items such as Christmas cards, the more people use the services available, the further they can be expanded from increased Society profits.

Find your presents at meetings, and bring your friends along to buy you the presents you want!

Next Meeting:-

23rd January:
"Black Country Limestone Mines."
Lecture by Adrian Collings.

Meetings are held at 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.

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.

Programme for 1984:

Monday 23rd January:
"Black Country Limestone Mines." Lecture by Adrian Collings. This will describe the regional geological setting, the development of limestone mining from Roman times onwards, and the results of recent borehole work. These relate to sedimentology as well as practical engineering problems.

Monday 20th February:
A.G.M. and Video Goodies.

Monday 19th March:
Informal meeting to discuss the field trip.
"The Antarctic Landscape", talk by Sheila Pitts.

Saturday 24th March:
Forest of Dean field trip, led by Martin Bragg.

Monday 16th April:
Informal meeting.

Sunday 29th April:
Warwick and Nuneaton field trip. Leader Tristram Besterman of Warwick Museum.

Monday 14th May:
"The Origin of some British Mineral Deposits, Recent Thoughts." Lecture:R.Ixer, Aston University.

Monday 4th June:
Eastern Boundary Fault, Walsall. Field trip led by Peter Whitehead. Meet 7p.m. at the Three Crowns.

Monday 25th June:
The Lickey Hills. Evening field trip led by Paul Shilston.

Sunday 1st July:
Charnwood Forest. Field trip led by John Armitage.

Monday 23rd July:
Informal meeting to classify rocks and fossils.

September/October:
To be arranged.

Monday 12th November:
Informal meeting, and talk on borehole drilling by Maitland Woods.

Sunday 18th November:
The B.C.G.S. exploratory borehole will be sunk.

Monday 3rd December:
"Mass Extinctions in the Fossil Record." Lecture by Professor A. Hallam of Birmingham University.

Letter to the Editor:

Dear Editor,
Members who have not attended the last four meetings may not be aware that a wide range of geological books, guides and other aids are now being sold at all lecture and informal meetings. This activity has proved so popular that we are now extending it to include the sale of rocks, fossils and minerals too. I hope this will be similarly well received and popular. We welcome all members' inspection, and indeed direct support!
An appeal is also made here for donations of second hand books in good condition, for resale to boost Society funds. Please contact me at the book counter at any meeting.

Peter Knight.

27th September, 1983:
"The Mineralisation of Derbyshire", lecture by Dr. T. Ford:

This lecture was well illustrated with slides and delivered with enthusiasm and humour.
Beginning with a geological map of the area, Dr. Ford took us on a most interesting journey through the general geology of the area, on to the minerals themselves and finally their genesis.
The mineralisation occurs in Carboniferous Limestones which have suffered stratigraphic inversion. The limestone was once in a basin overlain by thousands of feet of Millstone Grit and Coal Measures which have been folded upwards to form a dome. Erosion has brought the limestone to the surface.
The limestone dips to the west and east

with the Millstone Grit and Coal Measures outcropping on the western and eastern margins of the anticline. The limestone has two divisions, the Brigantian and the Aspian, separated by a lava, the 'toadstone." The majority of the mineralisation appears to be in the limestone of the eastern side of the dome, in the upper Brigantian rocks. The impervious, 'toadstone' is thought to have acted as a partial barrier to the mineral fluids.
Mineralisation is thought to relate to the stratigraphic inversion in that it allowed fluids to flow into the limestone. The Millstone Grit cap would have prevented upward migration of the fluids. There is also a relationship between west-east and some north-south anticlinal axes and mineralisation. Fissuring due to the stresses that accompany folding would allow fluids in.
The main mineral deposits are fluorits, galena, barite, calcite and small amounts of sphalerite. These minerals are often associated with bitumen deposits. The minerals have four main types of occurrence, flats, pipes, rakes and scrines. Within these structures the minerals occur in different combinations, proportions and textures. They often form beautiful and bizarre patterns, many of which cannot be accounted for.
Concentration of the minerals into workable veins has meant economic exploitation over hundreds of years. This has not been without its problems. The bulging and near disappearance of veins caused the old mineral workers problems. Today exploitation is easier with more efficient mapping and extraction of minerals.
Mineralisation occurred at temperatures of 70°-90°C. at a depth of 3,000 feet plus.
Fluorite appears to be dominant in the east of the area, barite in the centre and calcite to the west. This is possibly related to differing temperature gradients.
Research has shown that there might have been three episodes of mineralisation, at the end of the Carboniferous, in the Permian, and in the Triassic. The mineralising fluids were generated in association with oil in the North Sea basin and moved under compression into the Pennine anticline. The complex chemical reactions which produced the Derbyshire mineralisation are not yet fully understood and await further research.

