The Sesquicentennial Dinner

CAFE ROYAL
Regent Street, London
31st October 2008

GEOLOGISTS’ ASSOCIATION
150
years of geology for all
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The Association, founded in 1858, exists to foster the progress and diffusion of the science of geology, and to encourage research and the development of new methods. It holds meetings for the reading of papers and the delivery of lectures, organises museum demonstrations, publishes Proceedings and Guides, and conducts field meetings.

Annual Subscriptions for 2008 are £40.00, Associates £30.00, Joint Members £58.00, Students £18.00.

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tion.org.uk

President: Danielle Schreve
Executive Secretary: Sarah Stafford

Cover picture:
The cover of the menu (drawn by Mick Oates) for the Sesquicentennial Dinner in the Pompadour Room of the Café Royal - see page 5 for report

From the President

Autumn is proving to be a busy time for the GA! On 31st October, I met with the Local Groups and Affiliated Societies for the first time as President. We are going through a period of review so feedback from the groups is very important, particularly when it comes to tackling difficult problems such as boosting membership. The meeting was a positive one with excellent suggestions made as to how activities can be advertised and events organised. In the evening, I joined around 120 members to celebrate the 150th Anniversary of the Association with a wonderful Gala Dinner at the Café Royal on Regent Street. Guests were provided with a sou-venir menu from the 1880 GA Dinner, as well as that night’s menu adorned with great sketches by Mick Oates. It was a pleasure to see so many friends, old and new, enjoying themselves in such memorable surroundings. Several members with very long memories were present, including Horace Saunders (now 98 years old), who had attended the GA Centenary dinner! After speech-es by Eric Robinson (the oldest past President in attendance) and myself, in which we reaffirmed the lively and inclusive spirit of the GA and looked forward to a successful future for the Association, the evening was rounded off by an after-dinner speech by Iain Stewart, one of our most active proponents of geoscience communication and star of award-winning TV pro-grammes such as Journeys from the Centre of the Earth. Iain spoke strongly about the importance of improving the public understanding of geology by making it relevant to everyday life and emphasised the accompanying need for us to engage in stewardship of our planet. Thank you to everyone for attending and, especially to Sarah Stafford for organising such a special event.

With barely a pause for breakfast, it was on to the Festival of Geology at UCL the next day. The whole day was an absolute buzz of activity, with guest lectures, a photo competition, informative displays by Local Societies and a raft of book and mineral stalls to browse. Particular highlights for me were being a blur of happy kids engaged in hands-on activities in the Rockwatch room, talk-ing to Local Groups members about their field-trips and learning more about the wonderful GA photographic archive that has been carefully tended by Marjorie Carreck. It was a great opportunity to catch up with people and a pleasure to hear how many look forward to this event as a high point in their ‘geological year’. The meeting was a positive one with excellent suggestions made as to how activities can be advertised and events organised. In the evening, I

Danielle Schreve
THE ASSOCIATION

Report from Council

The relationship between the GA and Local Groups and Affiliates was discussed, in particular - how they should interact and support each other. This will be developed in the meeting with Local Groups as reported below.

Council was pleased to learn that a successful application had been made to the Curry Fund to fund the work of getting the GA’s collection of historic photos and other items into an appropriate state of conservation.

Council was saddened to report the death of Bob Stoneley, a long time supporter of the GA who has held many posts in the Association. An obituary will appear in the magazine and the PGA.

Proposed new funding schemes, and general reorganisation of the whole field of the Geologists’ Association Awards was discussed. This was seen as an important incentive to attract new members, as well as a means of attracting high-quality applications and reinforcing the GA ‘brand’.

Professor Marriott was welcomed as the new Editor of the Guides. A number of projects are already under way and new projects are being investigated. New formats for guides are also under consideration which could make them much more attractive and convenient for use in the field.

Awards reporting that the arrangements were proceeding well for the Festival of Geology with 35 to 40 displays, the Festival of Geology which delighted the visitors well organised. As usual, there will be Field Trips run in association with the Festival on Sunday 2nd November. As many Council members as possible, were encouraged to help on the day.

Rockwatch goes from strength to strength with its first week-long residential course on the Yorkshire Dinosaur Coast. The annual visit to BGS in Edinburgh for its Open Day at the end of September was very busy. The two final field trips this year will be to Pury End (Jurassic) and Abbey Wood (Eocene) in October.

The Curry Fund continues to support a number of activities of geological interest.

In November, there is no Council meeting; instead council meets with representatives of the Local Groups and Affiliated Societies. The GA is entering a period of review of the groups and the meeting this year was most productive with a wide range of topics being discussed, including how we could increase membership. The Mose Valley Geological Society was noted as an example of good practice, in particular writing reports for the local paper and linking activities to Local Heritage weekends had both improved membership and attendance at events. The separation of the responsibilities of a field trip leader from the administration of a field trip was discussed, as was the organisation of a health and safety form. Regional events were considered and most people felt that a festival away from the metropolis should have a different form from the annual one at UCL. It was explained by one group how it is now simple to register for charitable status with its financial advantage of Gift Aid and all Groups were encouraged to follow this model.

John Crocker
General Secretary

Curry Fund Report

At its September meeting the Committee received seven new applications and discussed six outstanding membership. The Mose Valley Geological Society was noted as an example of good practice, in particular writing reports for the local paper and linking activities to Local Heritage weekends had both improved membership and attendance at events. The separation of the responsibilities of a field trip leader from the administration of a field trip was discussed, as was the organisation of a health and safety form. Regional events were considered and most people felt that a festival away from the metropolis should have a different form from the annual one at UCL. It was explained by one group how it is now simple to register for charitable status with its financial advantage of Gift Aid and all Groups were encouraged to follow this model.

John Crocker
General Secretary

Curry Fund Report

At its September meeting the Committee received seven new applications and discussed six outstanding applications from previous meetings.

The Gloucestershire Geology Trust (GGT) was granted £1307 towards the cost of Foss Quarry Site Improvement. The work is part of an on-going project by GGT to ensure that the site will be safe for geological recording and education. The Lyme Regis Development Trust (LRDT) was awarded £1080 for support for updating its web site but there are still one or two things that need to be changed or added, such as the Curry Fund logo and the Curry Fund Report.

A postscript, added after the Festival (reported fully elsewhere in the magazine), to say how delighted we were to see new faces amongst those more familiar at this event, and especially those who had received support from the Curry Fund, new and old.

Our last meeting of the year will be in December. We look forward to receiving your application for funding at the end of our year of celebrating out 150th anniversary.

Susan Brown
Curry Fund Secretary

QUESTIONNAIRE

IF YOU HAVE NOT RETURNED YOUR QUESTIONNAIRE, DON’T PUT IT OFF ANY LONGER PLEASE. WE HAVE HAD A GOOD RESPONSE BUT WE NEED TO GET AS MANY RESPONSES AS POSSIBLE TO DETERMINE THE OPINIONS OF THE MEMBERSHIP

Chalk revolution: what have we done to the Chalk in England?
Prof Rory Mortimore
Brighton
Friday February 6 2009
Geological Society, Burlington House, Piccadilly, W1V 0JU
at 5.00pm, tea at 5.30pm

By combining the results from the stratigraphical, sedimentological and structural studies we can at last begin to model the Chalk in a way that is useful to all applied studies in engineering, hydrogeology and reservoir engineering. We can also start to explain seemingly minor local features of the Chalk in terms of global processes acting during the Upper Cretaceous. It is a revolution that has completely changed our understanding of one of our most ‘familiar’ rocks. It is a revolution which will continue with future development of real-time digital models of the Chalk for monitoring the aquifer, chalk-land rivers and coastal cliffs. In the future, we may even be able to plot the migration of individual species within a single bed of Chalk across entire basins. Surprises and unexpected geology, however, are still encountered in the Chalk, for example at Stonehenge, beneath London and on the Isle of Wight. Each of these aspects of Chalk geology will be illustrated.

French drillers complete horizontal boreholes into the Chalk cliffs at Mesnil-val. Instruments listen to the cliffs cracking and warn of imminent cliff collapse.

March Meeting

Making and breaking mountains
Dr Tom Argles
Open University.
Friday March 6 2009
Geological Society, Burlington House, Piccadilly, W1V 0JU
at 5.00pm, tea at 5.30pm

What do you need to make a mountain? Come to that, what exactly is a mountain? How do we define some lumps in the landscape as hills, and others as mountains? How long do they last?

Answers to the questions above, some of them potentially correct, will be peppered through this richly illustrated talk. Starting from a very general, possibly even philosophical perspective of mountains, we will wend our way through the foothills of understanding how and why different mountains form, looking at some critical clues in the rocks. Trekking on into high Himalayan valleys, we’ll look at the role of rivers and glaciers in crafting mountain landscapes, before ascending into the rarified air and turbulent weather of the high peaks. Having reached that vantage point, we can gaze down with a different perspective on how mountains might be broken down. Along the way, I’ll be enlisting the help of (among others) Douglas Adams, Hugh Grant, and Sir Francis Younghusband to help enlighten (or just lighten) the discussion.

Dr Tom Argles is trying to make sense of all the data he collected during field seasons in Pakistan, India, Bhutan and Tibet.

At this meeting the ENI UK Ltd Award will be presented followed by a reception

William Whittaker - Giant of the GA

William Whittaker (1836-1925) was devoted to the Geologists’ Association, leading more than 50 field excursions between 1872 and 1921, and serving as President twice. At the end of the sesquicentennial year it is appropriate to reflect on his career as a ‘GA Giant’. Others have previously undertaken bibliographic studies and William George in particular has explored aspects of his work as one of the founders of British hydrogeology.

In the summer of 1865 he was a member of a three man expedition of British Geological Survey officers who examined a number of fjord related localities and their glaciers seeking ‘actualistic’ experience of modern glacial environments in order better to understand sediments and landforms which seemingly were the products of land ice glaciation in Britain. At that time the head of the Survey was Roderick Murchison and he was strongly against the land ice hypothesis. William’s expedition colleagues were the famed Geikie brothers - Archibald and James. All three contributed to a classic paper on glaciation, ancient and modern. He had broad interests and contributed to the shift in geomorphological thought from the primacy of marine to sub aerial erosional processes in landform development. In a benchmark paper he demonstrated that the relief of the North Downs could be explained as a result of slope and fluvial activity. A measure of the revolutionary thinking which this involved is shown by the fact that the council of the Geological Society ordered that his paper be withdrawn. Fortunately the editor of the Geological Magazine took a more enlightened view and immediately published his paper thereby enabling him to send reprints to his opponents, one of whom was Charles Lyell. Lyell became a convert!

