



NEWSLETTER NO. 38 - APRIL 1983.

# The Black Country Geological Society

## Editorial

Members will shortly be receiving descriptive leaflets about the Geological Curators' Group, with which our society co-operates. Many of its 300 members work in museums, but realise that there are many other collections outside museums.

People responsible for school, society or personal collections will probably be interested to know of the Group's existence, they may be able to use it as a source of information and advice about the care of specimens. Regular meetings are held, and the group publishes a journal and various papers. A particular common interest with our society is the documentation and conservation of geological sites.

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## Next Meeting

April 24th Field trip to the Peak District Mining Museum, Matlock Bath, Derbyshire. See directions on separate page. Meet in the Mining Museum car park at 11 am. Cost of guide approx. £1.30 depending on numbers. Visit to the Museum, Temple and Magpie Mines and possibly High Peak Trail if time permits. Those requiring lifts please telephone the new field secretary Nigel Bradley, 021-429-8833.

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Meetings are held in the Allied Centre, Green Man Entry, Tower St. Dudley, behind the Malt Shovel pub. Indoor meetings commence at 8 pm. with coffee and biscuits from 7.15 pm. 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 and 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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### *Chairman*

*A. Cutler B.Sc., M.C.A.M.,  
Dip.M., M.Inst.M.*

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### *Field Secretary*

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

Programme 1983.

May 9th "Palaeomagnetism applied to Sedimentology". Lecture by Dr. P. Turner of Aston University. The speaker's special interest is in continental red beds and their magnetic reversals.

June 6th Evening field trip. "Building stones of Birmingham". Leader Paul Chilston. Meet outside the Allied Centre 7.15 pm. for a guided walk through the city centre, indicating the geology underfoot and some of the building stones used, ending at the "Longboat" canalside pub.

June 27th Trip to Ham Dingle and Wychbury Hill. Meet Foley Arms 7 pm. Ham Lane, Stourbridge. Leader Alan Cutler.

July 9th Cannock area to include Kingswood Opencast Mine. Restricted to 20. Names required in advance as soon as possible please to Nigel Bradley.

September 26th Lecture by Dr. Trevor Ford on the Mineralisation of Derbyshire.

October 23rd Joint field meeting with the Shropshire Geological Society to Black Country sites.

November Social evening.

December "The Biology of Trilobites". Lecture by Dr. P.D. Lane of Keele University.

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October 10th 1982.

Field trip to the Wreking and Onny Valley. Leader Jeremy Krause of the Shropshire Geological Society.

This joint trip with the Shropshire Society began at Forest Glen car park, where there are faulted Uriconian rocks. In the quarry nearby were Uriconian deposits of late Precambrian age. They are flanked by Cambrian sediments, possibly with a faulted junction. The dolerite dyke first seen in Forest Glen was also seen in the south-west

face of this quarry. Yellow weathering of rhyolitic material was clearly seen but not the Cambrian basal conglomerate.

The next quarry was totally within the Cambrian sequence. It is in very durable, re-cemented Wrekin quartzite, intruded by pink granophyre. Ripple marks were very obvious, as was the local faulting and the resultant slickensiding. The Shropshire Society had had a small exposure excavated in the Comley series in this area, which disclosed lime rich beds of grey, micaceous clay. Worm burrows were found but no other evidence of fossils. The sequence here is not yet decided but it is higher than other nearby Comley beds.

The next quarry was being extensively worked, initially for work on the M54. A reverse fault was seen high on the back wall with a displacement of about six inches.

We drove to Maddocks Hill quarry which had changed a lot since our last visit on 5.10.80 (see newsletter 25). The hill was formed from an intrusion of Camptonite, an attractive coarse grained rock of black augite and pink feldspar, into Tremadocian Shineton Shales dipping vertically. Many of the party climbed the scree and found the dendritic graptolite *Dictyonema flabeliforme* in abundance.

Lunch was taken at the Huntsman in Little Wenlock, followed by a pleasant drive over rich dark soils with luxurious hedgerows and gardens to the Onny river.

We were met by John Norton, curator of Ludlow Museum, who showed us the Ordovician sequence in the valley. At the first stop, those with waterproof footwear waded across the fast current to the far bank which showed the unconformity between the Onny shales and the overlying Hughley shales of the Silurian. Both deposits appeared to have been laid down under similar conditions, and only a change in dip showed the unconformity. Fragments of trilobites were found, and a large piece of Chatwall Flags with

with burrows, brachiopods and a large coral.