Peter Jones.

27th June, 1983: Evening field trip to Ham Dingle and Wychbury Hill. Leader Alan Cutler.

Despite rather unsettled weather the evening turned out to be very pleasant by the time the party assembled in the car park at the Foley Arms, Pedmore. The entrance to the Dingle at the junction of Old Ham Lane and New Ham Lane lies near the Western Boundary Fault, where we inspected a roadside outcrop of Upper Mottled Sandstone of Triassic age on the downthrow side of the fault. On entering the Dingle everyone was surprised at the lushness of the vegetation, which has formed a welcoming green wedge between the housing estate to the north and south.
Following the stream the ground began to rise steadily to the confluence of the stream with a lesser stream, where buff coloured clays belonging to the Halesowen Group of the Upper Coal Measures were exposed on the upthrow side of the boundary fault.
We made a short detour southwards along the tributary and after some searching managed to find Keele Beds in situ in the stream bank. This outcrop is one of several which are trapped between branches of the boundary fault in the south-west of the coalfield.
Returning to the main stream, the ground began to rise more steeply as we ascended the Dingle. Keeping to the footpath which follows the rim of the now rather steep sided valley, we could discern but not inspect the outcrops of sandstones of the Halesowen Group. A small thin coal seam outcrops here, but the soil and rubbish present ob-

scured all trace of it.
With a family of blue tits watching us with some interest we emerged into the sunlight at the top of the Dingle to be watched with even more interest by some of the residents of the housing estate.
A short walk brought us to Pedmore Lane, where after climbing the stile we followed the footpath up Wychbury Hill. From the top we had a superb view of the southern Black Country, and the landscape to the west including the Shropshire hills and Wenlock Edge. We continued southwards on the top of the hill, where the obelisk looked in rather bad shape, and an impromptu discussion on the origin of the saline deposits of Droitwich provided a short diversion.
We returned via the western slopes of the hill, where those less anxious to get to the pub inspected the mounds and ditch system of the Iron-Age hill fort which are still remarkably intact.
Further down the hill we were pleased to see a good exposure of Clent Breccia belonging to the Enville Beds. This caps the hill and gives rise to its well marked features, although it is slightly overshadowed by the nearby Clent Hills.
A half mile walk further down the road brought us back to the Foley Arms and a welcome drink to end another thoroughly pleasant evening meeting.

Alan Cutler:

Krakatoa Centenary Exhibition:

Here is the report about this event at the Geology Museum, London, which was promised in the last issue. It is mainly from the captions used.

The eruptions took place on the island of Krakatoa, between Java and Sumatra, mainly on 26th and 27th August, 1883. About 36,000 people died, a few due to burning ash and pumice, but most were drowned by the massive waves.
The first rumblings were in May 1883 after 200 years of peace. Before the eruption Krakatoa was an island with three volcanoes. After the eruptions the main cone was cut in half, but Krakatoa remained above sea level.
At 10.02 hours on the morning of 27th August, 1883 a thunderous explosion split Krakatoa. It was the loudest noise ever recorded. Even on Rodriquez Island 4700 km. away it 'sounded like a distant roar of heavy guns.' The big bang was heard in Ceylon and in over 40% of the area of Australia. At Batavia (now Djakarta) 160 km. from Krakatoa, a gasometer with an automatic pressure guage recorded the shock at 10. 10, i.e. 8 minutes later. The trace shot off the graph and the gasometer left the ground!
Red hot ash and pumice blocked the skies on Java and Sumatra and thick black dust descended. Rafts of floating pumice blocked the seaway around the islands. The steamer Beraow was lifted by the flood and thrown over the jetty at the level of the palm trees. Sea waves up to 40 metres high destroyed and damaged 300 villages and towns, in some areas 11 km. inland.
The gases and magma of the volcano blew out and its sides collapsed inwards with tons of debris, probably causing the huge sea waves. Obsidian, ash and pumice were ejected. The rafts of pumice floated in the sea for many years, and reached the coast of Africa. Airborne debris rained down on Krakatoa and nearby islands and some now stands as cliffs 60 metres high.
The soundwave took 14 hours to reach the United Kingdom and 38 hours to reach the other side of the world and back again to the remains of Krakatoa.
There was a 4-6 inch rise in the tide at Portsmouth 18,500 km. away. For three days the sun was green when rising, It became blue when high, resembling brilliantly burning sulphur.
The 27th August eruption threw up a dust cloud 40 km. high. It settled above the clouds and drifted right

round the world. Across the globe for more than three years afterwards the ash cloud caused burning skies and eerie sunsets. Climatologists recorded significant changes in the Earth's climate for seven years.
In 1927, 44 years after the great eruption, the northern area of Krakatoa erupted again. In a burst of volcanic fury the island Asak Krakatoa (child of Krakatoa) was born. Over the next few years it was destroyed by the sea five times before it was established.

