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COPROLITE

DROPPINGS FROM THE GEOLOGICAL CURATORS GROUP

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Notice of Annual General Meeting

Please note that the 25th AGM of the Geological Curators' Group will be held at 12.30 on Saturday 4 December 1999 at the Department of Geology, Museum Building, Trinity College, Dublin. Nominations for the posts of Officers, and one Committee Member must be made by two members of the Group and submitted in writing to Amanda Edwards, GCG Secretary, Department of Geology, University of Manchester, Manchester M13 9PL by 13 November 1999.

New members

GCG is pleased to welcome the following new members: **Joy Irving**, Oxford University Museum of Natural History; **Helen Tombs**, Clitheroe Castle Museum; **Trevor Batchelor**, Redhill, Surrey; **Gemma Daniel**, Leighton Buzzard; **Catherine Painter**, Camberley, Surrey.

Subscriptions 2000

Members are reminded that subscriptions are due on 1 January 2000. A subscription renewal form is included with this issue of *Coprolite*. A second

reminder will follow in the March issue, and subscriptions unpaid by 30 April will be deemed to have lapsed. Please return the subscription form promptly, with your payment, to Amanda Edwards, GCG Secretary, Department of Geology, University of Manchester, Manchester M13 9PL.

Honorary memberships mark GCG's 25th anniversary

At its first meeting this year, Committee decided to mark the 25th anniversary of the Group by conferring Honorary Membership on those individuals who played a part in our foundation and who made significant contributions to our work in those early days. According to our Constitution, Honorary Membership may be conferred at the discretion of the Committee with the approval of the Annual General Meeting. At the AGM to be held in Dublin on 4 December 1999, Committee will seek approval for the award of Honorary Membership to the following:

Roy Clements, our first Chairman and our latest Brighton medallist
Hugh Torrens, a member of our first Committee and our second Chairman, compiler of *Lost and Found* and *Geological Collections and Collectors of Note* and a relentless lobbyist on behalf of geological collections
Howard Brunton, our third Chairman and co-editor of the *Guidelines*
Philip Doughty, our fourth Chairman, who also served on the first Committee and almost immediately began work on *State and status*, work he continued as Recorder and Secretary
Geoff Tresise who served six years as our first Minutes Secretary and a further 8 years as Secretary.
Mike Jones who was instrumental in the establishment of the Group and who chaired the Inaugural Meeting.

Curatorial redundancies at the British Geological Survey

Following an internal strategic review at the British Geological Survey, reorganisation is resulting in the loss of 19 staff, amongst whom are the curator of the borehole collections, Stuart Hollyer, and the curator of the biostratigraphic collections, Steve Tunnicliff. GCG has expressed its concern over the loss of curatorial cover for these important collections, and its concern for their future care, to the Director of BGS, Dr David Falvey. Dr Falvey explained that he is restructuring the management of the collections in order to improve BGS's profile as an efficient and customer-aware business. He said that his aim is to speed up the digital indexation of the collections and make these indexes available on the internet. In early August, GCG requested further details from Dr Falvey on how such an aim can be met for the biostratigraphic collections if the only curator with knowledge of the collections is to lose his post, but as this issue of *Coprolite* goes to press (4 October), no reply had been received.

The only information available is that in a Paleonet posting by Nick Riley, Manager of Stratigraphy and Basin Analysis at BGS. He explained that the palaeontology,

biostratigraphy, petrographic, geochemical, lithological, and borehole core collections will be centralised and all brought up to the same standard of curation and IT access through the BGS website. The nine biostratigraphers at BGS will have a role in the maintenance and development of the biostratigraphy collections.

Nick Riley anticipates that while the redundancies will lead to some difficulties with staff support for handling loans, enquiries, and visits to the biostratigraphic collections, BGS does not want to discourage their use and researchers should address their requests to him.

The lack of firm information from BGS on their plans for the future management of the collections is worrying and suggests that the internal review has inadequately considered the responsibilities which BGS has to care for such an important part of Britain's national scientific heritage.

Warrington Museum geology gallery reopens

Following a three-year refurbishment part-funded by a grant of £197,000 from the Heritage Lottery Fund, Warrington Museum has reopened its geology gallery. In addition to renovating the existing display cabinets which date from the 1930s, the project included improving gallery lighting, security, and environmental conditions while retaining the 1930s atmosphere of the gallery. The redisplayed geological material now includes handling specimens and 68 'discovery drawers' of over 1,000 specimens from the reserve collections, as well as an interactive multimedia programme and an animatronic *Chirotherium*. The gallery design was by the North West Museums Service, and the geological consultant for the project was Rosemary Roden.

Changes at Liverpool Museum

Work has started on the refurbishment of Liverpool Museum as part of the NMGM 2001 project. When completed, this will provide new gallery spaces, new exhibitions and new collection storage areas and offices. The Upper Horseshoe gallery, which currently contains storage for geology, botany and zoology, will be returned to its original use as public galleries. New storage will be provided within the building in the former technical college premises that were built as part of the museum extension in 1900. While building work is being undertaken, the collections have to moved from the building. Temporary accommodation for collections and curatorial staff has been provided in factory units in Bootle. These premises are being adapted so that environmental conditions are right before collections are moved. Decant work started in September, with completion expected in early November 1999. The geological collections are due to move in mid October, and the collections and staff will be in Bootle for one year before the process is repeated and the collections moved into their new storage areas.