Along the abandoned Bishop's Castle railway line was a small exposure of Alternata limestone. The Hoar Edge Grits here dipped almost vertically, and were faulted up against Precambrian rock of the western Longmyndian Wentnor series.

After crossing the river we came to the green and purple Chatwall sandstone, containing lenses of brachiopods, and showing deltaic false bedding.

The Cheney Longville Flags further west yielded many fossils including brachiopods, tentaculites, a cephalon of the Trilobite Chasmops extensa, and bryozoans. Finally beside the A489 were the Acton Scott beds, poorly fossiliferous yellow mudstones.

About 50 people attended this friendly, interesting and rewarding day, and thanks were extended to John Norton and Jeremy Krause, who each so ably led their part of the day.

Hilary Logan.

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### The November Social 1982.

The Social this year was a daytime event. The day started at the Black Country open air museum. The idea for creating a museum was born in 1952 but work did not start until 1975. The museum is still not complete but there is already plenty to see.

Our guide, Eric, started by telling us the history of the museum and described some of the problems that have been encountered, for example the presence of at least forty old mine shafts. Two of these have been put to good use. One is being used to develop the Racecourse Colliery. The other will be used to demonstrate the Newcomen engine. A similar steam engine was set to work in 1712 at one of Lord Dudley's collieries not far from the museum site. The original engine has been lost but a replica is being constructed from an engraving

produced in 1719. The tramway goes from the museum entrance, past the colliery to the Black Country village.

Houses, shops and workshops from various Black Country locations have been reconstructed on the site. As we walked round these old buildings many of us were surprised to find how much we remembered from our childhood homes. At the end of the village street is the Bottle and Glass public house. It was too early in the day for alcoholic refreshment, so we stuffed ourselves with mince pies and warmed our hands in front of the wood fire in the huge inglenook fireplace. The rays of wintery sun cut through the woodsmoke and most of us began to feel the atmosphere of the Black Country all those years ago.

It was hard to drag ourselves away from the warmth of the fire, but a visit to the canal basin and chainshop should not be missed. From the canal basin we could see the entrance to the Dudley tunnel and the great lifting bridge. In the boat dock we could see how old boats were given new life in the roofs and walls of old dock buildings. We also saw the tiny cabin of the "Diamond", and it was hard to imagine how two adults and two children could possibly have managed in such cramped conditions. Diamond's hull was badly damaged by a bomb during the last war and has not yet been restored.

At the end of the morning we felt that we had only appreciated a small part of the museum. There is too much to see in a morning and everyone felt that another visit would be well worthwhile.

We had lunch at the Park Inn. Mrs. Concannon provided us with a traditional Black Country lunch of faggots and mushy peas. This was washed down with Holden's beer which is made next door.

About 35 members and friends helped to make this a very enjoyable social event, and I

hope next year's social  
will be as successful.

Anne Harrison.

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January 10th 1983.

From the Petrified Forest to  
Death Valley and Yosemite.

We were pleased to welcome back an old friend of the B.C.G.S. - Mr. Bill Hardie of Birmingham University. Mr. Hardie is well known for his dynamic style (dare I say exhausting) when leading field trips. He was equally enthusiastic when he described the first trip made by a group from the Geologists' Association to the New World.

We were left breathless by his description of the eleven day tour to the western U.S.A. during which time they travelled 2000 miles. Since collecting and hammering were forbidden, Mr. Hardie's souvenirs of the tour are a collection of more than 150 marvellous slides.

The tour started in Las Vegas and included a visit to the museum and tar pits which gurgled with bubbles of methane. Many fossil vertebrates are displayed in the museum. They were found in the tar pits where they had got stuck having mistaken tar for water. Realistic models have been placed around the pits illustrating the animals found there.

From Los Angeles to Phoenix and Flagstaff the road passes through desert. The slides showed organ pipe cacti in the foreground, and the block faulted Precambrian mountains in the distance. We could almost feel the heat. The temperatures were about 110 degrees F. and all members of the party had to carry a litre water bottle to protect against dehydration.