William’s career was entirely with the Geological Survey and he worked exclusively in the south east of England and made major contributions to the understanding of the Cretaceous, Tertiary and Quaternary.
The query "is there something wrong with the ceiling?" as all eyes turned skywards was soon answered by realising that the Sesquicentennial Dinner was being held in the opulent Pompadour Room of the Café Royal with its dramatic gold leaf and painted panels.

The hubbub was tremendous as 117 convivial souls caught up with each other whilst getting to grips with entertainingly illustrated menu with today's menu on the outside and one from 1880 on the inside which offered cauliflorae ooolitalis political and today’s more straightforward tartlet, beef forestière and rich chocolate tart.

Thus fortified, Eric Robinson spoke of the achievements of the GA in the past; ( a ripple of Happy Birthday greeting the revelation that, as the oldest surviving President attending the dinner, he had just reached his 80th birthday). He reiterated his recently expressed praise for the Rockwatch initiative, that which had increasingly fostered interest in geology in the very young.

Danielle Schreve (the current President who lowers our age ratio somewhat) proposed the toast to the work of the GA at present; both stressing the part the Association has played in encouraging interest in geology through central activities, Local Groups and in supporting Rockwatch, thereby creating a unique association that brings together a diversity of members.

Danielle then introduced our guest of honour, Earth Science TV star Iain Stewart, who continued the theme of bringing the word to the general public of all ages. Leaving a purely academic career to focus on his television career, he spoke of the difficulties of reconciling the limitations of TV editors with the need to bring the importance, excitement and relevance of geology to all, while dropping tantalising hints of what he might have in store for us in the future. Iain emphasised that he believes that it will be necessary to devise a re-involvement with geology. The general public need to become “re-engaged” with geology and to learn about fuels, water, building stones and other natural resources that are vital for the process of our lives. Geology is vital in the resolution of the problem of dwindling resources against an increasing population. He envisaged that a future series should address the matter of "How the earth made us". He complimented Aubrey Manning’s work in the past, and announced his intention to compile a work of entitled "Geologica Britannica - celebrating British Geology" - and that the GA’s position is absolutely integral with to this.

After concluding words from Mike Benton the evening ended with everyone looking forward to being in at the beginning of the next 150 years.

Elaine Bimpson & Tony Iles
"Brilliant", "Great", "the best Festival ever"! - just some of the comments heard at the Sesqui-centennial Festival held at UCL on November 1.

The corridors buzzed with crowds of members, their guests and visitors who admired the stands of Local Groups displaying the variety and excellence of their wide range of activities, including: field work, publications and exhibitions. The standard of Groups' presentations truly gets better every year.

Among the over 40 stands were mineral dealers, book sellers, GA Enterprises and even a stone carving demonstration by one of our members, Caroline Dear.

Since this was the Sesquicentennial Festival Marjorie Carreck and her son Norman, who have curated the GA archive of photographs for many years, put on a special display. A large number of historic photographs were presented on display boards whilst albums of photographs were available for members to peruse, provided they wore gloves to protect them - the photos, not the members!

In the Discovery room Rockwatch held their usual excellent range of activities for the young. Hordes of children made plaster 'fossils', Jurassic cut-out dioramas and even racing trilobites!

The lectures, on: 'Traditional Knowledge of Tsunamis saves lives' by Dr Simon Day, 'Climate Change' by Prof. Duncan Wingham, 'Local Heroes' by Doreen Smith, 'Crystal Palace' - 'Prehistoric Animals' by Mike Howgate, 'Diamonds from Big Bang to Big Bucks' by Dr Adrian Jones and 'New Ways of Looking at Dinosaur Evolution' by Prof. Mike Benton were all very popular.

The lecture theatre overflowed, in fact it could have been filled to capacity twice over.

Students from the UCL geology club were kept busy all day providing excellent refreshments and were very helpful in many ways.

The photographic competition produced a large number of outstanding photographs which provided a challenge for the judge, Dr Ted Nield from the Geological Society, to choose a winner. Their results can be seen on the back page.

The following day, 4 field trips were organised: The Geology of London led by Dr Eric Robinson (see report on page 18), Surrey Hills led by Dr Graham Williams, Chafford Hundred (formerly Chalk pits) led by Diana Clements and the Mullard Space Science Laboratory.

Everyone involved in producing this Festival should be heartily congratulated, in particular Susan Brown, Wendy Kirk, Geraldine Marshall, Sarah Stafford and the students and staff at UCL.
The PGA illustrated

By the end of this year, 2008, which marks the 150th anniversary of the Geologists' Association, the volumes of The Proceedings of the Geologists' Association (PGA), which were first published in 1859, will contain close to 50,000 pages of articles. Detailed commentary on its content was first given by John Kirkaldy (physical geology and geomorphology); George Young and William Wright (Mesozoic); James Stubblefield (palaeontology); Herbert Reed ('petrological geology'); and Gilbert Wilson (structural geology) in Sweeting (1958), published to celebrate the first 100 years of the existence of the Association. Subsequently, in the 100th volume of the PGA (1989), Eric Robinson discussed its origin and early years; Christopher Green described the many Field Meeting Reports which had appeared up to that time and, in a separate article, the evolution of the technology involved in the reproduction of both photographic and line drawing illustrations; and Frank Midlemiss gave an updated account of some 360 papers published during the lifetime of the PGA, broadly categorised under the headings: geomorphology, engineering and economic geology, the Weald, stratigraphical geology, petrology, palaeontology, and structural geology. For anyone interested in the evolution of our journal, all these contributions are very well worth revisiting. Consequently, when (only nineteen volumes later) I was invited to write a 150th year article on the PGA for GA, it seemed at first sight that there was little to add to these excellent previous reviews. However, no-one had attempted an actual quantitative summary of how its contents had varied with time. Such an analysis is made feasible only as a result of the dedicated work of the compilers of the successive cumulative indices. The first of these was compiled by George Young and William Wright for 1859-1908 and published in 1910; but thereafter they were issued for each decade: Green (1958b, 1960-99); Doxey (1950-59, 1960-69), Sheila Dellow (1970-79), and Margaret Ainsley (1980-89, 1990-99). In the early years (circa 1910-49), the index cards, on which the hundreds of name and topic references were painstakingly written, were provided by the current Professor of Geology in the Department of Geology at the Imperial College of Science and Technology, London, and were subsequently housed in the departmental library (which now, sadly, no longer exists). The onerous, meticulous (and undoubtedly tedious) work involved in the compilation of the indices, and the eventual difficulty of finding willing compilers, is attested to by the fact that while Young, Wright and Sweeting managed to complete their indices within three years, several of the later ones only appeared some ten to twenty years after the decade to which they applied. Readers of the PGA owe a considerable debt to this dedicated band of people.

The parts which make up Volume 1 of the PGA appeared irregularly between 1859 and 1865. There was then a long gap, until 1870, as a result of a publishing policy which saw a number of articles appear in another journal, the Geological and Natural History Repertory, edited by Samuel Mackie, one of the founders of the Association (see Freeman, 1996), but this proved unsatisfactory, and regular publication of the PGA resumed with Vol. 2, commencing in April 1871. A number of papers which had been printed separately by the Association in the intervening years were gathered together as a Supplement to Vol. 1. Subsequently, each volume of the PGA was issued over periods of two years until 1910 (Vol. 21), but from 1911 (Vol. 22) onwards each volume corresponds to a year. The variation in the number of article text pages per volume per year is shown in Fig. 1 (in this, and succeeding figures, the data points are plotted at the closing year of each volume). The major peaks fall at the Centenary Vol. 21 and its accompanying Jubilee Volume of field guides (1910); Vol. 81 (1970); and Vol. 100 (1989); the troughs correspond to the First and Second World Wars and to the years 1954-60.

From 1980 onwards, publication has, for financial reasons, stabilised at around 380 pages per annum. Fig. 2 shows the number of unpaginated photographic plates and fold-out illustrations (generally maps), and the number of pages with colour illustrations in each volume. These expensive additions gradually rose to a peak with the Centenary volumes and while the appearance of coloured maps was not unusual between 1910 and 1950, increasing costs made colour a rarity thereafter. The introduction of offset lithography meant that photographs could be incorporated within the text (Green 1989b) and publication of unpaginated plates and foldouts essentially ceased in 1975. However, the use of colour is now begun to revive as a result of modern computer-based technology.

For the purpose of comparison of article content, raw counts of occurrences in each of a number of categories in each volume have been aggregated and averaged over 10 year periods to 1910, thereafter over 5 years to 2005 and, lastly, 2.5 years to include the first two parts for 2008. Content counts have generally been based on article titles, apart from geological time Periods, which have been based on the individual index entries. The content of a single article could, of course, give rise to an occurrence in more than one geographic, time or subject category.

As is to be expected, geographical coverage of articles is dominated by Great Britain (Fig. 3). Articles on aspects of Scottish geology, although irregular, have continued throughout, and were seemingly unaffected by the introduction of the Scottish Journal of Geology in 1965. So far as time-intervals are concerned, articles have continued to appear on all Periods (Fig. 4), broadly dominated by the Mesozoic, although interest appears to have shifted from the Paleogene and Neogene to the Quaternary since the 1980s. Within the Mesozoic, the dominant interest has been on the Cretaceous, followed by the Jurassic and Triassic, in that order. Within the
Palaeozoic, papers concerned with the Carboniferous have tended to dominate.