The Natural History Centre is included in the redevelopment work with a new

"Exploration Zone" being constructed in the area now occupied by entomology and the museum's education service. This will include a new Natural History Centre and an Archaeology and Ethnology Centre. Completion of this area is due in October 2001. Meanwhile, as part of the on-going building works, the current Natural History Centre closed for a month on the 19 September. A temporary Centre is being built on the second floor natural history gallery and will open on the 23 October 1999. All Natural History Centre staff will stay at Liverpool Museum while all the other construction works take place.
Tony Morgan, Liverpool Museum

Dynamic Earth opens

One the first (and probably few) Millennium Commission projects to open on time, the geological exhibition centre, Dynamic Earth, was opened by HM The Queen on 2 July. Situated in a new building near Holyrood in Edinburgh, the interactive, audiovisual exhibition cost £34 million and aims to attract over 430,000 visitors a year. GCG members will have an opportunity to see Dynamic Earth, as well as the new Museum of Scotland, at our seminar to be held in Edinburgh in May next year.

Walking with dinosaurs

By the time this issue of *Coprolite* is published, BBC1 will have begun screening its new natural history series, *Walking with dinosaurs*. This series aims to use the same approach to dinosaurs as that used in making natural history programmes about our modern wildlife. Cutting-edge computer animation and animatronics will combine models and computer-generated images with real, filmed landscapes to show dinosaurs and marine reptiles as living creatures in their natural habitats. The series, which at a cost of £6 million is the most expensive documentary ever made by the BBC, will also look at plants, insects, climate and geography of the Mesozoic. The series began on 4 October and each of the six programmes deals with a different part of the Mesozoic from the Triassic to the end of the Cretaceous. Accompanying the series is a book, *Walking with Dinosaurs*, by Tim Haines, the series producer.

Musical Curators

Sylvia Humphrey has taken up the post of Assistant Keeper of Geology for Tyne and Wear Museums; **Mick Stanley** retired from his post as Head of Museums Division at Hull at the end of June and is currently working for the Wildlife Trust in Newark as Earth Science Manager promoting RIGS and Rockwatch; **Colin Reid**, formerly Keeper of Geology at Dudley Museum and Art Gallery, has been appointed Head of Arts and Museums in Hartlepool, and took up his post in September; **Diana Hawkes**, Curator at Haslemere Educational Museum, has left for a new life on the wild shores of the Mizen Peninsula in western Ireland; **Alistair Bowden**, formerly with the British Geological Survey, has taken up an appointment as Yorkshire Dinosaur Coast Project Officer based at Woodend Museum, Scarborough; **Gill Weightman**, formerly senior geologist with

Leicestershire County Council Museum Service has been appointed curator of the new Charnwood Museum in Loughborough; **Tony Stuart**, Assistant Keeper of Natural History at Norwich Castle Museum, has taken early retirement. **Glenys Wass**, formerly at Wisbech and Fenland Museum, is now Assistant Curator of Geology at University College London.

Newish publications

Essex rock. A look beneath the Essex landscape by Gerald Lucy, 1999. Saffron Walden: Essex Rock and Mineral Society,128pp. ISBN 0 9534832 0 7, £6.95. Available from Essex Rock and Mineral Society, 7 Barnards Court, Church Street, Saffron Walden, Essex CB10 1 JS, post free.

The Geologist's directory 1999. London: The Geological Society. ISBN 1 86239 045 2, £79.00

A revised correlation of Quaternary deposits in the British Isles. Geological Society Special Report No 23 edited by D Q Bowen, 1999. London: The Geological Society. ISBN 1 86239 042 8, £39.00

Plant Fossils. The history of land vegetation by Chris Cleal and Barry Thomas, 1999. Woodbridge: Boydell & Brewer, 288pp. ISBN 0 85115 684 3, £60.00.

Nature's museums. Victorian science and the architecture of display by C Yanni, 1999. London: Athlone Press, xvi + 199pp. *ISBN 0 485 00405 4, £45.00.*

Walking with dinosaurs. A natural history by Tim Haines, 1999. London: BBC Worldwide, 288pp. ISBN 0 563 38449 2, £19.99.

Historical geology of Northamptonshire by RA Martin, 1999. Available from CJ Fuller, Northamptonshire Natural History Society and Field Club, Humphrey Rooms, 10 Castilian Terrace, Northampton NN1 1LD, £4.95 including p&p.

The limestone mines of Dudley by Trevor Ford, 1999. Available from Peak District Mining Museum, Matlock Bath, Derbyshire DE4 3NR, £6.95 including p&p.

Discover Dorset fossils by Richard Edmonds, 1999. Wimborne: Dovecote Press. ISBN 1 874336 65 2, £4.95.

The geology of Somerset by Peter Hardy, 1999. Bradford on Avon: Ex Libris Press. ISBN 0 948578 42 4, £9.95.

The shaping of the Isle of Wight by Eric Bird, 1999. Bradford on Avon: Ex Libris Press. ISBN 0 948578 83 1, £7.95.