From Flagstaff which is on a limestone plateau there were good views of Mount Humphreys which is basalt. This mountain is surrounded by cinder cones, the

youngest of which, Sunset Crater, erupted in 1967.

The route continued through the Painted Desert. The colours of mauve, red and yellow are due to mudstones and siltstones similar to Keuper marl. The rocks are carved out into beautiful shapes by flash floods. Nine inches of rain falls each year in the desert. The route continued northwards to the petrified forest national park which is in part of the Painted Desert. Here lie huge trunks of trees which flourished and died in the Triassic and were later silicified. The trees still lie in the positions where they fell. Specimens taken for microscopic study show that the cell structure is perfectly preserved. The silica is derived from Pleistocene volcanic rocks.

Next we saw the Arizona Meteor Crater. This is 5000 across and 570 feet deep. It was discovered in 1871 and was presumed to be a volcano. By 1890 bits of an iron-nickel meteorite had been found up to six miles away. Attempts were made to dig down into the base of the crater to find the meteorite. By studying the rocks one can understand that this was futile as the meteorite was travelling in a more horizontal direction. The Kaibab limestone which forms the rim of the crater has been tilted from its normal horizontal position by the impact.

From the meteor crater the party travelled up the Little Colorado Canyon where beautiful silver and turquoise Navajo jewellery was for sale. Here at the south rim of the Grand Canyon the party walked down the first 1000 feet but for a full appreciation of the Canyon took flights in a light aircraft or helicopter. Some of the rock formations were particularly easy to spot. From the top of the canyon downwards, these are the Permian Kaibab limestone and Coconino limestone, the Mississippian Redwall limestone which is above the unconformity, and then the basal Cambrian sandstone of the Tonto platform. Below the Tonto platform

the Colorado river could be seen flowing in the inner gorge through Vishnu schists.

From the Gran Canyon the journey continued past Lake Powell to Zion Canyon. The rocks on both sides are Navajo sandstone. Lake Powell has been created by Powell Dam which provides Hydro-electric power. It is quite a surprise to see a reservoir built on such permeable rock but so far it seems to work! At Zion Canyon old Indian cave dwellings can be seen.

Mr. Hardie met an American who graduated "in oil" from Birmingham University in 1926. On emigrating to America his initial success was in hydrogeology and he has stayed in this field ever since. Zion Canyon is full of natural rock arches formed by erosion but which have no relation to the flat rock planes.

The trip continued to Bryce Canyon. The name is not appropriate since the canyon is really a complicated escarpment of flat Eocene limestones with Tertiary basalt on top. The classic features of the canyon are rock pinnacles called Hoodoos. These create the appearance of fairyland with numerous castles and gloriously shaped towers. Bryce Canyon is also famous for its chipmunks, which look very friendly but are said to carry plague.

Leaving Bryce Canyon, the route passed through Las Vegas to Death Valley, where the museum was closed due to the summer heat. The valley floor is covered with polygonal boron salt pools. Borate salt mining occurred here in the 1870's.

The party then experienced what it is like to be true pioneers. Between Death Valley and Owens Valley, their coach broke down. They were stranded from 3 pm. until 11.30 pm. with no tools and no air conditioning, and the warning that as night came on rattle snakes and scorpions might be found keeping warm on the road!

They finally made it to Yosemite National Park in the Sierra Nevada.

The park is in a glacial valley which has been carved in granite. There were some marvellous views of rock arches formed by glacial erosion and the "Half-Dome" which probably represents the highest level of the granite.

The trip was now almost over, the last stop being San Francisco, famous for its smog, cable cars and Golden Gate bridge. The final excursion was to the San Andreas fault. The 1906 earthquake caused the Pacific side of the fault to move 16 feet northwards. A fence, said to be the original, illustrates the point. Certainly this fence is similar to the one on an old photograph of the site.

Mr. Hardie's lecture was enthusiastically received by a large audience and question time was lively with a couple of members comparing their own experiences and impressions with those of Mr. Hardie. Everyone who has visited the area agrees that it is a marvellous experience, and those of us who had not were left wondering how we could arrange a trip. Perhaps an extended B.C.G.S. weekend field trip? It is fun to dream.

Anne Harrison.

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#### National Scheme for Geological Site Documentation

Last year the Society was approached by the City of Stoke museum for help in setting up a catalogue of geological sites in this area. Stoke is the nearest record centre taking part in this scheme, which aims to collect information on geological sites for conservation, research and educational purposes.