Turning to the actual subject-matter of the articles, it is interesting that although just prior to the Association’s formation, and in the early years of its existence, much emphasis was placed by educators and others on applied geology: e.g. mineralogy, economic geology (mining, engineering and building stones) and agricultural geology (Ramsay, 1852); economic geology (building stones, coal and metallic and other minerals) and military geology (building materials, topography, water supply) (Jones, 1880); mining, structural geology, water supply, railways, building materials, agriculture, and landscape painting (Cadell, 1887); these issues did not greatly figure in the substance of articles in the PGA and they are subsumed, with other miscellaneous topics, into the catch-all category ‘Other geology’ in (Fig. 5). Rather, emphasis was, from its beginning, mainly on the geology of regional areas and/or their stratigraphy, palaeontology and, sometimes structure, perhaps as a result of the great interest of many members of the Association in ‘geology in the field’. What later became known as sedimentology (including sedimentary petrology) became particularly prominent, with studies of heavy mineral abundance (1913-1957); the size distribution analysis of clastic sediments and contained pebbles (1929-67); and the origin of flint and chert (1859-1978); see Middlemiss (1989) for further details. Although it is true that the PGA broadly reflects ‘soft rock’ topics, the setting and petrology of igneous, plutonic and metamorphic bodies, including the occasional volcano, have maintained a minor, but constant, presence. The journal has in the past hosted Harold Read’s classic ‘Meditations on Granite’ (PGA 54, 64-85; 55, 45-93), a topic recently revisited in modern terms by John Clements and a number of discussants (PGA 116, 9-32); and metamorphic rocks have been extensively dealt with in the recent Festschrift in honour of Donald Bowes (PGA 118, 1-127). The reports of field excursions, which played such a dominant role in the early PGA, have gradually fallen away, as has the presence of obituaries (despite their regular appearance since the 1930s). Apart from palaeontology, other areas of recent growth include the history of geology, book reviews (introduced in 1990) and miscellaneous topics: papers dealing with palaeoenvironment, palaeoclima, marine geology, hydrogeology, geophysics, geochemistry, geoconservation etc., and what might be broadly grouped as physical geology, geomorphology and palaeoanthropology (these last three topics are shown in Fig. 6). Lastly, Fig. 7 shows the broad categories into which the palaeontological studies fall. Here again, more detail of the articles themselves will be found in Sweeting (1958) and Middlemiss (1989).

Many of the issues concerned with the type of papers which appear in the PGA, such as the balance between research papers, review articles, field meeting reports and other articles, and adaptation of style to render
the contents as accessible as possible to non-professional readers of the journal, were discussed at length by Horace Montford in his 1969 Presidential Address, and these issues remain as pertinent today. His statement that ‘we do our best to get the articles into a form which will interest as wide a spectrum of Members as possible’ (Montford 1969, 139-140) remains as true now as it did then, although we are now aiming at a broader readership, in addition to GA members themselves.

The PGA has been produced by a variety of publishers since its inception. From 2009, it will be published by Elsevier under a new editorial team: Editor-in-Chief, Professor Jim Rose (Royal Holloway, University of London), assisted by Editors Dr. David Horne (Queen Mary, University of London) and Dr. John Powell (British Geological Survey). Papers will focus on the geology of the region around the south-western margin of the North Sea basin, giving especial attention to the Mesozoic, Cenozoic and Quaternary rocks and landforms that characterise this region. Reports on field meetings that cover new findings and interpretations, papers on applied, historical and educational aspects of Earth Science, and substantive reviews on topics of scientific importance will be welcome, as will papers relating to the geological evidence for past climates and environments; the processes that are forced by these changes; and geoarchaeological evidence of human responses to these changes. The PGA will also continue its tradition of publishing special issues on topics of scientific importance. With its impending digitisation (aimed for completion in 2009) its excellent legacy of high-quality articles will become available to a new and broader audience and the GA can look forward to its future continuing success.

Richard J. Howarth

References

N.B. All citations are to the Proceedings of the Geologists’ Association unless indicated otherwise.


MOLE VALLEY GEOLOGISTS GO TO SEA: THE CRETACEOUS COAST CRUISE

During its 29 year history the Mole Valley Geological Society has organised many field trips, but until September had never been on a geological cruise. As some GA members may know the Waverley is the last paddle steamer in the world. Every summer it leaves its base on the Clyde and makes a stately cruise around the coast of the British Isles taking passengers out on day cruises. One of these is advertised as the ‘Jurassic Coast Cruise’. This is a cruise from Weymouth along the Dorset coast as far as the Isle of Wight and back to Weymouth in one day. The MVGS thought of going on this one until a member said that she had tried to go on it, but the weather had been too rough for the Waverley to leave Weymouth Harbour. There is, however, a cruise around the Isle of Wight from Portsmouth Harbour back and back. Some 30 members of the Mole Valley Geological Society went on this cruise on 20 September. It was a beautiful calm sunny day with temperatures around 20 degrees C. The MVGS had arranged for Professor Gale of Portsmouth University and Isle of Wight geoguru, to be our tour guide. As we cruised around the island Andy Gale pontificated on the various features of geological interest. The increasing dips towards the flexures at Alum and Whitecliff bays are very dramatic when seen from a kilometre offshore. The view of the Brightstone cliff line from the sea was particularly spectacular; even an engineer could have seen it. At this point, however, the captain told passengers to move away from the port side as the Waverley was tilting over and the port paddle was drowning. We might have followed. The combination of the Waverley, the weather and our local guide made this a truly memorable field trip. For other GA groups and individuals wishing to go on this or the Jurassic coast cruise details of the Waverley’s 2009 cruising schedule will be found on www.waverleyexcursions.co.uk some time early next year. There are discounts for groups of 10 or more booking in advance. A word of warning: we were lucky because of the fine weather. If the weather is too bad the cruise may be cancelled. In wet and windy weather it is not much fun standing on deck for hours, however thrilling the geology. But be warned that below decks the Waverley is basically an unstable noisy floating pub. Tickets do not have to be booked in advance. They can be purchased on board during the cruise. There is sense in foregoing the group discount and making the go/no go decision after checking the weather forecast and purchasing tickets on the day on board.

Claire Hill
Mons Porphyrites ... on the trail

Hurghada, Red Sea: some people just want to sit on the beach and snooze, or soak up the refined luxury offered by 6* resort hotels, or spend the day being pampered in the spa amongst the rejuvenating herbs, oils and essences. But not me and Rosie!

With our driver, Sware, and the obligatory guide, Aladin (who else!), we headed north-west out of town for 35km along the main highway, past the ancient Egyptian sites and wispy, heather-filled heath, crossing the central reservation (the wonders of 4WD!) and going off-road. The Neogene limestones, outwash and deflation flats formed a somewhat monotonous low relief broken only by the occasional low limestone scarp, perhaps marking the presence of a former reef. We headed towards the Dobhan Mountains, part of the Red Sea Mountains, upfaulted block, leaving a billowing cloud of dust in our wake, the mountain-front fault scarp getting inexorably closer. For 28km we travelled thus, then skirted the edge of the mountains and into Wadi Om Sdra.

The Red Sea Mountains are part of the Iegnoe and metamorphic base complex, dated at between 550-900Ma. They provided a valuable source of minerals and gems - emeralds, amethysts, galena, copper and even gold, used extensively by the ancient Egyptians. Our quest, however, was to find the source of the Roman 'Imperial Porphyry'. Uplift linked to the rifting between Africa and Arabia began around 30Ma, and frequent rejuvenation has created deeply incised wadis, some of which were used as ancient routeways. It was one of these that we followed.

At first the going was easy and we soon came to the loading ramp. It was from here that blocks of porphyry were loaded onto carts before being taken some 150km across the mountains to the Nile at Quena, from where they would be shipped to Rome and elsewhere in the Roman Empire. By midday it was hot. Very hot. And the going got tougher and slower as the track on tonne following faded and gave up, and the lurching of the Toyota increased over the boulder-strewn wadi floor. The boulders became more frequent now - at a lone Yasser tree in full flower, or a mineral vein in the dirty pink granite, or a particularly welcome stop to consume fruit and a dish of date pastries made by Aladin’s mother! We were now some 30km up the wadi. Then on to the remains of the encampment where the quarry workers lived - a deep well, the ruins of dwellings and workshops, a huge number of pottery fragments, and even a temple to the gods, with decorative granite columns and approach steps still preserved. South of the temple rose the dark majesty and triangular peak of Mons Porphyrites (Gebel Dobhan) itself, the contact between granite and porphyry clearly observed along the wadi flank.

We were only able to drive a short distance further up-wadi. A torrential flash flood had transported a huge amount of debris along the wadi floor a few years ago and dumped it just where we wanted to go. We made it as far as the bottom of the track which leads up the mountainside to the quarry itself - the track now not passable by vehicle, even a Toyota Land Cruiser using 4-wheel drive.

The unrelenting heat and baked rocks made hiking out of the question. Frustratingly, tantalisingly, we could see the quarry in the distance, only a few hundred metres away! However, andesite dacite porphyry boulders were everywhere - classic pink/white phenocrysts set in a reddish purple ground-mass. The quarry was under the direct control of the Imperial Family in Rome and extensive work during the reigns of Trajan and Hadrian (98-138AD) for building materials and, especially, decorative work. It was so highly prized that it was used for royal sarcophagi and to line the birthing chamber of royal princes in the Byzantine Great Palace in Constantinople (the origin of the phrase ‘born to the purple’). Blocks were lowered down the mountain side from the quarry on slipways, then rolled and dragged some 16km along the wadi floor to the loading ramp. It is said that some 80% of the slave workers died.

The quarry was last worked in c.330AD and its existence was forgotten after the Romans left. It was not rediscovered until 1823. We saw no-one else all day - it is seldom visited by tourists except for the occasional few intrepid travellers. But it does make a nice change from snorkelling over the Red Sea coral reefs!

Roger Dixon
CIRCULAR No. 977 DECEMBER 2008

PLEASE NOTE THE FOLLOWING INFORMATION FOR FIELD MEETINGS ENQUIRIES & BOOKINGS

Geoff Swan organises day and weekend meetings in the UK. Michael Ridd is responsible for overseas and longer excursions. Sarah Stafford at the GA office is responsible for bookings, payments and general administration.

You must book through the GA office to confirm attendance. Please do not contact the field meeting leader directly. Meeting times and locations will be confirmed on booking. These are not normally advertised in advance, as there have been problems with members turning up without booking or paying and maximum numbers being exceeded. Field meetings are open to non-memres although attendance by non-members is subject to a £5 surcharge on top of the normal administration fee. Some meetings may have restrictions on age (especially for under 16s) or be physically demanding. If you are uncertain, please ask.