Mineral, fossil and gem shows 1999-2000

7 November 1999 Warrington Gem, Mineral & Craft Fair, Alford Hall, Manchester Road, Warrington 10.00- 16.00. Tel 01925 604245

13 November 1999 Sidcup Christmas Fair, Emmanuel Church Hall, Hadlow Road, Sidcup, Kent 10.00-16.00. Tel 0181 300 2405

20 November 1999 Sussex Mineral Show, Clair Hall, Perrymount Road, Haywards Heath 10.00-16.30. Tel 01444 233958

11 December 1999 Amateur Geological Society's Annual Bazaar, St Mary's Hall, Hendon Lane, Finchley 10.15-15.30. Tel 0181 202 9616

22-23 January 2000 Rock & Gem Show, Hatfield House, Hatfield, Hertfordshire 10.00-17.00. Tel 01628 621697

Yorkshire Dinosaur Coast Project

European Community funding of £59,000, with match funding from Scarborough Borough Council, Yorkshire and Humberside Museums Council, Whitby Museum, and the North York Moors National Park, has allowed the establishment of the

Yorkshire Dinosaur Coast Project to promote the spectacular geology of that region. The project will draw on the exceptional geology of sites on the Heritage Coast, the collections of Whitby Museum, sites of industrial archaeological interest, and the expertise of the region's geologists. The Project Officer, Alistair Bowden, who has worked recently at the British Geological Survey and Clitheroe Castle Museum, will be developing a programme of events, activities and exhibitions.

Canterbury Roadshow

Canterbury Museum is organising a Rock & Relic Roadshow on Saturday 5 February 2000. Members of the public are invited to take fossils, rocks, and minerals or relics from man's ancient past - stone, bone, pot and metal for examination by the museum's team of experts. A special 'cabinet of curiosities' will display fossils, minerals and archaeological objects rarely seen by the public. There will be several fun activities for both children and adults, and exhibits by a number of local groups, including the Oyster Coast Fossil Society, Canterbury Archaeological Trust, local metal detector groups and the Finds Liaison Officer for Kent. For further information, contact Ralph Anderson or Martin Crowther on 01227 452747.

25th anniversary photograph

Mark Evans has a photograph of the participants in GCG's 25th anniversary meeting at New Walk Museum Leicester in May. If you would like to order a copy, please contact Mark for further details.
Mark Evans, Deputy Curator (Geology), New Walk Museum and Art Gallery, Leicester LE1 7AE tel 0116 255 4100 fax 0116 247 3084 e-mail markevans30@hotmail.com

Federation for Natural Science Collections Research (FENSCORE)

There is now a website on which you can search the national database of natural science collections - go to www.man.ac.uk/fenscore. The individual Collections Research Unit (CRU) databases may also be searched independently (not all are online yet but soon will be), and there is much other information being added all the time. Of particular note at present is the full text of the North West Collections Research Unit (NWCRU) report on the condition of collections in the North West: *Skeletons in the Cupboard*. The expenses of the website are currently being funded by the Museums and Galleries Commission.

There is also a Fenscore discussion list. You may join this from the Website, or emailing either the Fenscore Webmaster (c.pettitt@man.ac.uk) or the List Moderator (ian@nms.ac.uk). The discussion list will carry up to the minute reports on Fenscore activities, and is intended also as a forum for the discussion of all matters to do with collections research. GCG members are welcome to join.

At their recent meeting, the Fenscore Committee decided to apply to the HLF

Access Fund for a grant to bring all the CRU databases up to a minimum standard of completeness and currency. It is intended the work will again be done on an area by area basis, with local knowledge input from the existing CRU members, although with the help of paid peripatetic surveyors. Visit the website and/or join the Fenscore discussion list to keep up-to-date on this exciting new development.
Bill Pettitt
email c.pettitt@man.ac.uk

Exhibitions 1999-2000

Voyages of discovery Natural History Museum 4 July 1999-spring 2000.
Tracking dinosaurs Ulster Museum 25 September 1999-31 January 2000.
Claws! Hancock Museum, Newcastle upon Tyne October 1999 - January 2000.

Royal Geological Society of Cornwall

In February 1999, Phillips auction house in Bath held a sale of antiquarian books from the library of the Royal Geological Society of Cornwall (RGSC). GCG were amongst those who expressed their concern to the RGSC about the sale, and I was asked to write note for *Coprolite* to explain the background to the sale.

In writing about the affairs of the RGSC and by implication the Cornwall Geological Museum (CGM), I have to state from the outset that many of the factors, which had and have – a bearing on our troubles are the private business of the two bodies concerned. That said, undoubtedly the most important factor from the GCG point of view is that the sale of the Library means in the short to medium term that there will be no sale of geological / mineralogical specimens from the collections. I can also confirm that with one exception around 1996 there has been no ***formal*** (ie with the knowledge and agreement of the Curator) disposal of any specimen from the Society's collections.

The problems of the Society have their roots going back to the middle of the last century when the Society first moved into St. John's Hall. More recently (within the last 15 years), the building had been allowed to decay to an alarming extent and the Society had been given formal warning by the local authority that service of a 'repairs notice' was imminent! A restoration appeal fund was launched, money was promised from various sources and individual members of the Society ran a variety of fund-raising events until the process of restoration of the building fabric became a reality.

The Lottery now appeared on the scene, clothed in hope, philanthropy, beneficence, wealth, and rules! The Society was one of the first to benefit from Heritage Lottery Fund largesse for the refurbishment of the building interior and display cases, and as so often happens, was also one of the first to make some of the classic mistakes that occurred in those early heady days. Suffice to say that at the time that Cornwall Geological Museum was set up (at I believe the insistence of the Charity Commission), not all of the bills had been received, no

'bombproof' business plan existed, and the revenue implications of opening a grade II listed building to the public had yet to be fully understood.

