



The Black Country Geological Society

NEWSLETTER No. 41 - October, 1983:

Editorial:

"Cavern dangers", "a shocker", "crumbling peril", were typical headlines at the end of July surrounding the publication of the long-awaited results of the Black Country limestone survey conducted by Ove, Arup and Partners.

The full report, costing over £600, makes grim reading, but a more palatable and considerably condensed summary is available from the Dept. of the Environment at £1.50. We plan to feature a resume of the report and its implications in the next issue.

The Society too has suffered misfortune during the summer, with the failure of the programme of walks for the family. The best attended walk attracted seven adults, the worst nil. A complete lack of publicity by the Countryside Commission owing to cutbacks is the explanation, and the consequence is a considerable loss of income. This will have repercussions including delay in the publication of Journal No. 2.

Alan Cutler:

Next Meeting:-

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.

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.

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 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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A. Cutler B.Sc., M.C.A.M.,
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Hon. Secretary
P. D. Shilston M.A., C.Eng.,
F.I.E.E., M.I. Mech.E.

Field Secretary
N.G. Bradley

Programme 1983:

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

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

November 11th FRIDAY: Dr. G. Tresise 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.

June 6th, 1983: Evening field trip "The Building Stones of Birmingham". Leader, Paul Shilston.

For a change the Society had a field meeting right in the middle of Birmingham. In the space of half a mile there were examples from all parts of the country as well as from Scandinavia and Italy.

First the geology underlying Birmingham city centre was outlined. There is a resistant horizon of Lower Keuper sandstone giving a distinct ridge to the area around the Town Hall and along Colmore Row. On either side the surface falls away due to the presence of softer rocks. Unfortunately the Lower Keuper Sandstone nowhere outcrops in the central area, although its presence is found during building excavations.

A wide range of building stones is employed, either for main construction or as facing stones. The Council chamber, Art Gallery, and

the Post Office are all of fine-grained sandstones from the Millstone Grit series, which can be cut and carved easily and are resistant to urban pollution.

The Town Hall is of Carboniferous Limestone, while the Hall of Memory and Baskerville House are of Portland Stone showing many Jurassic fossils such as the bivalves *Protocardia* and *Camptonectes*.

The Bank of England caused some amusement with its facing of highly fossiliferous Portland Stone showing in particular the "Portland Screw" *Aptyxiella portlandica*. A passing policeman clearly wondered if society members were extracting one or two prime specimens!

Perhaps the most attractive stone was the Rapakivi granite from Finland, used on the Trustee Savings Bank building, with its large circular porphyritic felspar crystals in a dark groundmass.

Finally an unusual return walk along Brindley's canal (opened 1789) to the Longboat pub concluded an interesting evening.