D. Warren:

Welcome to New Members:

Anne-Marie Whitfield, Harborne.
Jonathan Wright, Oldbury.
Christopher Lewis, Wall Heath.

From the Papers:

To wind up the year we reproduce overleaf some of the more interesting items which have appeared in the papers in 1983. It seems to have been a bumper year for dinosaurs - at least two digs to our knowledge, mentions on Woman's Hour, Radio 4 PM. and now footprints from Yorkshire! Not to mention whales in Italy and yet more whales in the Himalayas! Keep the cuttings coming in, especially cartoons and humerous items.

Boreholes boom in Reykjavik

When Icelanders drilled into the earth, instead of finding oil, they hit clean hot water, an energy source that now warms 75 per cent of their country's population.

Rain filters through sand and pebbles to this geologically young island's turbulent underground, which is still so warm the water boils.

The water is pumped into home heating systems. Building in the Reykjavik area, housing 120,000, all use geothermal heating.

Geothermal water is piped directly into public outdoor swimming pools in Reykjavik, open even during the winter. It is is also used in greenhouse cultivation of tropical fruits, food processing and fish farming.

Due to its location in the north Atlantic just below the Arctic Circle, Iceland is out of the reach of European pollution, and is virtually free of acid rains that kill lakes in North America and Scandinavia.

"It is very windy up here," said Gunnar Kristinsson, head engineer at Reykjavik's district heating centre one of 30 such utilities nationwide.

"We very seldom get air from Europe."

Formula could predict quakes

A Scottish research team may be able to predict earthquakes with the help of a new mathematical formula.

It believes its discovery, which depends on computer technology, can predict the likely time and location of earthquakes in any part of the world.

The formula uses information on previous earthquakes and data on the earth's electro-magnetic fields.

Last year it was put to the test and Edinburgh surveyor, Mr David Macduff, and his team predicted an earthquake in North Yemen on December 13. Both the time and location proved correct.

At a news conference in Edinburgh, Mr Macduff said the group was thinking of forming a company to market the technique.

He hoped the formula would be useful in giving advanced warning of likely danger spots.

The North Yemen prediction was made after he visited the Stanford Research Centre in California where he was given details of 700 major earthquakes.

The team also claims that its technique could be used to forecast possible machine failure and outbreaks of unusual criminal behaviour.

Dinosaur footprints found on cliff

Crumbling cliffs on the North Yorkshire coastline have produced evidence of the days when dinosaurs ruled the earth.

Perfectly-preserved footprints, about nine inches long, of a two-legged dinosaur have been found embedded in rocks near Scarborough.

But the Yorkshire Museum in York wants to keep the location secret.

Experts are worried that if it is identified the site will be devastated before it can be fully examined.

They are also worried because the cliffs are highly dangerous, and if the location becomes known, sightseers, amateur geologists and dealers in fossils looking for a quick profit, might be tempted to risk their lives.

Museum curator Mr Terry Suthers said the site is north of Scarborough and in a remote area.

The finds will soon go on exhibition at York.

Two museum geologists, Mr Stuart Ogilvy and Mr Shaun Lofthouse, made the discovery after sections of the cliff collapsed, revealing a carpet of perfectly preserved footprints which they believe were made 160 million years ago, when the area was a tropical swamp.

Some were in rocks on the beach, which are now being examined in York and prepared for exhibitions but there are others, even more interesting, within the cliff face.

WHALE OF A TAIL FROM PADUA

By Our Rome Correspondent

The 65ft skeleton of a rostrated (billed or beaked) whale, about 3,000,000 years old, has been found in a deep gulley in a hill close to Lon Lugagnano, near Placenza in north Italy.

Paelcontologists said yesterday that at the time when the whale was alive, the Puduan plains were part of the seabed and the hills around Lugagnano formed a gulf.

Heavy rains had washed away earth covering the head and the 10ft long mandibles which appear to be in good condition. The top of the head, 10ft in diameter, was thought at first to be a large rock.

Piece of Mars is found

by ROBIN McKIE

IN THE middle of the frozen Antarctic wilderness, scientists have uncovered a remarkable treasure trove ; pieces of rock that have come from other worlds.

Preserved in the continent's giant ice sheets for hundreds of thousands of years, these extraterrestial visitors—which were first thought to be normal meteorites—have been shown to have unexpectedly exotic origins.