In December 1997, some 12 months later, the writer, in total ignorance of what had already transpired, agreed to become Honorary Secretary to the Society, and Company Secretary to the Museum. By early summer 1998, it was clear that irrespective of any case the Society/Museum had put forward, there was to be no 'bail-out' by HLF. Similarly, until such time as a debt position at the bank was cleared or a believable recovery plan agreed on, local authority grant-aid would be withheld. The Society Council bowed to the inevitable, and resolved to sell the *only marketable asset it possessed which was not part of the registered museum*, ie the Library. (Please note, in the five months prior to the day on which the decision was made to sell, just one Society member had material out on loan)!

That the time interval between sale decision and implementation was short is acknowledged. That the cataloguing was to some eyes inadequate was inevitable due to the limited time available. That the sale took place at a poor time of the year for some potential purchasers is 'life'. I regret that I cannot in print be more explicit about our rationale.

Many small museums nurtured by Lottery cash have withered and died of revenue starvation. It is my belief that the Lottery is just that unless you happen to be one of the 'big boys'. We have survived - so far, but when you put out your hand for financial aid today, the immediate question is "can't you get Lottery money for that?" Yes, the local authority did pay out the second half of the annual (discretionary) grant last year. Yes, they are supporting us again this year albeit with a 25% cut. We also are getting 'off the record' hints that over the next three years we will lose all of the grant. This year's 'cut' nearly equates to the income from the proceeds of the book sale.

Can the RGSC and the Cornwall Geological Museum survive long term? I doubt that it can in its present building and within a funding system that values a 'one tide' salt sculpture more highly than irreplaceable works of nature! CGM does, however, make a small operating profit, and how many of the big boys do that?

To quote one of our past Presidents: how many societies of just 180 members achieve what we do? We maintain a large, grade II listed building; produce the longest continuous serial geological publication in the world; maintain a full winter technical lecture programme and summer series of field excursions; produce a regular internal newsletter; and operate a high quality geological museum. All of this with volunteer labour only!

This is not, for obvious reasons, the 'whole story'. All we ask is understanding, and recognition of what we have achieved.

Bruce Grant, Honorary Secretary, Royal Cornwall Geological Society

GCG Seminar: 25 Years of GCG
New Walk Museum, Leicester
17-18 May 1999

At 10.30am on Monday 17 May 1999 the 25th Anniversary Meeting of the Geological Curators' Group convened in the Council Chamber of New Walk Museum in Leicester. This venue was the very same for the first GCG meeting exactly 25 years ago to the day, and so in this monumental room, the nostalgia-fest began.

The day was introduced by past Chairman John Nudds with the unfortunate news that our current Chairman, Tom Sharpe, could not attend the meeting owing to a riding accident the previous day. So along with John we wished Tom a speedy recovery. John Martin, Curator of New Walk Museum, then introduced Phil Doughty of the Ulster Museum, the first speaker of the morning, whose talk was entitled *Status achieved!*. Reminiscing, Phil described the events leading to the creation of GCG and followed the process of the Group's initial realisation of the desperate condition of the country's geological collections. As a result of these discoveries, *State and Status* was produced, as well as many other prominent works and Phil went on to explain the full impact of these projects and how they have affected the work of GCG over the years.

John Cooper of the Booth Museum in Brighton was the next to take the stage with *Reflections on geological collections over 25 years*. John used the Booth Museum to demonstrate examples of some of the problems that curators continue to face, typically the problem of very limited storage, exemplified by the dilemma: should a collection of 67 drawers of minerals with no documentation be kept or disposed of? It was shown that despite the 25 years of successful progress by GCG, some guidance is still needed, and there is still a lot to do.

The second main speaker of the morning was Mick Stanley of Hull City Museums. Mick presented a talk entitled *A quarter of a century of progress*, that took us step by step through the milestone achievements and events of GCG since its inception in 1974, and apparently we are just as "young and thrusting" now as we were then! Accompanying the presentation we enjoyed a slide show quiz in which the audience had to identify numerous famous and some not so famous geological sites and landmarks around the world. Mick kindly donated the prize of a 6 year old bottle of red wine and it went to the runaway winner, Paul Davis of Surrey Museums.

After a buffet lunch and for some, a tour of the New Walk stores, Hugh Torrens from the University of Keele presented *Collections research - what have we achieved in 25 years?*, a probe into the progress of collection status 25 years on. Hugh demonstrated that there are still difficulties because some institutions, such as some universities, do not realise the importance of research into and the use of their collections. Again, it was highlighted that recurring problems are still

hindering curators and their collections: for example, the value of a collection as a resource is often ignored or overlooked in favour of its financial value, and so a wealth of valuable research material is still being lost.

Before a break for tea, Patrick Wyse Jackson from Trinity College, Dublin took us on an eventful journey through the development of GCG's publications over the last 25 years. Patrick outlined the progress from the 'primitive' newsletter to the 'evolved' journal that we now know and love. We remembered the first photograph included in 1976, the name change to *The Geological Curator* in 1980, and the introduction of *Coprolite* in 1990.

After tea, Simon Knell of the Department of Museum Studies in Leicester presented *A place in history, but what place in the future?* discussing the changing role of GCG over its first quarter of a century of existence and where the group might take us in the future. Following the pattern of the day Simon again emphasised the fact that collections are no more secure now than they were when the group first started; there is no "end game" to use his words. Simon suggested that a Silver Anniversary is a good time to rethink what the Group should be doing. How can the group increase its power and influence? Are there other, better ways to achieve its goals more effectively? GCG had been incredibly successful in changing things in the past but it now finds itself in an entirely different world. It now has to rethink its future.