It was agreed to help, using the Society's own list of conservation sites as a basis. This has been enlarged, and some 200 large and small sites have been recorded in and around the Black Country. Copies of the records are available for reference at the Allied Centre.

In many cases, the amount of

information is rather meagre. Members may be able to provide further details, whether from their own observations or by way of references in the geological literature. There must also be many more exposures to be added. It would be good if we could produce a comprehensive and useful set of records.

I shall be glad to hear from anyone who is able to help.

Nigel Bradley.

11, Leicester Close, Warley,  
West Midlands, B67 5NJ.  
Tel. 021-429-8833.

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Letters

Wolfson College,  
Oxford.

Dear Maitland,

Please find enclosed my membership fee. Being at Durham these last three years I have been unable to attend most of the meetings, which take place during term time. Hopefully I will be able to attend more meetings in the coming years.

I have just started upon a research project at Oxford University, looking into the Church Stretton fault system. It is hoped that mapping along the line of fault and a re-examination of some of the more important formations from Church Stretton to Old Radnor might yield some evidence as to possible strike-slip movements along the line of the fault.

The early Wenlockian limestones of Old Radnor and Nash Scar, Presteign, appear to be on opposite sides of the fault, and there is a possibility that these two formations were originally one, prior to strike-slip movement along the fault in post early Wenlock times. The Precambrian rocks to either side of the fault

in the region of Old Radnor are markedly different, though whether this is due to strike-slip movement is yet to be seen.

Both the Precambrian sediments and the Dolyhir limestone at Old Radnor are traversed by numerous near vertical shear fractures, which certainly fits in with a degree of strike-slip movement in the region.

Dr. Woodcock at Cambridge has recently been working on the other major fault of Shropshire, the Pontesford-Unley fault, and its southward continuation, the Clun Forest disturbance. This fault appears to have had a very dynamic history during late Ordovician times, during what Professor Whittard termed the "Taesnian Orogeny". It is interesting that the Caledonian Orogeny, so important in northern Britain and north Wales appears to have had little effect on Shropshire geology.

Yours sincerely,

Nicholas Andrews

Nicholas has promised to keep us up to date. Editor.

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Committee Dates

<u>General</u>	<u>Conservation</u>
April 18th.	May 16th.
June 27th.	July 18th.
Sept. 5th.	Sept. 26th.
Nov. 7th.	Nov. 21st.

All at Allied Centre 8 pm.

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Other Meetings.

Geological Curators' Group.

April 29th. Spring Meeting.  
Merseyside County Museum,  
Liverpool.

Joint meeting with Association  
of Teachers of Geology.

Details from Geoff Tresise,  
Merseyside Museum, William  
Brown Street, Liverpool, L3 8EN.

Geographical Association.

Caves - Science and Exploration.  
Dr. A.C. Waltham will lecture in  
Room G33, Faculty of Education,  
University of Birmingham.  
May 12th. 7.30 pm. 35 pence.

Geological Society.

Collision Tectonics. April 26-27.  
Lectures at Wellcome Lecture  
Hall, 6 Carlton House Terrace,  
London.

University of Aston, Birmingham.

Reflected Light Microscopy.

Dr. Vaughan. May 16-21.  
Introductory Course.

New Field Secretary.