PAYMENTS for day and weekend meetings must be made before attending any field meeting. Cheques should be made out to Geologists’ Association. If making multiple bookings, please enclose a separate cheque for each meeting unless you have first confirmed that there are places available. A stamped addressed envelope is appreciated please give a contact telephone number and, if possible, an email address and provide the names of any other persons that you are including in your booking. PLEASE ALSO PROVIDE AN EMERGENCY CONTACT NAME AND TELEPHONE NUMBER AT THE TIME OF BOOKING.

There are separate arrangements for overseas meetings. TRANSPORT is normally via private car unless otherwise advertised. If you are a rail traveller, it may be possible for the GA office to arrange for another member to provide a lift or collect you from the nearest railway station. This service cannot be guaranteed, but please ask before booking.

PUBLIC LIABILITY INSURANCE for field meetings is provided but personal accident cover remains the responsibility of the participant. Further details are available on request from the GA office.

SAFETY is taken very seriously. Should you be unsure about either the risks involved or your ability to participate, you must seek advice from the GA office before booking. Please make sure that you study the risk assessment prepared for all GA field meetings and that you have all the safety equipment specified. You must declare, at the time of booking, any disabilities or medical conditions that may affect your ability to attend a field meeting safely. You may be asked to provide further information on any prescription drugs etc. that you may use whilst attending a field meeting. In order to ensure the safety of all participants, the GA reserves the right to limit or refuse attendance at field meetings.

EMERGENCY CONTACT: if you are lost or late for the start of a meeting, an emergency contact is available during UK field meetings by calling the GA mobile phone (07712 132290). PLEASE NOTE THIS NEW NUMBER. The mobile phone will only be switched on just before and during field meetings. For routine enquiries please call the GA office on the usual number.

TRAVEL REGULATIONS are observed. The GA acts as a retail agent for ATOL holders in respect of all flights included in field meetings. All flights are ATOL protected by the Civil Aviation Authority (see GA Circular No. 942, October 2000 for further details). Field meetings of more than 24 hours duration or including accommodation are subject to the Package Travel Regulations 1992. The information provided does not constitute a brochure under these Regulations.

FEES

fee of £15 to confirm your place. It will not be possible for the GA to book accommodation.

PUDGINGSTONE FORAY IN HERTS AND BUCKS

Leader: Mike Horoway

Saturday 25th April 2009 10:30

A chance to visit several sites of naturally occurring Hertfordshire (and Bedfordshire) puddingstone at one of which specimens can be collected. No hammering will be permitted as the rock is splinterly and dangerous to bystanders as well as the hammerer.

Equipment: Suitable footwear and clothing appropriate to the weather conditions.

Cost & booking: Numbers will be limited to 25. Register with Sarah Stafford at the GA office sending an administration fee of £5 to confirm your place.

THE GOWER PENINSULA - A JOINT MEETING WITH THE LINNEAN SOCIETY

Leaders: Dr Brian Rosen and others

Friday 5th May - Monday 16th May 2009

We will examine the geology and natural history of the Gower Peninsula and nearby areas led by local specialists in geology, marine biology and botany. The weekend will include guided visits to Neath Botanic Garden of Wales at Llanarthne (with geological outcrops) and to the Wildfowl and Wetlands Trust National Wetland Centre Wales, Llwyndyfan, Llanelli. If there is sufficient interest a communal dinner will be arranged for the party on the Saturday night.

Equipment: Suitable footwear and clothing appropriate to the weather conditions.

Cost & booking: Numbers will be limited to 15 GA members. Register with Sarah Stafford at the GA office sending an administration fee of £20 to confirm your place. Please indicate whether you wish to join the dinner party - this will be an additional (reasonable) cost. It will not be possible for the GA to book accommodation.

SOME SOMERSET QUARRIES

Leader: Simon Carpenter

Saturday 22nd May 2009

This excursion will examine the Upper Triassic and Lower Jurassic rocks of Somerset. Many of the rocks we will be looking at are highly condensed and fossiliferous - so make sure you bring your hammer and collecting box. Simon will bring a selection of fossils from his own collection for participants to handle and view.

Equipment: You must have a hammer, a wide vest and suitable footwear.

Cost & booking: Numbers will be limited to 20. Register with Sarah Stafford at the GA office sending an administration fee of £5 to confirm your place.


11
NORTHANTS CHURCHES
Leader: Prof John Potter
Saturday 30th May 2009
This popular series of annual church stone visits allows participants to discover the importance of geology and rock types to the interpretation of these churches. The party will meet at a convenient railway station – other arrangements are still to be confirmed. Car sharing may be necessary.
Equipment: No hammers but bring a quality lens and binoculars. Packed or pub lunch.
Cost & booking: Numbers will be limited to 28. Further details will be available from Sarah Stafford at the GA office. Register with Sarah sending an administration fee of £15 per person to confirm your place.

Fossil Fest V
Leader: Nev Hollingworth
Saturday 11th June 2009
Location(s) have still to be decided but plenty of fossils can be expected.
Equipment: You must have a hard hat, be vis-cast and suitable footwear.
Cost & booking: Numbers will be limited to 25. Register with Sarah Stafford at the GA office sending an administration fee of £5 to confirm your place.

IN THE FOOTSTEPS OF CHARLES DARWIN - NW MIDLANDS AND NORTH WALES
JOINT MEETING WITH THE GEOLOGICAL SOCIETY
Leader: Prof Peter Worsley
Friday 19th June - Wednesday 24th June 2009
To commemorate the 200th anniversary of Charles Darwin’s birth in 2009, this field excursion will visit a number of localities in his home area of Shropshire - Staffordshire and also North Wales. Besides the general Darwin related sites, the emphasis will be on his earlier work as a geologist and in particular his field trip in June 1842 to appraise the evidence presented by William Buckland in 1841 supporting the ‘Vicarian Theory’. A background to the latter may be found in Quaternary Newsletter 112, 22-28, (2007) and the November edition of Geocientist. (2008). The excursion will be an opportunity to see aspects of the glacial geology of North Wales. A significant amount of walking will be involved. Climbing over rough ground will be necessary in North Wales. If you are in any doubt as to your ability to participate please contact the GA office. The weather may necessitate modification of the programme.
Equipment: Ensure you have suitable footwear and clothing.
Cost & booking: Numbers will be limited to 26. Total cost is still to be confirmed but accommodation is being arranged. Register with Sarah Stafford at the GA office sending a deposit of £10 to confirm your place.

WEALDEN EXCURSION
Leaders: Pete Austen, Richard Agar, Dr Ed Jarzembowski and Geoff Toye
Saturday 18th July 2009
This trip continues the popular annual excursion to working pits in the Weald Clay of south-east England, where the GA has already participated in some superb finds. The venue(s) will be confirmed later so as to take advantage of conditions at the time. Numbers may be limited.
Equipment: You must have suitable footwear, a high visibility jacket and hard hat.
Cost & booking: Further details will be available from Sarah Stafford at the GA office. Register with Sarah Stafford at the GA office sending an administration fee of £5 per person to confirm your place.

ON THE CHILTERN LINE TO WARWICKSHIRE
Leader: Dr Martyn Bradley
Sunday 20th September 2009
The rail journey from Marylebone to Warwick cuts across the stony terrain of Wootton, Cootcennos, Junarce and Tinsell strata. From the train we can follow the landscapes as we travel down the geological succession. On arrival in Leamington Spa we will view a small river cliff by the Leam before visiting the Royal Pump Rooms for coffee (or lunch) – with an opportunity to sample the mineral rich waters. A walk via the elephant wash and riverside Jephson gardens will continue on to Warwick and its castle built of and on fine exposures of Bromsgrove Clay of south-east England, where the GA has already participated in some superb finds. Tertiary brown coal deposits – exceptionally well-preserved assemblages of stromatolites. Tertiary brown coal deposits - exceptionally well-preserved vertebrates and plants of the Geiseltal (Geiseltal Museum, Halle) and visit to work-open cast mine at Schneeberg. The region has a wonderful cultural heritage and the geological itinerary will be balanced with opportunities to view Romanesque and medieval architecture and art in, for example, Halle, Halberstadt and Quedlingburg.

GEOLGISTS’ ASSOCIATION LOCAL GROUPS

Cambridgeshire Geology Club
December 8 Mantle Plumes and the Galapagos Islands - Dr. Sally Gibson
December 9 Midland England and East Anglia meeting - Details will be provided in the GA Magazine and on the GA website as soon as possible.

Geological Society of London
March 9 The Forming of St.Ives, Cambridgeshire - Bob Burn-Murdoch - Curator, Sedgeford Museum.

NORTH WALES
THE GEOLOGY OF THE BYTHAM RIVER AND BRITAIN’S EARLIEST HUMANS
This meeting was originally scheduled for 2008 but had to be postponed due to difficulties over quarry access. Jim Rose and colleague hope to run the Bytham River Excursion during 2009. At present the details and timing of the meeting have not yet been finalized. It is likely to take the form of two, one-day-meetings (one in Midland England and one in East Anglia), and details will be provided in the GA Magazine and on the GA website as soon as possible.

Further Afield in 2009
Proposed field excursion to Libya, Autumn 2009
Leader: Professor Richard Moody
Approximate dates: Wednesday 14th October - Sunday 1st November 2009
Approximate cost (assuming 15 participants): £1800

This excursion will provide an exceptional opportunity to examine the varied geology of Libya, from Lower Palaeozoic to Tertiary, sedimentary rocks and volcanics. The itinerary includes the deep Sahara with spectacular sand-seas, mountain scenery and prehistoric rock-art, as well as some of the finest Roman antiquities on the Mediterranean coast at Sabratha and Leptis Magna.


To register your interest, please contact Sarah at the GA Office.