Due to Tom being flat on his back in hospital, we were unfortunately not able to hear his talk entitled, *Blots on the landscape*, and so this section of the day's events which had been both thought provoking as well as reflective, now drew to a close.

The 25th Anniversary Dinner took place at the Belmont House Hotel in Leicester. After enjoying a delicious meal, we were entertained by Hugh Torrens' wonderful after dinner speech, followed by a toast to which we all raised our glasses to another glorious 25 years of the Geological Curators' Group. (At the end of the evening the management suggested that a drinks order may not have been paid for, but the order included a bottle of Kaliber! A mistake on their part of course; geologists drinking Kaliber? Pah!)

After a marvellous day of reacquainting, reflecting and reminiscing, the programme of events for the day came to an end, but there was still more to look forward to - the field excursions to Bradgate Park and Tilton railway cutting on Day Two of the Silver Anniversary celebrations.

On a blustery Tuesday morning, a number of hardy geological curators met on the steps of New Walk Museum. After confirming the route we then made our way (some rather circuitously!) to Bradgate Park, our first destination of the day. Bradgate Park is situated to the northwest of Leicester and is part of Charnwood

Forest and the Charnian Supergroup which is noted as being part of a huge plunging anticlinal structure of Precambrian rocks some 650-700my old. The Precambrian rocks are characteristically metamorphosed beds of volcanic ash and tuff that were originally laid down in shallow waters in an island arc setting. The rocks of Bradgate Park also include Precambrian intrusives typical of island arc subduction, slightly younger than the volcaniclastics, and later Triassic sediments overlying the Precambrian rocks.

Our party was lead by John Martin (who knows the area like the back of his hand) and he gave a very interesting and entertaining three-mile tour of the geological and historical sites and landmarks of the park. We started off in the northwest of the park from the Hunt's Hill car park and proceeded in an easterly direction towards the first port of call which was a large exposure of metamorphosed tuffs of the Bradgate Formation.

We then observed the slump breccias of a feature called The Sliding Stone. This is a synsedimentary deformational feature and the result of a semi-lithified bed of the volcaniclastic sediment being destabilised, most likely by an earthquake, and consequently slumping. The rocks show evidence of both plastic flow and brittle fracture illustrating its semi-lithified nature at the time of deformation.

In the drizzle, John then led us south as we traversed the axis of the Charnwood Anticline past the Cropston Reservoir onto the 15th century Bradgate House, the home of Lady Jane Grey. Bradgate Park is an age-old hunting ground and herds of red and fallow deer still roam the estate.

After taking a look at the red Triassic sediments and the potassium-rich intrusives, John led us northwest, uphill to the 'showpiece specimen', the 700my old fossils of the Ediacaran fauna. On the bedding surfaces of the Precambrian volcaniclastics, the internationally significant *Charnia masoni* and *Charniodiscus* are still identifiable, unfortunately along with some equally identifiable graffiti defacing the outcrop.

After an enlightening and energetic tour of the Great Park we headed for lunch conveniently within walking distance to our next destination, Tilton Railway Cutting Nature Reserve. A power cut in the area meant that we had to eat our meal in darkness but fortunately the beer pumps still functioned without electricity.

Following lunch, the sky had cleared and we made our way down the road to the railway cutting. Tilton is situated about 10 miles to the east of Leicester and the cutting is one of the best local exposures of the middle and upper Lias. The rocks are all marine sediments including limestones, sandstones mudstones and paper shales. Some beds are very fossiliferous containing lenses of brachiopod death assemblages. The uppermost beds observed at Tilton were the middle Lias paper

shales and in the cutting are the type locality for the ammonite *Tiltoniceras antiquum*. Questionable examples were found, but interesting arthropod cuticles were found within the laminations of the paper shales and were taken back to New Walk for study.

On this high note, the commemorative programme of events came to an end. Everyone really enjoyed a memorable day of geology led by John Martin and a truly stimulating couple of days of GCG celebrations co-ordinated by Mark Evans of New Walk Museum.
Cathy Painter

Mary Anning and her times: a bicentenary meeting Lyme Regis, Dorset 2-4 June 1999

Was Mary Anning the right person in the right place at the right time or were there other reasons behind her rise to immortality in the geological world? These questions were at the core of this three-day meeting, organised to celebrate the bicentenary of her birth, and during which, it was hoped, a clearer understanding of the reasons for her rise to such prominence in the early days of palaeontology and the importance of the fossils that she found would be realised.

After a brief welcome from Liz-Anne Bawden, Honorary Curator of the Philpot Museum, the meeting began with a look at Mary Anning and her contemporaries. Firstly, in *The Life and Times of Mary Anning,* Sir Crispen Tickell, who is both patron of the museum and the great-great-great grandnephew of Mary Anning, emphasised how important it is to appreciate her social position and upbringing in order to fully acknowledge what she achieved. It is also important to remember how limited geological knowledge was at the time - at her birth the Earth was considered to be only 6,000 years old and many geological phenomena were still thought to be evidence of Noah's flood. Considering the social climate of the day it seems remarkable that a woman from poor, working class origins became accepted by the cream of the scientific community, dominated by men of money and high social status. Yet, despite all of the hype, little is really known about her character or her depth of knowledge although it appears that, whilst remaining a humble person, she was fully aware of what fossils were but left ideas about their interpretation to others.