One has already been identified as a lunar rock. Far more dramatically, at least one other is believed to come from Mars—offering scientists a unique chance to study the geology, chemistry and soil of our most important planetary neighbour.

The rocks have been found in sites near Antarctica's McMurdo Sound and have lain buried there since their fall to Earth. They have surfaced only recently as glaciers have pushed them on to the sides of half-submerged mountains.

Thousands of fragments have been found by American and Japanese scientists —including one spectacular diamond-studded meteorite— as well as the Mars and Moon rocks. Most are the remains of several hundred meteorites that crashed to Earth in the past and represent the biggest such haul ever discovered.

Meteorites are thought to be the rocks left over from the formation of the solar system more than four billion years ago. Most of the Antarctic specimens fit this picture, but to their surprise scientists found some that did not.

One was coated in a frothy greenish crust and was immediately likened to samples brought back from the Moon by Apollo astronauts. Later tests of its chemical composition revealed further similarities and showed the rock was quite unlike those found on Earth or other meteorites.

At the annual Lunar and Planetary Science Conference held in Houston, Texas, this month, several international groups presented further evidence which supported the lunar origins of the golf-ball-shaped rock.

If they are right, it presents science with a new problem—how the rock got to Earth. To escape the Moon's gravity it would have to travel faster than a mile a second. An asteroid crash could have blasted it loose — but the gigantic impact would also have melted the rock to glass.

Even more puzzling is the presence of a rock that is probably Martian. This shows signs of having partially burned up through our atmosphere—but also reveals indications of earlier volcanic and oxidation effects.

Whales once walked in Himalayas

By ADRIAN BERRY
Science Correspondent

EVIDENCE that the ancestors of whales once lived entirely on land has followed the examination of whale fossils found in 1978 in the Himalayan foothills of Pakistan.

The ancestral whales, who lived about 50 million years ago, had a hearing system which could not have worked in water, and they probably had limbs, or massive fins, which enabled them to walk, says a report in April 22 issue of SCIENCE.

Fish abundant

"We believe they were initially land mammals who, feeding on both meat and fish, colonised the seashore," said the leader of the team of scientists, Prof. Philip Gingerish, of the University of Michigan.

"We think they were enticed by an abundance of fish, and that they moved offshore and gradually made their home in the sea."

Other scientists said yesterday that this idea agreed with theories about very large animals. Creatures like the hippopotamus had a tendency to wallow in water to ease the pressure on their lungs caused by their own crushing weight.

Guided Walks for the Family.

Hope for late boost as nature walks flop

EXPRESS & STAR 12.9.83

A series of conducted nature walks at Dudley have flopped — with only one person turning up to join any of the five rambles round local beauty spots.

Now organisers are hoping for a last-minute boost in turnout for the final walks in the year's programme.

Volunteers have had to abandon four of the five previous rambles when no one turned up. And the fifth went ahead with only one walker.

Members of the Black Country Geological Society, who organise the walks in association with the Countryside Commission, blame lack of publicity for the poor turnout.

They say that cuts in government spending means that the commission has not produced booklets which have highlighted the programme of walks in the past.

Geological society chairman, Mr Alan Cutler, says: "It has been very disappointing for our guides to arrive at the meeting place, wait patiently and then not have a soul turn up.

"This is the fourth season that we've organised the walks and they've always been very popular in the past. The ramble at Wrens Nest in particular has always been well attended. We usually get about 30 people turn up — and last year there were 120.

"When we realised things weren't going well this year we tried putting up some hastily-made posters in public libraries, but they don't seem to have had any effect.

"We would like to be able to continue the walks next year. But if the Countryside Commission is still having problems with finance we may have to get something planned off our own bat."

The season's final walks are at Cotwall End Valley on Sunday, meeting at the nature reserve; Wrens Nest on September 18, meeting at the King Arthur pub, Priory Road; and Ridge Hill, Wordsley, on September 25, meeting at the Swan pub, Brierley Hill Road.

The 50p and 25p fees for joining the informal rambles go to the society's funds for conservation work.

Members who read about the disappointing results of this years programme will be interested to see the following letter which was in the Express and Star, 12.9.83.

Path to enjoyment

I was sorry, but not surprised to hear that the Conducted Nature Walks have been so poorly supported this year.

I have enjoyed these walks for the past few years but regrettably not in 1983. Why?

Early in the year I went to pick up a programme of walks and was told that none was available.

But I was told there was a copy in the Reference Library to which I could refer.

That day I did not have time to borrow the book and copy all the programme. I resolved to return when I had more leisure.

How many others had similar unfulfilled good intentions and found themselves without information when Sunday came?