NORTH WALES
To commemorate the 200th anniversary of Charles Darwin’s birth in 2009, this field excursion will visit a number of localities in his home area of Shropshire - Staffordshire and also North Wales. Besides the general Darwin related sites, the emphasis will be on his earlier work as a geologist and in particular his field trip in June 1842 to appraise the evidence presented by William Buckland in 1841 supporting the ‘Vicarian Theory’. A background to the latter may be found in Quaternary Newsletter 112, 22-28, (2007) and the November edition of Geocientist. (2008). The excursion will be an opportunity to see aspects of the glacial geology of North Wales. A significant amount of walking will be involved. Climbing over rough ground will be necessary in North Wales. If you are in any doubt as to your ability to participate please contact the GA office. The weather may necessitate modification of the programme.
Equipment: Ensure you have suitable footwear and clothing.
Cost & booking: Numbers will be limited to 26. Total cost is still to be confirmed but accommodation is being arranged. Register with Sarah Stafford at the GA office. Register with Sarah Stafford at the GA office sending a deposit of £10 to confirm your place.
March 4 The origins of special rocks and minerals - Dr Bill French. 
May 6 Crystalline Palaces - Dr Clive Bishop.
Contact Dr Trevor Greenamrth 01268 785404
Farnham Geological Society 
January 9 AGM followed by Building Stones of London - John Williams.
February 13 Flint - Dr Smith
March 13 How Geology has been used in Serious Crime Investigations - Paddy Regan.
Contact - Mrs Shirley Stephens tel: 01252 488215
Field Trips Contact - Dr Graham Williams tel: 01483 573802 Email secretary@farnhamgeoassoc.org.uk
www.farnhamgeoassoc.org.uk
Harlow & Billingham Geological Society 
December 10 The Earliest Humans in Northern Europe - Prof. Jim Rose.
January 14 Geologicial hazards in Papua New Guinea - Stephen Edwards
January 17 New Year Social.
February 11 Mind the Gap - All about Mortar in Brickwork - Michael Hammett
March 11 Oman: a geological treasure chest. A member reports - Michael Cumming
April 8 Isotopes and Earth Systems: Cosmic Connections - George Darlington
Contact: Jean Sippy 020 8422 1589
Email: jean@boppersworld.com Field trip information Allan Wheeler 01344 454541.
www.hbg.org.uk
Kent Geologists Group 
December 9 Christmas evening.
Contact information www.kkg.org.uk
The Kirkaldy Society (Alumni of Queen Mary College) 
Contact Tony Box 020 80644548; a.j.123121@btinternet.com
Contact David Greenwood 020849 6604 email:kirkasco@sky.com
Lancashire
Contact Acting Secretary Jennifer Rhodes 01204 811203 Email: J_rhodes@hot-mail.com
Mole Valley Geological Society 
December 4 Sonite with members lectures & mince pies.
January 8 The birth, life & death of the River Mole - Professor Richard Selley
Imperial College
February 12 Sonite with members' lectures
www.dondon.net/tnp.nodes. Email: Richard Higgs director@imcnet.co.uk
North Staffordshire Group 
December 4 Christmas Social & buffet with a talk by Bob Bascon.
January 8 Boxing Day Earthquake and Tsunami - Dr Ian Simpson, Keele University
March 1-5 AGM and Chairman's Address: Shark Bay to Wave rock - Elizabeth Hallam.
Contact for details Eileen Fraser 01268 773409 Contact Field trips: Gerard Ford 01630 673409.
Oxford Geology Group 
www.oum.ox.ac.uk/ogg.htm. or call programme secretary 01865 272960.
Ravensbourne Geological Society 
December 9 Christmas Festivities and Finds competition.
January 13 Gold - Paul Hope.
February 10 Geo-Diversity Murray Gray.
March 10 The Moons - Greg Sny-Romney.
Contact Maurice Green, Secretary: 020 87774416 or Venn Marko 020 8460 2254
North Wales - Cymdeithas Daureg Gogofa Cymru 
December 3 The Hebridan Geotourist - Jonathan Wilkinson
Contact Jonathan Wilkinson 01492 583052. www.amrys.org.uk/colp
South Wales Group - Cymdeithas Y Dauregwr Grwp Dy Cymru-
December 13 150 years of the Geologists' Association - Dr Eric Robinson.
January 10 Holiday Geologists - Dr Robin Edwards
January 24 The Geology and natural hazards of Papua New Guinea - Stephen Edwards
March 21 AGM and the Old Red Sandstone of South Wales - Brian Williams.
Full details to follow. Contact Geraint Owen 01792 295141 www.swga.org.uk
West of England
December 9 The Geology of Paintings - Dr Ruth Siddall.
January 20 3 Research Students from Bristol University - Current research.
February 17 Minerals of the North of England - Prof. Bob Symes.
March 10 Obsidians from North Western USA - Dr Alison Rust.
Contact Graeme Churchard 0117 967 1066.
www.wega.org.uk
West Sussex Geological Society 
December 12 Members Christmas meeting. David Bone will repeat his talk on
"Messel - A World Heritage Site in Germany"
January 16 Early Occupation of Britain - Prof Chris Stringer
February 20 AGM
March 5 Field trips: Sarsens in Stanmer Park - Stewart Ullcott.
March 20 The Geology of the Thames Tideway Project - Dr Jackie Skipper.
March 29 Building Stones around Chichester Cathedral - David Bone.
Contact Betty Steel 01903 209914
Email:landr16舌@talktalk.net
Field trips: October 12 Hastings Foreshore Walk - Ken Brooks. October 18 Field meeting
AFFILIATED SOCIETIES
Amateur Geological Society
Quartz the most precious mineral? - Dr Monica Price
January 13 AGM and New year Party.
Contact: Julia Dunbar 0208 836 1056.
Bath Geological Society 
December 4 Preservation of the birds and dinosaurs with feathers from Liaoning
China - Prof. Mike Benton.
Contact Miss Vicko Griffiths. Email: chairman@bathgeol soc.org.uk
www.bathgeolsoc.org.uk
Belfast Geologists' Society 
December 13 Marbles in Time and Space - Monica Price.
January 12 Andesite Volcanoes of the Pacific rim: conditioning the Crust for a
Supervolcano - Prof John Gamble.
March 16 Reconstructing Sea-level Change: what the past can tell us about the future - Dr Robin Edwards.
Contact Peter Millar 9064 2806.
Black Country Geological Society 
For information contact Sarah Barton 01384 235946. www.bcg.info
Brighton & Hove Geological Society
Contact John Cooper 01273 292780 email: john.cooper@brighton-hove.gov.uk
Bristol Naturalists' Society 
Contact 0173 470886
Email: simoncoarpotter@yahoo.com
Cara Brea Mining Society 
December 9 Members’ Medley.
January 20 The Value of Abandoned Mines Sites for Wildlife, The triumph of
nature over our industrial past.
February 17 Tolgus Tin - Ieuan Harris.
March 17 The Iron Mines of Cornwall - Tony Brooks.
April 21 AGM followed by Underground photography in Coal Mining - Kevin Baker.
May 19 Kind Edwards Mine and Higher Condurrow Mine … The Movie.
Contact Lincoln James 01326 311420
Cheltenham Mineral and Geological Society 
January 9 Miscellany - Members evening.
February 15 Luminoscent D. lucifugus - Philip Tomis.
May 18 Dolichor Quay or Kington - minerals and fossils
For more information on lectures: contact Kath Vickens 01453 827007
Contact Alan McKay 01452 547255.
Craven & Pendle Geological Society 
Nigel Mountjoy Ph.D., University of Leeds
Contact: Paul Kalbna@msn.com or www.cpgs.org.uk
Cumberland Geological Society 
Contact Susan Brelsford 01977 87953 cumbgeo@fsmail.net.
www.cumberland-geo-sec.org.uk.
The Devonshire Association (Geology Section) 
June 28th One Day Conference - West Geology: past, present and Future.
Contact Jack Dangerfield 01297 513326.
The Dinosaur Society
www. Dinosaur Society.com. Contact: Prof Richard Moody rj.moody@virgin.net
Durham Natural History & Archeology Society 
Contact Jenny Cripps email:jenny.idor-mus.demon.co.uk
Edinburgh Geological Society 
January 14 Lecture by Dr Ed Stephens from St Andrews University.
Simon Harle.
February 11 Professor Richard Woudron from University of Liverpool.
www.edinburghgeologists.org
Earth Science Teachers Association
For membership contact: Hamish Ross PO Box 23672 Edinburgh EH3 9XQ Tel: 0131 651 6410 Email:hamish.ross@education.ed.ac.uk

25 people and a dog assembled at 1030 at Langhurst Wood Road Pit, Warnham, on a warm but cloudy morning. Peter Austen gave an introductory talk explaining the stratigraphy of the site (see Toye et al., 2005), and showing illustrations of otoliths (Fish ear stones) (Anon., 2005 & Toye et al., 2005), and an illustration of a small fish jaw (Fig. 1) found by Barbara Loney on a recent Horsham Geological Field Club (HGFC) visit to the site - this jaw was identified by Ed Jarzembowski as that of a small predatory fish. The party then went to look at a pile of large scour fills (for which Warnham is famous: Toye et al., 2005) stock-piled by the workmen near the entrance (Fig. 2). These showed fine sole structures including circular groove marks (Fig. 3) and even eroded ripples. The party then went down into the main pit where over five metres more Lower Weald Clay was exposed in the base of the pit since the section was measured by Styles (2000). Finds included phosphatic nodules and shaley mudstones with partings crammed with fish bones. A siltstone lenticle near the base of BGS Bed 2a in the north-east corner of the pit yielded beetle (Coleoptera) remains. The wing case of a cupedid beetle Zygadenia sp. (Fig. 4) and a bug/grasshopper wing (Fig. 5), probably a new species, had also been found in the pit by Terry Keenan on the recent HGFC visit to the site, although these were not in situ. Just below a bed of Paludina Limestone at Styles’s bed 10 (Styles, 2000), Mike Smith found a tooth plate, possibly a dentary from the lower left jaw of a Lepidotes manteii (Fig. 6). Geoff Toye had previously found a partial Lepidotes palate (Fig. 7) in the same bed. Fish remains and a small fish jaw with teeth (Fig. 8) were found in an excavation by Stephanie & Andy Crawte just below BGS Bed 2a. Also found in the pit were comminuted plant debris, molluscs (in Cyrena and Paludina limestones), gutter casts and ironstone nodules.