Tom Goodhue (New York, USA) in *Mary Anning: the faith of a fossilist* then looked at how Mary's life, both physically and mentally, was altered by her changing religious beliefs as she moved from being a non-aligned dissenter towards the Church of England. As a dissenter, she would have been disadvantaged in many ways, but her beliefs and education would have encouraged her fossil collecting and made her feel that she had a role in life. In the 1830s, when geology was seriously testing the book of Genesis and people were leaving the church in droves, Mary's religious leanings were moving towards those of the Church of England. Why this occurred is unclear. Although it would have been a way of

rising up the social scale - an unlikely reason in her case - it may just be a result of her constantly mixing with Anglicans through her profession.

Having examined Mary Anning, the person, Roy Porter (Wellcome Institute) turned our attention to the time and place in *Mary Anning's times.* He felt sure that she was in the right place at the right time. At the turn of the 18th century, seaside towns like Lyme were beginning to flourish as favoured locations for people of status and although it was almost impossible for women to progress in the professions they were able to gain scientific knowledge. She was, like William Smith, the incarnation of the humble 'man' of science, a female in a man's world.

After lunch our attention was focused on Mary's contemporaries. As a link between the two sessions Mike Taylor (National Museums of Scotland) presented a short paper on the inferences that can be made about Mary's social status and character from the style of clothing that she is depicted as wearing in drawings and portraits. Unfortunately, these often show opposing characteristics. For instance, Mantell described her as a thin, pedantic woman, whereas De la Beche's watercolour depicts an older, plumper figure.

Mike continued with *Reconstructing the provincial gatherer: Mary Anning, Thomas Hawkins and Hugh Miller,* in which he compared the lives and the contributions that these three fossil collectors made to geology, all of whom operated at the same time, for the same clientele – the gentleman geologists of the day - but who hailed from very different social backgrounds. While Mary Anning was collecting in Lyme, Thomas Hawkins, the eccentric but wealthy son of a Somerset farmer and cattle dealer, was collecting marine reptiles and Hugh Miller, the son of a shipmaster, was accruing the best single collection of Scottish fossils ever made. Despite Mary's fame, her strictly commercial palaeontological activities meant that no fossil was ever named after her and she was too busy making a living to have time to publish academic papers, even if she could have afforded to. Hawkins, on the other hand, had the wealth to purchase specimens and to publish his own extravagant works. Because his specimens were then given to museums, as befits a "gentleman", species could be named after him. Miller, an educated professional, neither bought nor sold fossils, shunned all patronage and basically did what he liked. Being a respectable amateur he had a couple of taxa named after him and, although he wrote no academic papers, he was able to popularise the science through his editorship of *The Witness,* the newspaper of the evangelical wing of the Church of Scotland. In the 1840s and 1850s, through his books, he became the leading popular expounder of geology - the David Attenborough of his day.

Simon Knell (University of Leicester) looked at *Mary Anning's Yorkshire contemporaries and their struggle for possession and control* showing us that although Lyme Regis and Whitby had similar settings they were very different places in the early years of the C19th. Whereas Jane Austin had described Lyme

as being 'very nice' an 1820s description of Whitby pronounced it to be 'grimy and awful'. Whitby did have numerous local fossil collectors of note, including William Bird and George Young, and the commercial fossil trade was long established, although very dependent upon passing trade. There were many philosophical societies in the area, which played a critical role in the development of geology, but the gentleman geologists of the day paid little attention to the Whitby collections, compared to those at Lyme, and a number of interesting specimens never got the academic scrutiny that they deserved. Eventually the decline of both the jet industry and the philosophical societies in the 1860s lead to the decline of the fossil trade.

Chris McGowan (Royal Ontario Museum) turned our attention back to *Mary Anning, Thomas Hawkins and the giant ichthyosaur*, with an amusing and enlightening insight into the preparatory techniques of Thomas Hawkins through a detailed look at the history of one of his ichthyosaur specimens, which had originally been discovered by Mary Anning in 1832. It was a tale that all museum curators should heed.

The specimen, which had broken into about 600 pieces when extracted, was restored and remounted by Hawkins, a task which he admitted took about two weeks and involved the use of a ton of plaster. At the time, many people saw the specimen, including Mantell, who remarked on its extensive restoration. After Hawkins sold his collection to the British Museum in 1834, this specimen was one of the first to be displayed. At this time it was noticed that it appeared to have acquired a number of skeletal features that it had not had originally and that the supporting rock in which it was set was made of plaster. The matter was reported to the museum's trustees and a furore ensued. Buckland, who had pushed the museum to take the collection on Hawkins' behalf, was asked to sort the matter out and, as normal, in such embarrassing situations, the matter was allowed to 'go away'. But go away it wouldn't. Despite the somewhat damming evidence, Hawkins felt that he was being unfairly criticised. He took offence at comments made by Charlesworth to a mutual friend, and a protracted and heated argument ensued. It eventually looked as though the matter would finally be forgotten only for Charlesworth to print details of the whole sorry affair in the *Annals of Natural History* - of which he was Editor!