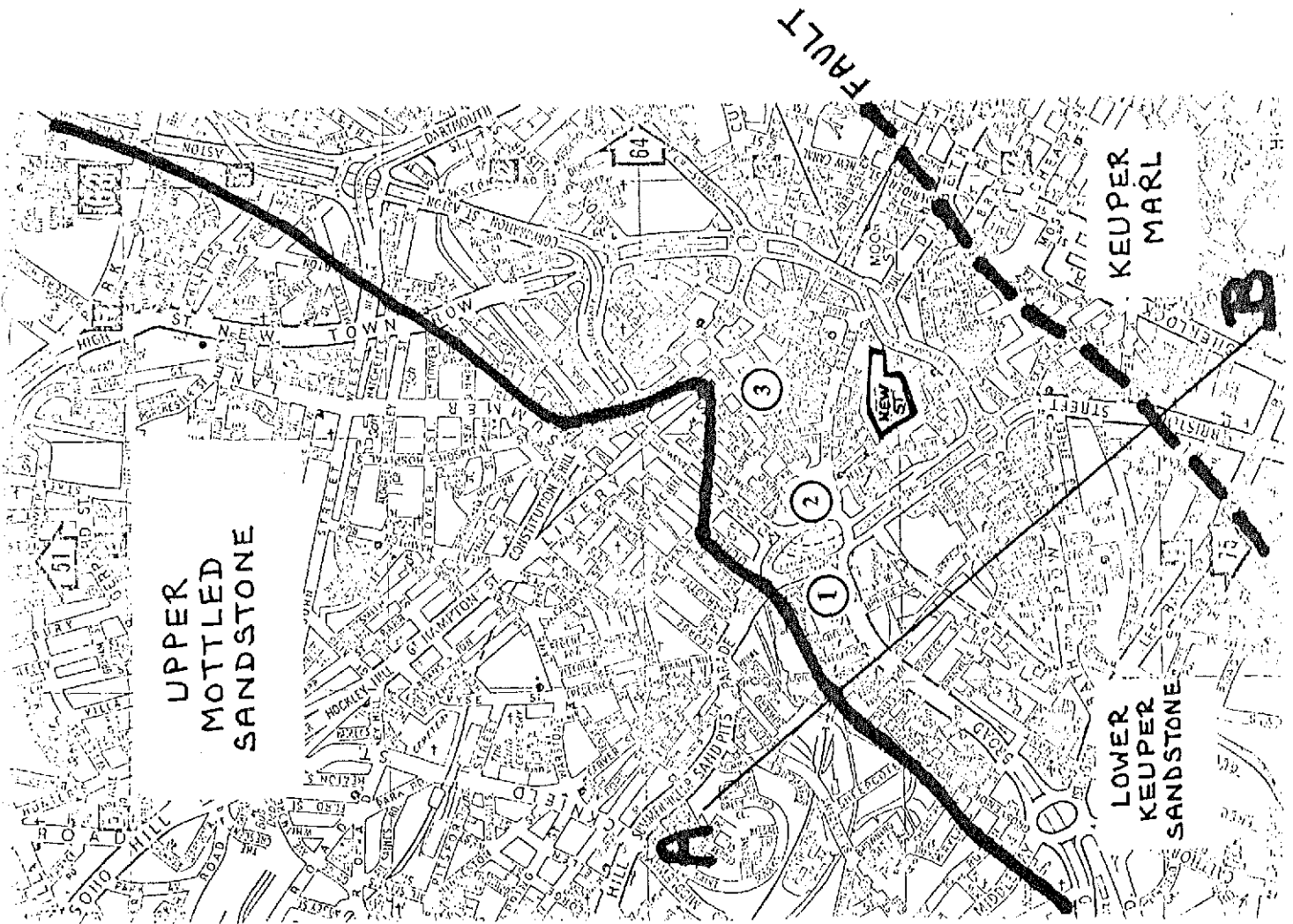
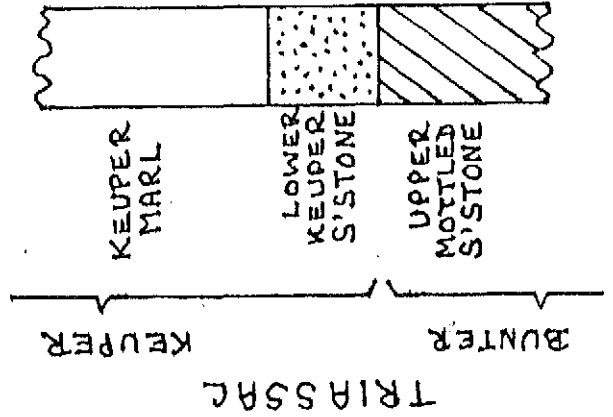
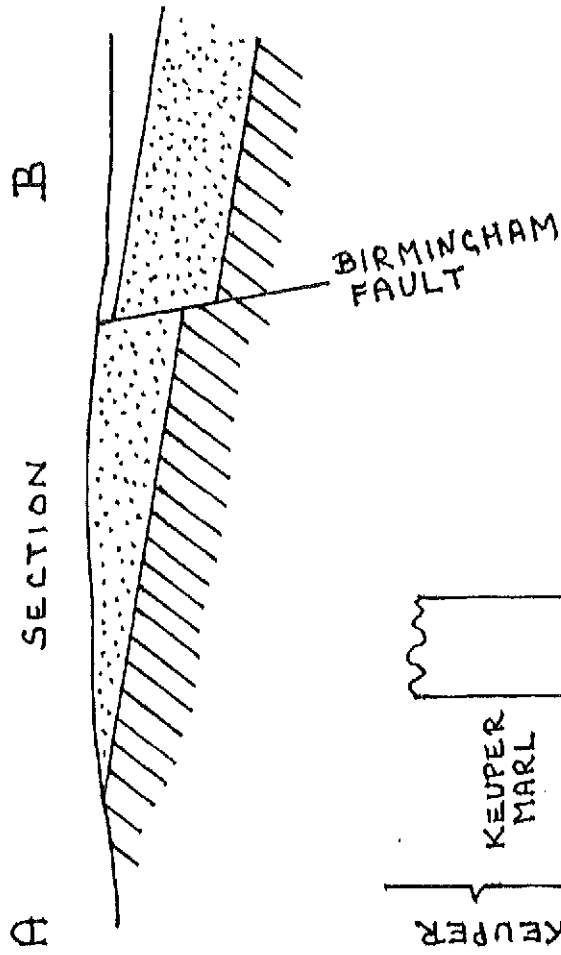
Paul Shilston:
See map on next page.