After lunch, the party drove to Clockhouse Brickworks where Richard Agar gave an introductory talk on the site (see Toye et al., 2005) before investigating the northern part of the current working to the NE of the works where BGS beds 3a and 3 were clearly visible. Grey clouds had gathered but the threatened storm failed to materialise. Insects were found by Ed & Biddy Jarzembowski in pale siltstones of Worssam’s Bed 26 (Fig. 9). These were fragmentary, including true flies, cockroaches/cockroachoids, beetles and the termite Valditermes brenanae (Fig. 10). A bug hindwing (Fig. 11), probably a new species, was also found by Joyce Austen ex situ in the base of the quarry. Worssam’s Bed 21 where abundant in situ otoliths had been found on the GA trip to the site in July 2006 (Jarzembowski et al., 2006) was not exposed, as it was covered in mud following flooding. Other finds included a pyritised reptile tail vertebra by Stephanie Crawte, a Viviparus shell infilled by ironstone by Theresa MacIntyre, and in the Clockhouse...
Looking at Jurassic Churches - Saturday June 7 2008 (Part 1)

This year’s church excursion moved northwards to Northamptonshire, where under Professor John Potter’s leadership, 15 members devoted a day to examining the geology of a small number of early churches. Building stones of reasonable quality are, of course, much more prevalent locally in Northamptonshire than they are in the counties of the south-east of England. On this occasion the range of rock types in a stratigraphical sense was generally limited, for most of the rocks in the church walls had been extracted from the Middle Jurassic, with much of the rock having been quarried from the Inferior Oolite Group and rather less from the overlying Great Oolite Group. Despite the limited stratigraphical range, the variations in lithology proved, however, to be great, and included sandstones, calcareous sandstones, oolites, ironstones and various fossiliferous deposits.

The party assembled at Green’s Norton church (SP 669499), critically situated, as were all the churches examined before lunch, just off the Roman Watling Street (now the A5). There, both illustrated brochures, and route guides particularly for car drivers, were issued to members.

Fig. 1 Detail of the lower portion of the south-west nave quoin at Green’s Norton church. The west end of the nave, to the left of the quoin (of a Barnack-like Stone) is of pale Blisworth Limestone, to the right the west end of the aisle is constructed of brown Northampton Sand Formation lithologies. The lowest ‘upright’ quoin stone (second from the ground) is placed Bedding Vertical Face Right (BVFR); that above it (BH) is broken and the fourth stone is placed Bedding Vertical Face Left (BVFL).

Two particular themes were perhaps to dominate the day. The first, that in the earliest church buildings constructed during the Anglo-Saxon period, stone bedding orientation proved particularly significant. Wall ornamentation prior to the Norman Conquest, for instance, involved placing a proportion of the wall corner or quoin stones with their bedding planes vertical. This required careful rock selection by the masons of the time, for many rock types would have weathered readily when placed in this unusual way. This Anglo-Saxon style was immediately and clearly evident in the south-west nave quoin of Green’s Norton church. The bedding orientations in successive stones, for which John had proposed a simple method of annotation, could be viewed upwards from ground level as follows: Bedding Horizontal (BH), Bedding Vertical Face Right (BVFR), BH, Bedding Vertical Face Left (BVFL), BH, BVFL, BH, BVFR, BH, BVFL, BH, BVFR, BH, etc. When the rock type used for these quoin stones was examined, the second theme, related to the difficulties of stone identification, was stressed. The three-dimensional blocks in the quoin were of a shelly, moderately oolitic limestone which resembled Barnack Stone from the Inferior Oolite, near Peterborough. It was believed that the Barnack quarries were worked as early as Anglo-Saxon times and that traces of them could still be observed. John stated that the lithology, as observed through a hand lens, in the quoin stones and from the early quarries did not appear to be identical. In these shallow water Middle Jurassic deposits vertical and lateral facies changes were common and sometimes repeated, so that without total exposure one could never be certain of the precise origin of a particular rock type. When the typically thin (780mm.) walls of the Anglo-Saxon nave, which were enclosed in more recent aisles, were examined inside the church, the second theme was further emphasized. The walls consisted of a rubble of biomicritic limestone for which no Anglo-Saxon quarry was known, or today likely to be recognized. An assumption that the rock source was very local could be offered and a small local outlier of the Blisworth Limestone Formation, more recently re-named the White Limestone Formation, from the Great Oolite, could be suggested as an area of possible origin for the stone.

Other Anglo-Saxon features were pointed out in the church and attention was drawn to one particular tomb constructed of Viviparus limestone (Purbeck Marble), which transported from near Corfe in the 15th century must have reflected a family of considerable wealth. A variety of lithologies were used for these quoin stones was examined, the second theme, related to the difficulties of stone identification, was stressed. The three-dimensional blocks in the quoin were of a shelly, moderately oolitic limestone which resembled Barnack Stone from the Inferior Oolite, near Peterborough. It was believed that the Barnack quarries were worked as early as Anglo-Saxon times and that traces of them could still be observed. John stated that the lithology, as observed through a hand lens, in the quoin stones and from the early quarries did not appear to be identical. In these shallow water Middle Jurassic deposits vertical and lateral facies changes were common and sometimes repeated, so that without total exposure one could never be certain of the precise origin of a particular rock type. When the typically thin (780mm.) walls of the Anglo-Saxon nave, which were enclosed in more recent aisles, were examined inside the church, the second theme was further emphasized. The walls consisted of a rubble of biomicritic limestone for which no Anglo-Saxon quarry was known, or today likely to be recognized. An assumption that the rock source was very local could be offered and a small local outlier of the Blisworth Limestone Formation, more recently re-named the White Limestone Formation, from the Great Oolite, could be suggested as an area of possible origin for the stone.

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north nave wall and despite rebuilding still showed some of its original Anglo-Saxon patterned characteristics. The larger Barnack Stone blocks in its jambs were shown to be orientated vertically with their bedding facing into the arch (RFVIA), which John stated was typically Anglo-Saxon in style.

Time pressed as John tried to illustrate, that in the walls of Pattishall church there were a further five different lithologies of limestone in addition to the Barnack Stone.

Moving to St Michael at Stowe-Nine-Churches (SP 638576), it was the west tower of the church that reflected the earliest building - rather than the nave seen in the first two churches. Externally, however, apart from one distinctive stone in the north-west quoin, the tower had been rendered. This stone was ornamented in Anglo-Saxon style and had been identified as part of a cross-shaft. The possible geological source of this stone, a fairly coarse, dull red felspathic sandstone, was then considered by the party. Members remained undecided between a Triassic and a Carboniferous origin, the latter requiring the greater distance of transport. Unfortunately, a second block inside the church had been lime-washed. Other long recognised features of Anglo-Saxon workmanship in the tower were noted: these included plasters high on the west and east faces, a double-splayed window, and (viewed from the navel) the tower doorway which was covered in thick plaster. Because of their situation, stone orientation was impossible to observe in any of these structures.

The north aisle in this church, like Pattishall, also contains a reset doorway. This doorway possesses only Norman characteristics and the stones making its structure are of a fairly muddy, slightly calcareous, iron rich variety of the Northampton Sandstone. A topographic depression to the north of St Michael’s graveyard, John suggested, might mark an early quarry for the church stone. John proposed that within the graveyard and on the south of the nave, a beautifully inscribed gravestone might activate a local geologist into the provision of an interesting paper. The stone was of Swithland Slate, from the Cambrian rocks (Brand Group, Swithland Formation) mainly exposed on the south-east side of Charnwood Forest. Of all stones in the British Isles, Swithland Slate provided perhaps the best gravestones, it weathered very slowly, could be delicately carved and preserved its inscriptions. Particularly in the 18th century, the rock had been in great demand and a plot of the slate’s distribution in graveyards would be of interest. Lunch was taken in a local hostelry.

Wealden Fieldtrip continued

Sandstone (BGS Bed 3) Geoff Toye

Sandstone block (GT), perhaps the distal end of an anornithopod ischium: alternatively it could be an iguanodontid proximal thoracic rib (Mark Wildman - pers. comm.).

Acknowledgements

Our thanks to Wienerberger and Hanson Brick for permission to visit Warnham and Clockhouse respectively.

References


Peter & Joyce Austen

HALSTEAD MEDAL

Nominations are invited for the award of the Halstead Medal given for ‘work of outstanding merit, deemed to further the objectives and aims of the Association and to promote Geology’.

Nominations should reach the GA Office by January 31 2009

Nominations for Council Nominations for election to Council should reach the GA office by January 31 2009

John Potter
Festival Walk Field Trip

For our 150th Anniversary assessment of the Association, to a listing of the activities we might claim to our credit -field excursions, field reports written up and published, conversation, and crystal groups of the local mineral Boxes commonly made of crystals of Victorian kitsch, the spar towers and those regionally typical constructions gave the yardstick for quality judge.

Northern England
R F Symes and B Young

Northern England has a fascinating history of base metal mining, industri- al minerals working, coal mining and rock quarrying spanning many cen- turies. Hence, it is no surprise that the mineral specimens resulting from these operations are in many of the world’s best known collections. This book details the mineralogy and min- ing history of the area, the collectors, dealers and notable collections and is, as is customary with coffee-table for- mat, well-illustrated throughout. Following a general introduction to the area covered by the book, the geo- logical history is reviewed. A chapter on the mineralisation splits the region into three distinct parts; the Lake District, the Northern Pennine Orefield, and the Cumbrian Iron Orefields. Next, the mines and minerals are dealt with in a similar order but with the number of pages dedicated to the Northern Pennine Orefield outnumbering by far that of the other areas combined. Of course, this reflects the number of mines to some extent.

The chapter on “Collectors and Collections” begins with an early histo- ry and then digresses inevitably to the regionally typical constructions of Victorian kitsch, the spar towers and spar boxes commonly made of crystals and crystal groups of the local miner- als. Returning to the main theme, the authors rightly acknowledge a debt to the late Michael P Cooper the author of “Robbing the Sparry Garniture: A 200- year History of British Mineral Dealers” (Mineralogical Record, 2006) for providing much of the detail on mineral collectors and dealers in this chapter. In a sub-chapter headed “Observers”, somewhat tenuous relationships with Northern England mines are those of Constable (he used graphite pencils), Turner (Grasmere lead mine), Wordsworth (not quite sure), Lowry (Kilhope Wheel), Auden (Weardale), and their structures (ripple drift, lam- inations, dressing techniques). Inelegant rocks were available in the customary granite foundation to most architecturally classic buildings. For UCL we have a Cornish granite from Falmouth, complete with ‘heathen’ inclusions. Moving to the substantial tollards preventing parking on the pavement to the carriage-sweep, we were able to see the textures and min- eal content of a typical Hercynian granite. These details are mentioned because they define the approach which justifies if needed the practice of street walks as a sound approach to Geology for beginners. Our Founding Fathers would see this as four-square with the Aims of 1858. What we saw subse- quently in the Euston Road and in the Station itself carried on in the same questing approach. On the Station Concourse, always being modified, the stone benches created by the sculptor De Monchaux for the Gateshead Garden Festival to the theme of Time still survive. Hercynian Granite (250Ma), Lake District Green Slate (450 ma), St Bee’s Sandstone (240 ma), and Portland Roach (150 ma) all represent GEOLOGICAL TIME ! Our attentions inevitably involved the would-be travellers at Euston on that Sunday morning, to the satisfaction of at least two of them. Taking our stud- ies on to the streets awakens a curios- ity on the part of the public which, again, would have appealed to our forebears. Street walks should continue in the Association programmes up to the 200th Anniversary, which surely will come in due course.