Phillipe Tacquet (Museum National d'Histoire Naturelle, Paris) brought the afternoon session to a close with *Cuvier, Prevost and the introduction of Mary Anning's marine reptiles to France* in which he showed how Cuvier, in particular, interacted with British geologists in the first half of the C19th and how he too benefited from Mary Anning's discoveries. Cuvier was the leading anatomist of the day but, because of the Napoleonic wars, he had few contacts in Britain. After Napoleon's defeat in 1815 Cuvier visited Britain in 1818, and was received royally. Through a British helper in Paris, he obtained and had access to many British specimens and in 1820 he acquired specimens from the Bullock Collection,

including some via Colonel Birch (and therefore possibly from Mary Anning). From 1818-1824 he was visited by the likes of Buckland and Conybeare while James Johnson Jr, of Bristol, kept him informed of ichthyosaur specimens that were available for sale and asked Mary Anning to write to him outlining her finds. Cuvier received numerous drawings of specimens from his British contacts and a number of these, as well as his own illustrations of British specimens, were used in later editions of *Ossimen Fossiles*.

The tight schedule left little time for discussion on the day's proceedings before departure to dine and freshen up in time to reassemble at the Marine Theatre for an evening public lecture by Hugh Torrens (University of Keele) on *Mary Anning's Life and Times: New Perspectives* which proved to be a typical Torrens presentation of wit, detailed information and high entertainment; a fitting end to the first day.

Hugh bemoaned the fact that although Mary Anning has become an international commodity, trying to unravel fact from fiction has become very difficult. Unfortunately, she published nothing herself, her meagre archive is widely scattered and, to complicate matters further, she is regularly confused with her mother, also Mary. Despite this, Hugh felt that her relatively short life was divisible into three main periods or Ages; those of Trouble, Triumph and Tragedy.

The 'Age of Trouble' lasted from her birth in 1799 until 1816 and was a period during which she survived a lightning strike on 19 August 1800, which, according to commentators, changed her overnight from a dull child into a lively and intelligent one. Her father's death in 1810, left the family in debt and requiring help from parish relief. Later that year, Joseph found the 'first' ichthyosaur skull in the cliff under Black Ven, and the body of it Mary recovered the following year. The specimen eventually finished up in Bullock's Museum where the skull was worked on by Everard Home.

1817 to 1831 was very much the Age of Triumph, a period during which many of Mary's most famous discoveries were made. During this period, her specimens were being distributed widely. Henry De la Beche, an avid collector, paid well to ensure that he got anything that was worth having and Colonel Birch acquired many specimens and was obviously a good friend of the family, selling his collection for £400 in 1820 in order to help the Annings' financially. In 1820 George Cumberland wrote that "Mary Anning attends Colonel Birch at Charmouth" which could imply that their friendship was more than just professional. On 10 December 1823 she found the first complete plesiosaur, which caused a great stir amongst the geological community and established her as a curiosity in her own right. She followed this with the first pterodactyl in 1828 and the fossil ray, *Squaleria*, in 1829 as well as other ichthyosaurs and plesiosaurs. Despite these stunning finds, for which she received large payment, there were still periods of financial distress as indicated by the fact that *Duria Antiquior* was produced by De

la Beche in 1830 in order to raise funds for her.

After her triumphs came the Age of Tragedy from 1832 to 1847. The agricultural depression of the 1830's produced extreme poverty amongst the rural population and, in 1834, there are indications that Mary was in deep financial crisis herself having lost all of her life savings through a failed investment. In the 1830s her dog, Tray, was killed by a rock fall, and in 1845 she developed breast cancer. Her geological friends again raised funds to help her as they were to do after her death in order to install the commemorative window in the parish church. Hugh summed her up as a classless, good, businesswoman who was full of sagacity, knew her place but also knew her stuff.

Martin Rudwick (London) opened the second day's proceedings with *Pictures of Pre-human Life: Mary Anning and Duria Antiquior* in which he showed how this depiction of ancient Dorset life was based on the scientific interpretation of Mary's fossils and was a model for a scientific genre that we take for granted today ie a visual reconstruction of deep time.

Such reconstructions are a combination of three, earlier genres; landscape, natural history and historical illustration. By the early 1800s, landscape illustration was well established but was not always realistic. Natural history illustrations, on the other hand, were often visually realistic but had minimal context and historical illustrations were based on a real events but only those which had a human context. Although fossil bones were recognised as being from a pre-human past a debate raged as to whether they were of living animals or not, especially as many looked like modern forms. This problem was resolved mainly through the work of Cuvier who was able to rebuild the fossil skeletons and then flesh them out to produce a living form. A great step forward in the depiction of deep time came with Buckland's interpretation of Kirkdale Cave as an ancient hyaena den and the vivid reconstruction of what the cave would have looked like, when occupied, which accompanied his report for the Royal Society. This showed that it was possible to interpret the past from fossil evidence alone. *Duria Antiquior* goes much further than Buckland's illustration depicting a scene, constructed around skeletal reconstructions, which incorporates, for the first time, a landscape within which natural history 'specimens' are set. It is also a historical depiction based on fossil rather than human evidence. A radically new genre had been born.