True then, we the public are to blame. The information was available, but very inaccessible.

Countryside Commission and Black Country Geological Society please give us another chance and please get together for next season and produce posters for the library, and duplicated leaflets giving the programme of events.

A small charge could be made towards expenses.

Dorothy Cartwright,
Wolverhampton Road East,
Wolverhampton.

Obituary.

Dr Gordon Warwick

Dr Gordon Warwick, MSc, Reader in the Department of Geography, died suddenly just before Easter at the age of 54. Gordon Warwick had been a member of the Geography Department for nearly 27 years, having started as an Assistant Lecturer in 1956, rising to become Reader in Geomorphology in 1969. It is as a Geomorphologist that most former students will remember him but he possessed an insatiable academic curiosity and was able to offer sound advice on a wide variety of topics.

The landforms and processes of limestone regions were the foci for his major academic interest, coupled with a love of caving and potholing. His last exploration of a cave network occurred only a few years before his death. Although his interest in limestone encompassed the entire world he was best known as an expert on the Derbyshire limestone districts and especially the drainage basins of the rivers Dove and Manifold. His PhD, awarded in 1953, was entitled 'The Geomorphology of the Dove-Manifold Region'.

Gordon Warwick was extremely active in University affairs, serving on the Board of Studies for Geography and Environmental Studies, the Board of Undergraduate Studies, the Board of the Faculty of Science and Senate. The number of national and international academic organisations that Gordon Warwick served on are too numerous to list but included being Honorary Treasurer of the British Geomorphological Research Group for ten years, Chairman of the Cave Research Group of Great Britain, British Representative on the International Speleological Union, and member of the Executive Committee of the Midlands New Towns Society. He was also Chairman of the Birmingham Branch of the Geographical Association and part-time administrative officer of the Ministry of Housing and Local Government concerned with derelict land in the West Midlands.

Many former students may well be surprised at the extent of Gordon Warwick's activities for he never let them interfere with his major concern, that of educating and helping students; in this respect alone, he will be sadly missed.

A.J Gerrard

Dr. Warwick has lectured to the Society, and was co-author of the Wrens Nest handbook.

Committee Meeting. At the Park Inn, Sedgeley, Monday Jan. 16th.

British Mineral and Gem Exhibition. March 24-25th. 1984 At the Holiday Inn, Swiss Cottage, London.

New Geological Posts in Dudley:

Members will be pleased to learn that Maggie Rowlands, lately of the N.C.C., has been appointed supervisor on a one year M.S.C. funded scheme to curate the Dudley geological collection, commencing at the end of November. There will also be a full time assistant, and scope, for further part time posts if necessary. It is anticipated that the full documentation of the collection will be the main goal, starting from where the Society left off.
Ian Clark has been appointed Senior Landscape Warden at Wrens Nest on another M.S.C. funded scheme. He and his assistant are based in a portacabin in the grounds of Mons Hill school and hope to be able to achieve similar results in monitoring the use of the reserve as has been achieved at Saltwells. Both Maggie and Ian will be pleased to meet members if they make themselves known.

Courses on Geology:

1) Birmingham University.
The Meaning of Fossils:
At Dudley Technical College, The Broadway, Dudley.
10 meetings, Mondays, 7.30 p.m.
January 16th. £9.00.
Tutor R. J. Kennedy.
Includes field trips, types of fossils and fossilisation, sedimentary environments, evolution processes and the physiology of the main fossil groups, relation to tectonics.

2) University of Swansea,
Geologists' Association.
Symposium on the Upper Palaeozoic of Wales:
Sat. Jan. 14th 10 a.m.
Details Alun Thomas, Dept. Geology, Nat. Museum of Wales, Cardiff CFL 3NP.

3) Bristol University
Advanced Optics and the Polarising Microscope:
Dr. R. Bradshaw. 3rdand 4th March.
Queen's Building, University Walk, Bristol.
10 a.m. - 5 p.m. each day £9.20.
Details Dept. of Extramural Studies, 32 Tyndall's Park Rd., BS8 LHR.

4) Petrological Topics: 17th-19th Feb.
Urchfont Manor, Devizes, Wilts.
Fee £10.50 plus accommodation, to the Warden at Urchfont.

5) Bath and its Building Stones: 10th March.
No details yet,try Extramural Dept.

6) Urchfont Manor.
Geology in the West of England. July 21st-27th. Details from Warden.

7) Geology in the Isle of Skye: Late Spring 1984. Approx £1.70. Details Extramural Dept.

8) Geology around Portmadoc: May 4th-7th.
Based Criccieth or Nefyn. Details Extramural Dept.

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