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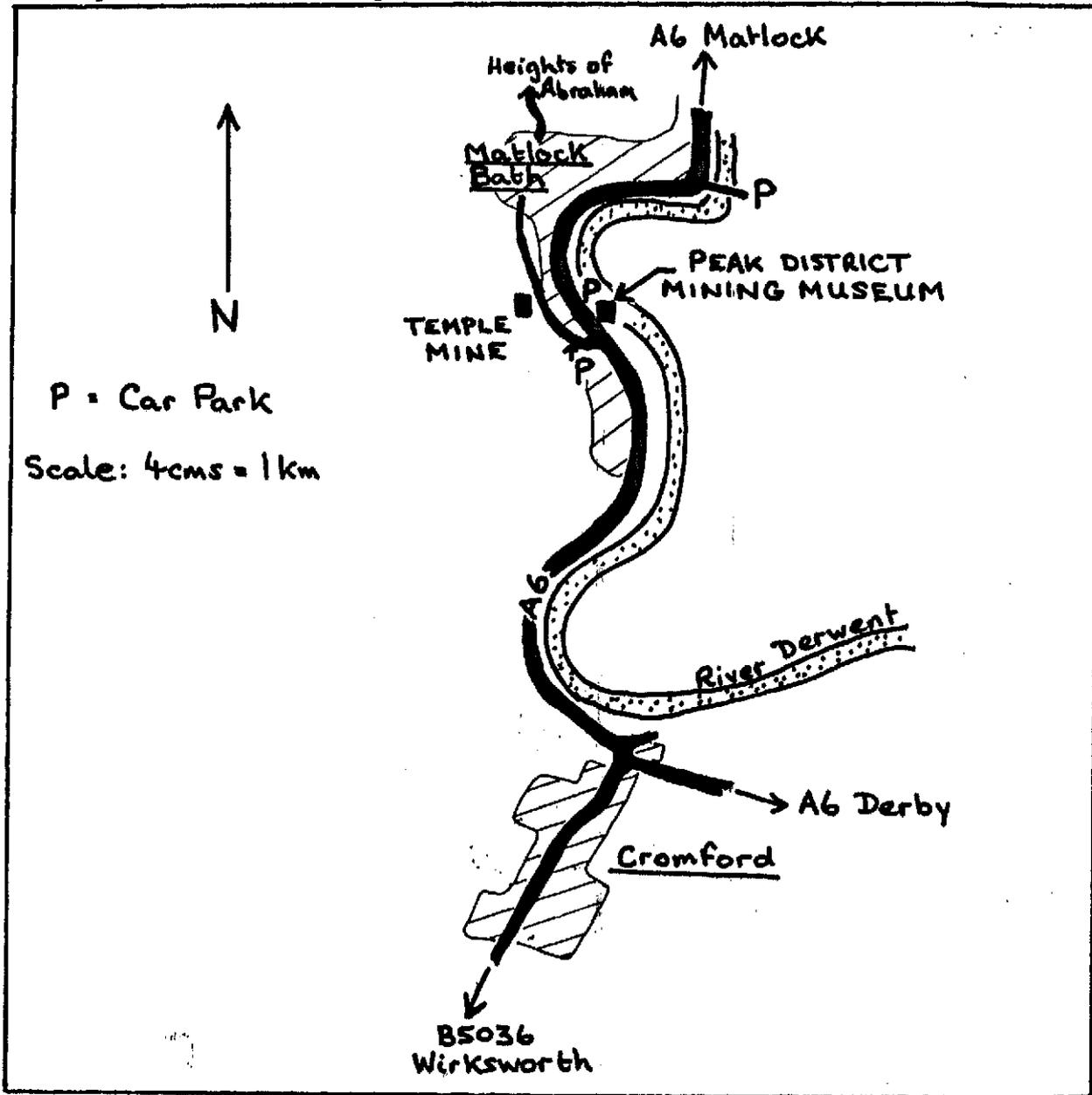
PEAK DISTRICT MINING MUSEUM, MATLOCK BATH, DERBYSHIRE

Directions:

Matlock Bath can be approached from the south (A6 from Derby) or from the southwest (M6 to Stafford then Uttoxeter, Ashbourne, B5035 to Wirksworth, B5036 to Cromford and A6 to Matlock Bath).

The Mining Museum is housed in The Pavilion which is one of the first buildings on the right-hand side of the A6 as it descends into Matlock Bath from Cromford.

The Mining Museum has its own car park. There is also a car park a short distance up the steep road which leads up to The Heights of Abraham.



# The high price to be paid for past prosperity

SHORT-TERM gains have become long-term problems in the Black Country, where limestone workings have resurfaced as a pressing problem.

Although no houses, shops or factories have collapsed through subsidence and in most areas there may be no cause for concern, many families are worried. They have been warned they may not be able to sell their homes. Some estate agents are advising potential buyers not to go ahead with property known to be built above limestone workings.

Until an official report is published next Spring, with recommendations for remedies, doubt, anxiety and concern will continue.

## Minister

A Walsall doctor and her husband, an evangelist minister, found a buyer for their terraced house and then solicitors acting for the buyer discovered there were limestone workings underneath. A building society refused to give a mortgage.