May 9th, 1983: "The Value of Palaeomagnetism in the Study of Sedimentary Rocks." Lecture by Dr. Peter Turner of Aston University.

This talk began with a slide showing the Earth's magnetic field. The outer part of the core is probably liquid nickel-iron rotating in harmony with the planet, giving a dynamo effect resulting in a simple dipole field $11\frac{1}{2}^{\circ}$ off north-south. Magnetic minerals in rocks or sediments become magnetised. The Earth's magnetic map is not a perfect dipole field, when lines of equal intensity are plotted. The strength is weaker near the Equator

GEOLOGY OF BIRMINGHAM CITY CENTRE.

- ① HALL OF MEMORY
- ② TOWN HALL
- ③ CATHEDRAL



and stronger near the poles.

The non-dipole field, which shows the Earth's major discrepancies, has negative variations in Africa, and positive ones in Asia and the U.S.A. The dipole field is constant but the non-dipole field varies throughout time.

The dipole field polarity changes with time on a fairly regular basis. Its intensity decreases towards reversal, and the Van Allen Belt disperses allowing more cosmic radiation to reach the Earth. This speeds up genetic mutation and therefore possible evolutionary change.

The column of polarity against time in million years is of use to geologists. Unknown sections can be correlated with the polarity and time scale. The last reversal was 690,000 years ago. It is useful for continental sediments, such as in East Africa for hominid fossil dating.

"Polar wandering" curves correlate well with polar position and continental drift. Gondwanaland palaeomagnetism matches continental fit. Igneous rocks plotted for magnetic declination and inclination, coincide well with the North Pole and the spin axis of the Earth throughout time.

Lake Windermere is 15,000 years old, and cores of undisturbed sediments can be measured in three ways. Declination, inclination or dip, and intensity can all be measured. Our declination should be about 60° but it shows some quite large swings. Inclination shows less variation.

The non-dipole field variation, called the secular variation, has a frequency of about 2,800 years.

The rate of sediment accumulation is known, from areas such as the Wash,

reclaimed since Roman times. Samples down to 9 metres show fairly regular swings correlating with historic records.

Results on the Etruria Marl on a clay rich red bed, shows that it was probably formed under moist conditions. It is strongly diachronous, and intimately related to coal beds. Its geochemical properties suggest a soil forming environment, for example leached pale horizons typical of laterite. Plots adding intensity and temperature for a variety of specimens cluster near the present Equator in a moist tropical climate, so the red colour must have a different origin from arid sediments.

Studies of stratified copper deposits in the high Andes of Chile could help to find other such deposits. Some are in Cretaceous sandstones and conglomerates, and there is a need to know how and when the copper ores entered the sediments. Volcanicity may influence palaeomagnetism, because of the effect of heating minerals to their individual Curie point.

Haematite and titanomagnetite are the main minerals studied for palaeomagnetism. Secondary magnetism is easily acquired, and is destroyed first on heating. Sediments pick up magnetism more easily in wet areas where the grains are free to rotate.