This book, originally planned as a companion volume to “Minerals of the English Lake District: Caldbeck Fells” has remained in draft form, although kept up to date, for some time waiting for a publisher. Ultimately, National Museums of Scotland, following the success of “Minerals of Scotland: past and present” stepped in with the investment needed and it is to be hoped that their entrepreneurial spirit is well rewarded. Overall the book is a high quality publication, and a worthy addition to the “Minerals of...”series and everyone involved should be proud of their achievement.

Chris Stanley
Rockwatch News - Rockwatch is the Junior Club of the GA

Rockwatchers enjoyed their first residential field trip to the Dinosaur Coast of Yorkshire this summer. It was a fascinating visit and enabled members to compare and contrast the Jurassic of this coast with that of Dorset, with which they are more familiar, having had six annual residential visits to Dorset. Peter Rawson organised a superb trip, helped by John Hudson. They ensured that Rockwatchers saw some of the most interesting parts of this coast and were able to collect some rather fine fossils. We visited Runswick Bay, Speeton, Flamborough, Robin Hood’s Bay, the recently restored Rotunda Museum (well worth a visit) and the splendid dinosaur footprints at Scalyb. Another interesting Jurassic experience for Rockwatchers was the field trip to Purdy End Quarry. This is a Middle Jurassic site with Blisworth Clay, Blisworth Limestone and Rutland Formations visible, and an overlay of Boulder Clay, a mere 120,000 years old! Our fossil finds at the site included sea urchin spines, brachiopods, fossil wood, burrow infills, ammonites - a lovely Queenesdottoceras was found - bivalves, fish and reptile fossils including some lovely Asteracanthus teeth which caused great excitement. Rebecca, who found an Asteracanthus tooth was thrilled, as not only was it her first field trip, but she was also a competition prize winner! Our thanks to Geoff Swann who supported the visit and took the lead in fossil identification. The final field trip this year was to Abbey Wood. Here we explored erardly younger deposits than on the previous two trips - the Blackheath Beds of Eocene age, some 50 - 54 million years old. There were lots of fossils found including a range of beautifully preserved shark’s teeth, oysters, bivalves, gastropods, fish vertebrae, and some superb sting ray denticles. The children (and, dare I say, their parents!) were thrilled with their finds. Thanks to Adrian Rundle, who organised the visit, all were sure their fossils were correctly identified.

At the end of September, we had our annual indoor events with BGS in Edinburgh and the c e a n o - g r a p h i c Centre in Southampt. 0. Both were extremely successful and have become highlights in their local areas, each attracting many visitors to enjoy the day’s activities. The Rockwatch annual competition prize-giving is a major fixture in our calendar and eagerly anticipated by all. Anglo American, our competition sponsor, hosted the awards at its splendid Discovery Room at the GA’s 150 Festival of Geology at UCL. It was good to see many Rockwatch members at the event as well as welcoming new youngsters to the club.

Rockwatch has now been running for some 17 years and there are many former members who are practising as professional geologists. It is hugely rewarding to know that Rockwatch has played a part in encouraging these youngsters to find a fulfilling and exciting career. But, perhaps even more pleasurable, is when these young people wish to give something back to Rockwatch, such as helping with field trips, writing articles for the magazine and spreading the word about the club, to children they meet.

Rockwatch has clearly been in the vanguard of encouraging young people into a range of careers in the Earth sciences and, pushing this role further, we are about to have our first student conference. With the co-operation and support of another of our sponsors, the Geological Society, we are running a conference for Y8 and Y9 school students at Burlington House in late November. We hope this might be the first of many, perhaps regional, based, to encourage young people to take science subjects at school and beyond. We want to show them how important science, and especially Earth science, is, to their daily lives. I’ve no doubt that their future well-being will depend on scientific knowledge and understanding in a way we can’t yet envisage. This conference, for 14 and 15 year olds, is one way of helping to show them how they can have a positive impact on their futures.

Of course, all of our activities depend on help and support from a range of individuals and organisations. Rockwatch is immensely grateful to everyone who gives their time, expertise and financial support to the club. It is all of you, people and organizations, who so willingly share your enthusiasm for all aspects of geology with our members who are such great role models and to whom we owe our thanks.

Susan Brown
Rockwatch Chairman

Besotted by Baltica

Every schoolchild knows (or used to – perhaps today is a different world?) that the eastern edge of Europe is defined by the Ural Mountains, that great chain which stretches in a suspiciously straight north–south line from the Arctic Ocean to near the Caspian Sea. Those mountains are the surface expression of a fundamental break between two old continental plates. Another equally important line, which most people are less familiar with, stretches diagonally across Europe from the south of Denmark to the Black Sea, and is known to geologists as the Trans-European Suture Zone (TESZ). Two lines mark today’s eastern and southern boundaries of a large and ancient continental plate known as Baltica, whose western and northern margins are hidden below the North Sea and the Arctic Ocean respectively. Although all of today’s Baltic Sea and its neighbouring countries lie within that plate, as can be seen from Figure 1, it also covers a great part of north-central Europe, including northern Germany, Poland and several parts of the former Soviet Union even as far east as Ukraine and western Kazakhstan as well as much of western Russia itself. But those terrane margins seen today are all the result of subsequent tectonics, so we shall never know exactly what they looked like and where they were in the Cambrian. Over that large craton, seas transgressed or retreated through time, and the amount of Baltica that was dry land varied a great deal.

One of the attractions of geology for me is the progressive unravelling of the history recorded in the rocks of an area. Of course the process can be very frustrating: a bit like doing a jigsaw puzzle with half the bits missing, but when a coherent picture emerges through time which can be checked by a different sorts of geological data sets, then it is great fun and extremely satisfying. So it is with the geography of Baltica, on which I have worked a lot in Norway, Sweden and Estonia, and a little in Poland, Russia, Lithuania, Ukraine and Kazakhstan for over forty years, much of the time with very congenial companions of various nationalities. All of the resulting publications are of course indebted to the many people who have previously worked on this vast area, particularly to the generations of palaeontologists who have collected and monographed Palaeozoic fossils, especially the brachiopods which are my love. But a specific collaboration over the past ten years has been with a Norwegian, Trond Torsvik, who works in the Norwegian Geological Survey at Trondheim. Trond is a geophysicist whose speciality is palaeomagnetism, a subject at first sight far removed from my palaeontology and stratigraphy. But only at first sight, since both of us have the common goal of finding out where old continents were in ancient times and how their positions related to their neighbours. Palaeomagnetism can tell us two things in this regard, firstly the latitude at which old rocks were at their time of deposition, assuming that they have enough iron content within them so that they can indicate in which direction the old poles lay at the time of the deposition of the rocks (and also assuming that the rocks were not remagnetised later); and secondly the bearing of the old pole, indicating to what extent particular continental plates have rotated. However, palaeomagnetics give no clue to palaeolatitudine.

Fig. 1. The outlines of Baltica and its neighbouring terranes in the middle Ordovician, also shown are the distribution of some provincial brachiopods.

assumed that there were two large land areas (in white) on the old Baltic craton; the light blue is shallow shelf, the areas with horizontal lines are deeper shelf and the deeper blue are the oceans, all four of which are named. The modern coastline is included to help orientation (from Cocks & Torsvik 2005).

Fig. 2. Palaeogeography of Baltica in the early Ordovician, when it was far away from its neighbours, apart from Kara (now part of northern Siberia). Note that the green lines are the TESZ and the Trans-Caspian Suture Zone (TCSZ), which simply means the boundary between the two old continents. In this first Ordovician diagram, we can see the distribution of some typical Ordovician provinces.

The study of old fossils, particularly those which lived in shallow-marine environment such as brachiopods and most trilobites, can help to define ancient faunal provinces. Those provinces can help in determining whether two continents were close to each other or not, although there are a host of other factors which control fossil distributions which also have to be taken into account. Thus Trond and I have had great fun trying to sort out the changing positions of old continental plates round the world through the Lower Palaeozoic in particular, so as to get the palaeomagnetic and also the faunal data telling the same geographical story. A key factor is kinematic continuity, a phrase which sounds complex jargon, but which simply means...
that it is essential to look at many successive time slices in turn, at, say, 20 million year intervals over a 200 million year period, so that all the palaeogeographical maps of successive time slices are not only internally consistent with the palaeomagnetic, faunal and sedimentological data for that period, but also consistent with the maps that precede and follow them through time.

We were fortunate that the crust of Baltica, made up of metamorphosed Precambrian rocks of many ages, is thicker there than on most of the other parts of the Earth. Thus, away from the more mobile tectonic margins of the plate, many of the Lower Palaeozoic rocks have been little deformed since their deposition, and some are virtually horizontal over large areas. Therefore we have a much better picture of old geography in Baltica than in many other terranes; we can see how the shallow shelf was, with the all-important brachiopods and trilobites; and which part of the craton was covered by deeper seas. For example virtually all of northern Russia and Novaya Zemlya in the Arctic. Yet at the same Silurian time, much of the Baltic craton was flooded under deeper shelf seas. For example virtually all of the large area of Poland has no Silurian rocks apart from relatively thin grapto lithic shales, yet again known almost entirely from deep boreholes below the Mesozoic and later cover, with turbidites at the southern margin of Baltica in the Holy Cross Mountains (which are not more mountainous than the South Downs of England). Beyond those, in the western Ukraine, the area of Podolia has also some spectacular middle and late Silurian rocks, extending upwards into the early Devonian, but, although there are some limestones with numerous brachiopods and trilobites, the spectacular reefs are not developed there.