Hundreds of homes in the district are said to be "blighted" after a new report revealing a series of limestone caverns. But Mr Don Peacock, Walsall council's deputy director of engineering, stresses that it is not "a blight report" and is only part of an investigation to pinpoint the workings, examine their state and suggest means of making them secure.

The first stage of the report, last

## Ray Seaton reports on the pressing problem of Black Country limestone workings — and the mammoth task of solving it.

December, was simply a holding statement, after going through available records. Stage two involves a physical examination of the workings and the final report will indicate what can and should be done.

Dudley, Sandwell, Walsall and the West Midlands authorities are represented on a steering committee with the Department of the Environment, conducting a detailed survey.

A committee spokesman said: "Consultations are due to complete their report and submit it to the steering group next Spring. The committee will advise politicians and ministers. We are not saying that any particular area is at risk."

"The workings vary in depth. Some at Dudley are relatively shallow. Others, at Sandwell, are deep. These workings have existed for 150 or so years and now, people are remembering them."

Limestone was used extensively in iron smelting operations. The Black Country was in the forefront of the industrial revolution because of its massive coal resources and limestone deposits.

There was a gap in the geological series. Instead of 500ft. of sandstone, coal sat on the limestone, the flux for ironmaking.

"The area was tailor-made for the industrial revolution," said the com-

mittee spokesman. "Limestone was reached through coal mine shafts and burnt lime was used for agriculture."

Mining companies left pillars large enough to support the rocks and deep workings were not thought to be a problem. They were not legally bound in those days to keep records and plans of profitable tracts they carved out of the earth's crust.

This has hindered previous probes. Early surveys included a subterranean TV probe and a vibration detection method developed in America as an offshoot of space technology.

## Pumping

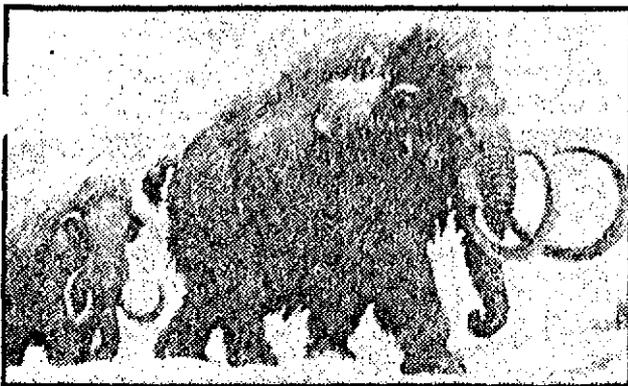
Mr Peacock admits it is a colossal problem, considering that the whole of the Black Country was built over limestone. Walsall workings are estimated to be 200ft, those at Sandwell reach 400ft.

The steering committee has asked consultants to advise on pumping in material and local authorities are considering remedial measures. This could be an extensive operation, in material and time.

The risk of buildings suddenly disappearing down a hole is extremely remote. If anything were wrong, there would be adequate warning.

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EXPRESS STAR 12.2.83



Mammoths... disappearing fast in Russia.

RUSSIAN gold-miners in the Yakut Republic have been committing cultural vandalism by chopping up the bodies of mammoths and feeding them to dogs.

The mammoths, which have been extinct for 8,000 years, have been preserved in the refrigeration of the permafrost, and these silly men would not be bothering to dig for mere gold if they knew that a good mammoth skeleton can fetch a million dollars on the international market.

However, presumably the same principal applies to mammoths as applies to gold. Scarcity dictates the value.

Perhaps the dogs should carry on eating. One would get rather bored seeing mammoth skeletons on display at every street corner. I am told there is a limit to their fascination.

# Three to join Chinese dinosaur hunt

Three British scientists are joining in a hunt for dinosaurs in China at the end of September.

Three experts from the Natural History Museum in London will be joining Chinese scientists in a "dig" for fossil remains.

They will spend some time in Peking before travel to the excavation site in Sichuan where many dinosaur skeletons have recently been found.

The Chinese want to learn at first hand about techniques developed at the British museum for extracting fossils from the rock in which they are found.

Ten tons of dinosaur bones were found on the Sichuan site in 1980 and it is hoped that a dinosaur skeleton will go on show at the Natural History Museum.

Express Star  
28.8.82

FROM

THE

PAPERS