Reasons for reversal are not known. Eddies in the outer part of the mantle may build up and reverse. There may be a relationship with volcanic activity, but it is likely that many processes are involved.

This unusual and interesting topic was much enjoyed by members, and provoked a lively question time about the examples of uses given by the speaker.

Sheila Pitts:

Calling all Frustrated Mineralogists!

Because of its location the BCGS. con-

concentrates mainly on fossils and sedimentary rocks. Although I have tried hard, I find it hard to be as interested in fossils and sedimentary rocks as I am in minerals and igneous rocks. I suspect that other members may also share this secret vice (our editor perhaps?). We must accept that the best areas for mineral collecting are too far for us to visit on Sunday field trips. Yes, I did say collecting. Unlike fossils, many minerals can be collected from old mine dumps without fear of criticism from conservationists. The geology of igneous rocks can be recorded on film but there is nothing more satisfying than actually collecting a few sparkling crystals to add to one's collection.

Since the BCGS is unable to introduce us to suitable sites another source of information is needed. I can recommend two magazines. Mineral Realm is a relatively new publication, so financial constraints restrict it to type-written articles, maps and line drawings. It includes useful articles on mine sites. Usually a description of the geology of each mining area is included. Many of its contributors belong to mining clubs, so there are articles describing the layout of mines and also mining history.

Gems, in contrast to Mineral Realm, is a glossy magazine with plenty of colour photographs. It contains very little geology but plenty of information on sites where minerals may be found. One also has to put up with articles on lapidary and gem cutting.

Both magazines contain articles of general interest to mineralogists, e.g. gold mining in Africa, and articles on individual mineral species.

These are the addresses to send your subscriptions:-

Gems: The Randall Press Ltd.
9 Kennet Road,
Crayford,
Kent. DA1 4QN.

£5.00 p.a. for four issues.

Mineral Realm: Earth Science Promotions,
27 Lower Meadow,
Harlow,
Essex, CM18 7RD.

£7.00 p.a. for six issues.

Anne Harrison:

Dear Anne,

Thank you for a very informative article, and the answer to your query is 'Yes!' - Ed.

Welcome to New Member:-

Toby Smith of Brierly Hill.

Committee Meeting:-

November 7th at Allied Centre.

From the Papers:

At the beginning of the year there was news about old mine shafts:-

Old Pits Found at Planned Nature Reserve: Express & Star 30.12.82.

Seven old mineshafts were discovered on derelict land earmarked for a nature reserve near Bentley Lane, Walsall. The treatment cost is estimated at £30,000 but could be financed by Dept. of the Environment, through derelict land reclamation grants.

Consultants Locate Seven Mineshafts.
Express & Star 6.1.83.

Another seven mineshafts have been found in the Parkfield area of Wolverhampton. These shafts have now been treated to enable a modernisation scheme in the area to proceed.

Three Escape on the Brink of 150 Foot Hole: Express & Star 17.1.83.

A long forgotten mineshaft opened up in the driveway of a house on St. Chad's estate, Bilston. The 10 feet wide, 150 feet deep shaft exposed the house foundations, making it unstable. A council spokesman said it was very unlikely that there were any more shafts in the area - let's hope he is right.

More Tests as Checks on Tremors: Express & Star 30.12.82.

Rowley Regis tennants have claimed that blasting for basalt in the nearby Edwin Richards Quarry, Portway Hill, is responsible for broken windows and damaged roof slates. Quarry representatives and members of the Mines and Quarries Inspectorate have installed monitoring equipment, but test results show that blast tremors are within legal limits.

Judge to Rule in Coal Dispute: Express & Star 26.1.83.

Extraction of coal is now well under way in the Pedmore Road site in the Enterprise zone. There were some early legal problems as to who actually owns the coal.

Board and Owners Settle Site Row: Express & Star 25.2.83.

The National Coal Board has agreed that Coal Contractors Ltd. can remove coal to allow development to proceed, but the coal must be handed over to the Board.

Evening Classes:

Birmingham University, Department of Geological Sciences:-

1. Dr. R. A. Ixer.
Petrography of the Major Igneous, Metamorphic and Sedimentary Rocks.

20 meetings, Tuesdays. October 4th. £15. Individual petrological microscopes and rock sections provided.