Both the palaeomagnetic data and the fossils also reflect the changing palaeolatitude of Baltica with time: animals have always been more diverse in warmer places. At the start of the Cambrian it was at a high southern latitude but during the Lower Palaeozoic it gradually drifted northwards, as well as undergoing the rotation mentioned above, until by the early Ordovician (Fig. 2) thin colder-water limestones were laid down (Fig. 3) and by the late Ordovician and Silurian it was tropical and subtropical, with wonderful and spectacular reefs developed. Those reefs are best known from the island of Gotland in the Baltic, which is a delightful place for both geological and modern tourism (Fig. 4), but are also to be found in Estonia, both in the outcrops and in the numerous boreholes sunk during its time within the Soviet Union. Even more reefs are present in areas which few people have visited (including me) in northern Russia and Novaya Zemlya in the Arctic. Yet at the same Silurian time, much of the Baltic craton was flooded under deeper shelf seas. For example virtually all of the large area of Poland has no Silurian rocks apart from relatively thin grapto lithic shales, yet again known almost entirely from deep boreholes below the Mesozoic and later cover, with turbidites at the southern margin of Baltica in the Holy Cross Mountains (which are not more mountainous than the South Downs of England). Beyond those, in the western Ukraine, the area of Podolia has also some spectacular middle and late Silurian rocks, extending upwards into the early Devonian, but, although there are some limestones with numerous brachiopods and trilobites, the spectacular reefs are not developed there.

Robin Cocks,
The Natural History Museum, London

**Letter to the Editor...**

Apropos the picture of Miss Mary Johnson illustrating the article “Past, Present and Future” in the September issue, and your comments that her “field gear would be unlikely to pass modern-day H&S requirements”, your readers may like to know that, according to my aunt Lucy, who was born in 1880, when she and her friends went rock-climbing, of course they wore trousers! but it was thought proper to change into long skirts each time before posing for a photograph!

Felicity Secretan

**CORRECTION:** In the article on the Monte Palace Tropical Garden in the last issue, unfortunately the credits for the photographs were omitted. They are:

Fig. 3. Estúdio quattro © Monte Palace Museum.
Fig. 4. Pedro Aguilar © Monte Palace Museum.
Fig. 5. Pedro Aguilar © Monte Palace Museum.
Fig. 6. © The Berardo Collection.
Fig. 7. © The Berardo Collection.
Fig. 8. © The Berardo Collection.
Fig. 9. Jorge Simão, © The Berardo Collection.
ROBERT ('BOB') STONELEY 1929 - 2008

Bob Stoneley, a member of the GA for 51 years, was born in 1929. He graduated in geology from Cambridge in 1951 and then spent the next 18 months with the Falkland Islands Dependencies Survey, carrying out geological expeditions from Hope Bay in Antarctica. As described by Sir Vivian Fuchs in his book 'Of Ice and Men' Bob's experiences were truly epic. The arrival of his party caused an international incident. The Argentine military were already in residence and fired machine guns over his party's heads as they carried stores ashore, before marching them back to the John Biscoe at gun point. The Royal Navy had to send a gun boat to resolve the matter. For this Antarctic adventures continued. On one occasion Bob and his dog team fell down a crevasse. Bob got out alone. In another incident he used his body as ballast to prevent the sledge being blown away in a blizzard. On his return he was awarded the Polar Silver Medal, for 'extreme human endeavour against appalling weather and conditions that exist in the Arctic and Antarctic.' He was also awarded a PhD and married fellow GA member palaeobotanist Hilda Cox.

Bob spent the next 26 years with BP exploring for petroleum in Tanganikya, Angola, New Zealand, Canada, Alaska, Ecuador and Iran. His adventures included paddling down the Amazon in a dug out canoe and dodging angry African rhinos and Alaskan grizzlies. During these years Bob published seminal papers on the origins of the mountain chains that he visited. In Alaska, Bob led the team responsible for the discovery, early appraisal drilling and evaluation of the giant Prudhoe Bay field. His last assignment for BP was as Chief Geologist of the Oil Services Company of Iran, with responsibility for a drilling programme of 25 rigs. Hilda travelled with Bob for much of his time at BP. Together they lived in an African makuti hut, camped on beaches in New Zealand, lived behind walls topped with broken glass in Ecuador with an armed guard at the door, and took picnics on glaciers with their children Elizabeth and Robert in Alaska. His family visited him in Iran and have many fond memories of Bob's name lives on in Antarctica; he was one of the last old style heroic field geologists, the sort of men capable of killing a hedgehog with their words or on into their sodden notebooks. He was awarded the Association's Mackay Hammer by the Geological Society of New Zealand. Between 1993-8 he took on the arduous task of General Secretary of the Geologists' Association. In 2002 he was awarded the Association's Halstead Medal.

Bob's name lives on in Antarctica: Stoney Point sits at the entrance to Whisky Bay on N. James Ross Island. In addition the Stoneley Medal is awarded annually to participants in the American Association of Petroleum Geologists' annual student competition based on Imperial College's Barrel Award. The Friends are almost halfway there for the Lyme Regis Museum Appeal.

Lyme Regis Museum Appeal

It's one of the finest small museums in the country, and it is at the heart of the Jurassic Coast World Heritage Site. But Lyme Regis Museum - built on the site of Mary Anning's family home - has severe limitations of space and facilities about which the Trustees have been getting more and more frustrated. They have therefore embarked on an ambitious extension project to add more exhibition space, a Lyme Regis Studies Centre, updated educational facilities and, above all, access for the disabled.

The estimated cost is £3M, with the Trustees working on the main fund-raising exercise. Now the Friends of the Lyme Regis Museum have committed to raising £50,000, since fund giving bodies quite properly expect to see evidence of support from both the local community and - in this instance - the wider geological community for whom this is such a significant site.

The Friends are almost halfway there due to their own fund-raising endeavours. "But because Lyme Regis is seen by many as the birthplace of earth sciences, we thought it would be rather wonderful if members of the geological fraternity both at home and abroad could see their way to making a small donation to help us on our way. The actual amount is almost less important than the demonstration of support," That said, every single pound, or dollar, or euro, or whatever would be very, very welcome, and would be gratefully acknowledged. Our aim is to complete the project by 2012 since all the indications are that the Jurassic Coast will play a significant role in the Cultural Olympiad, and we are more than ever likely to have visitors from all over the world."

For more information contact Margaret Rose on 01297/445503 or margaret.rose@lymergis.myzen.co.uk

Cheques, made payable to The Friends of Lyme Regis Museum, can be sent to The Financial Appeal, Lyme Regis Museum, Lyme Regis, Dorset DT7 3LB.

Bob looked like an Old Testament prophet, while the students, like the children of Israel, stood leaning against the gale, scribbling his words or on into their sodden notebooks. The second recollection will be of the evenings, with the party back at the hotel warm, dry, fed and watered. After dinner students gathered for the traditional 'stoneley meeting', now with dry note books, while Bob, behind a map strewn table, with pint of beer, cigar, continued to profess his subject in a more congenial setting. During these years Bob published seminal contributions to the understanding of the complex generation and migration of petroleum in the Wessex basin using little more than a hammer, pencil, paper and the little grey cells. Overall, however, published out put was modest. He retained the old academic view that it was rather vulgar to publish too much too often.

Bob served on the Council of the Geological Society of London. He received its Coke Medal and the Petroleum Group Silver Medal for excellence in petroleum geology. He was an Honorary Member of the Petroleum Exploration Society of GB. He was awarded the Mackay Hammer by the Geological Society of New Zealand. Between 1993-8 he took on the arduous task of General Secretary of the Geologists' Association. In 2002 he was awarded the Association's Halstead Medal.

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Bob was a true English gentleman. He was awarded the Association's Mackay Hammer by the Geological Society of New Zealand. Between 1993-8 he took on the arduous task of General Secretary of the Geologists' Association. In 2002 he was awarded the Association's Halstead Medal.

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Bob was one of the last old style heroic field geologists, the sort of men capable of killing a hedgehog with their bare bottom. He was modest, courteous, convivial and kind. His humour was gentle but none the less of no-one. Bob was a true English gentleman.

RICHARD C SELLEY
Gloucester Geology Trust.

‘Cirencester in Stone’ describes an easy to follow trail linking 23 buildings and archaeological sites that show the many fascinating geological features displayed in the building stones of Cirencester, such as spectacular fossils, minerals and structures. Well, that is what it says on the dust jacket, and it is true.

The book opens with a concise introduction to the geology of Cirencester and its hinterland that includes a geological map and stratigraphic chart. This is followed by a brief account of the common building stone of the town. Not surprisingly they are mainly the richly fossiliferous local Cotswold limestone, but also include a diverse array of erratics, including the ubiquitous larvikite and other assorted marbles and granites. The main part of the book is a description of various localities around the town, ranging from the Roman Wall, via medieval churches and hospitals, to modern bank facades. Many of the localities need a hand lens to examine particular fossils described and illustrated in the text (but it is probably not a good idea to carry a hammer on this trail). Be careful though when following the authors’ recommendation to study the large bivalves in the pillars of Cirencester’s HSBC Bank. This reviewer had an awkward interview with Indonesian Security Forces following his arrest for using a hand lens to get a close look at the Rudist reef limestone façade of a Jakarta bank. Membership of the GA may be insufficient cover. The book has a tough pull out street map in the front cover to show the location of the various sites. A shorter section of the book describes several interesting localities in the suburbs of Cirencester. Here again a note of warning should be issued to anyone wanting to take a ladder to study the ammonite embedded above the first floor bedroom window of ‘Ammonite Cottage’. It may be sensible to attempt to study this specimen only during daylight hours and with the owner’s permission.

The book concludes with a short section on local building stones and a helpful bibliography. High quality colour illustrations abound on every page. There are also inset boxes within which technical terms are helpfully described.

‘Cirencester in Stone’ will be extremely useful for any geologist with a few hours to spare in the town, or indeed can be enjoyed by anyone else with an interest in building stones.

R C Selley

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Festival Photographic Competition

This year there was a large entry of excellent photographs. The judges had a difficult task choosing the winners but the clear favorite was the entry above by

Linda McArdell
Inside an anticline

The second place was awarded to
Jenny Forest
Split Apple Rock,
Abel Tasman National Park,
New Zealand
and the third place to
Joan Waters
About to Fall. Wadhurst Clay
(Cliff End Sandstone),
Fairlight Cove, Hastings