2. Geology of the British Landscape.
Nature, deformation and erosion of rock masses and regional landscapes.

20 meetings, Wednesdays. October 5th. £15.

Please see the last newsletter for other local courses.

University of Bristol: Short Courses.
Department of Extramural Studies,
32 Tyndalls Park Road, Bristol, BS8 1HR.

1. Global Processes: B83 J62 SJ.
Three linked weekends. £27.60.
Oct. 15/16, Nov. 5/6, Dec. 3/4.
At Queen's Building, University Walk.
From Sat. 10 a.m. to Sun. 5 p.m.

2. Geology and Ecology of Cotswold Edge. One day, Oct. 29th. £4.60.
B83 D19 SJ.
Queen's Building a.m. and in the field p.m.

3. Interpreting Geological Maps: One day
Nov. 5th.
Queen's Building. £4.60.

4. Geological Processes in Western U.S.A.
One day, Nov. 12. £4.60.
Queen's Building. B83 D14 SJ.

5. Introduction to the Polarising Microscope. Weekend Dec. 3/4.
£9.20. B83 H12 SJ.

6. Advances Optics and the Polarising Microscope. Follow-on to No. 5.
Mar. 3/4 £9.20. B83 H08 SJ.

7. North Somerset Coastal Geology:
One day. Nov. 19 at Minehead and in

field. £4.60. S83 D07 SJ.

8. Oil and Gas: One day,
Salisbury. £4.60. B83 951 SJ.

More details from Editor.

Halesowen College of Further
Education:

Geology, A-level, Monday and
Tuesday evenings.

Krakatoa Centenary Exhibition:

This exhibition at the Natural
History Museum in South
Kensington continues until Oct.
25th. It is at the north end of
the Great Hall. I have received
an account of it, which will
appear in the next issue, but in
the meantime this is a reminder
for those who would like to visit
it. "Eye-witness" descriptions,
spoken by actors, are very good
part of the exhibition. Ed.

Earthquakes:

On Nov. 9th. there will be a
symposium at the Geological
Museum in South Kensington.
Those wishing to attend may
obtain details from Miss M.
Murphy at the Museum.

Field Secretary:

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Editor:

Sheila Pitts,
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NOVEMBER SOCIAL

Friday November 11th at 7.45 p.m. at Parsons School,
Wolverhampton Street, Dudley (see map on next page).

The evening will start with a lecture by Dr.G.Tresise
of the Merseyside Museum on

"GEOLOGY AND WINE IN WESTERN EUROPE"

This will be followed by a wine and cheese party.

The cost will be £3.00 per person.

I/we shall/shall not be attending the November Social.

I/we enclose the sum of £ :00 to cover the cost of tickets.

Name:

Address:

Telephone:

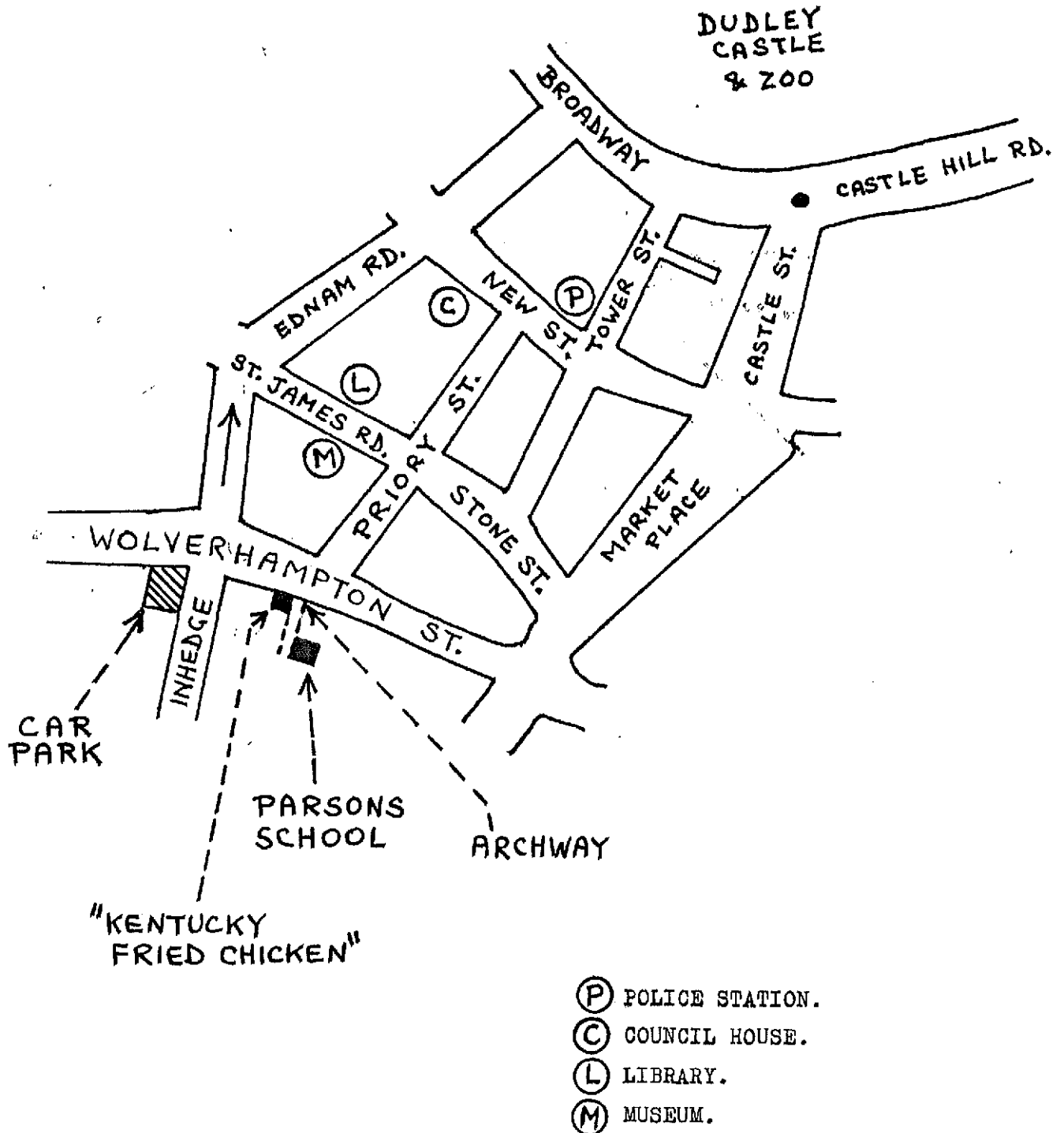
Please return as soon as possible to:-

Anne Harrison,
15 Duncombe Grove,
Harborne,
Birmingham B17 8SJ.

Friday 11th. November 1983.

The lecture "Geology and wine in Western Europe" will be given in :-

PARSONS SCHOOL
Wolverhampton Street
DUDLEY.



B.C.G.S. CHRISTMAS CARDS

Three designs are available, each depicting a black & white illustration together with descriptive notes and greeting. Cards are approximately 8" x 6" printed on top-quality board.

Ref. A Seven Sisters, Wrens Nest (Pen & Ink treatment)
(Stocks limited)

Ref. B British Association visit to Dudley Caverns
1849 - Murchison's address

Ref. C British Association visit to Thick Coal Openworks
1849 - contemporary print.

The price for a dozen cards including envelopes is £2=50.

Mixed dozens may also be obtained at the same price, but must be restricted to 6 each of two designs or 4 each of three designs.

Single cards may be purchased at 25pence each.

Discounts available for quantities of 60 or more; details on request.

The cards will be available at society meetings from September or by post from Alan Cutler, 21 Primrose Hill, Wordsley, Stourbridge, West Midlands.
Telephone: Brierley Hill 77865.

B.C.G.S. CHRISTMAS CARDS

Order Form

Please send me dozen cards, ref.

..... dozen cards, ref.

..... dozen cards, ref.

For mixed dozens, state required designs.

Name

Address

Cheque enclosed for £..... Please add 50p towards postage
(Payable to B.C.G.S.)