Kevin Padian (University of California) then looked at the discovery and interpretation of pterosaurs in *Ancient landscapes and physiology's: the strange history of Mary Anning's flying reptile*. Pterosaurs had been described in Germany as early as 1785. and Cuvier had identified them as flying reptiles without even seeing any specimens! In 1828 Mary Anning found the first British specimen, which Buckland described but made no attempt to reconstruct. Early German reconstructions depicted them as swimming animals, 1820s illustrations showed

them climbing rock faces, and by the 1850s they were reconstructed looking like marsupial bats. Richard Owen established them as typical flying reptiles but he maintained that their mammalian features were purely adaptive and therefore they were not warm blooded and could not have had hair or feathers. Specimens with a hairy body covering have since been found and it is now known that they grew quickly, just like birds, supporting evidence of which has been obtained from Mary Anning's specimens.

David Norman (Sedgwick Museum, Cambridge) completed the session with *Scelidosaurus from the Lias: Richard Owen's dinosaurian vision confirmed* in which he looked in depth at the discovery and interpretation of this animal. Richard Owen coined the term dinosaur in 1852 after only seeing fragmentary material from four species, including *Iguanodon* and *Scelidosaurus*. At the time he visualised them as generally large, four-legged, sluggish animals. When Joseph Leidy found more complete *Iguanodon* material in the USA he reconstructed the animal standing upright like a kangaroo but, like *Scelidosaurus,* Leidy's *Iguanodon* material also came from marine beds leading him to suggest that the animal had a generally amphibious lifestyle.

During 1858-1859, Owen received most of the skeleton of a scelidosaur from Charmouth. However, he made no attempt to reconstruct the animal in either of his monographs about the animal, probably because he was too busy working on other things at the time, including establishing the Natural History Museum and fighting Darwin's views on evolution. This was a great lost opportunity as he could have produced the first well supported reconstruction of a dinosaur, vindicated his inductive methods and grasped the issue of dinosaur diversity, posture, mode of life and origins.

After coffee, Angela Milner and Sandra Chapman (Natural History Museum, London) began the second session of the day looking at *Mary Anning's specimens in the Natural History Museum, London.* Angela pointed out the difficulties in trying to identify Anning material amongst the museum's collections mainly because, unlike donations, the details of from whom specimens were purchased were often not recorded. The 1811 ichthyosaur that was sold to Bullocks Museum arrived at the British Museum in 1819 and although recorded as 'lost' had probably been on display, in the same position, since 1881 until it was 're-found' by Justin Delair in the 1960s.

The 1823 Plesiosaur was purchased from the Duke of Buckingham's estate in 1848 while the 1829 specimen, which was purchased in 1830 and figured by Buckland in 1835, was 'mislaid' but has now been 're-found'. Due to funding difficulties the 1828 skull-less pterosaur was purchased via Buckland in 1829 but there is no proof that the two mandibles presented by Lord Enniskillen in 1874 are Anning specimens. The *Hybodus* shark was purchased in 1846 and a specimen of *Colia* has now been recognised as being Anning material while two ophiuroid

specimens, purchased in 1840, are the last known direct sales of Anning specimens to the museum. The museum also has some interesting archival material including three transcribed copies of papers that Mary was particularly interested in, within the Enniskillen Collection. There are also a number of other Anning items including a drawing she produced of her dog Tray.

Staying with the specimen theme, Chris Collins (Sedgwick Museum, Cambridge) spoke on the *Preservation and conservation of Mary Anning's specimens* in which he detailed the conservation work needed to preserve many of the large marine reptiles, found in museums today, which were collected over a century ago. The Sedgwick Museum can not positively identify Anning specimens as they have no documentary proof. However, Chris showed how, by looking at other clues, such as the source of the plasters that hold the specimens in their mounts and by examining the different paint layers on the plaster, it is possible to identify previous restorations. A whole range of consolidants and glues have now been identified and work is being undertaken to try and source and date the paints. Chris concluded by detailing how the specimens are now being remounted with the use of lightweight aluminium cellulite panels, moulded epoplast and plastazote.

After lunch Kevin Padian led an informal *Conversation with John Fowles,* the well-known author and former Honorary Curator of the Philpot Museum. In a fascinating conversation which ranged widely, from comments on writers' vanity to Mary Anning's position in Lyme's history, John, strangely for an former museum curator, revealed that he was passionately against collecting. However, when questioned about *The French Lieutenant's Woman,* he did feel that the work of Mary Anning, a collector, had inspired the book.

The next two talks highlighted the important role played by women in the early days of geology. Firstly, Claudine Cohen (Museé National d'Histoire Naturelle, Paris) spoke on *Women in geological sciences: the historical view from France* and was followed by Martine Koehl-Ebert (Geologische Staatssammlung, Munich) with *British Geology in Mary Anning's times: a conglomerate with a female matrix.* Claudine began by showing how society's views had restricted women's access to the professions and sciences, particularly in France. In the early 1700s even the production of a book on insects by a female author was an exception rather than the rule. During the late C17th – early C18th women from the higher classes came into contact with the top scientists of the day. In Mary's day there was a definite division between collectors and researchers, the former being seen very much as inferior. However, Mary was probably the first woman in palaeontology, an independent woman operating in a man's world, beholding to nobody and often acting as an intermediary and her only contact with men being of a material nature - exchanging fossils for money.

Martine Koehl-Ebert saw women's role in C19th geology as being akin to the

matrix of a conglomerate where the men where the pebbles. Many women were involved in palaeontology in numerous ways because it was seen as an unprofessional science. However, they often only acted as assistants to the men; Mary Buckland assisted her husband by illustrating and preparing fossils, Mary Lyell translated her husbands letters and accompanied him on field trips while Charlotte Murchison sketched and help prepare her husband's papers and books. There were a number of independent women involved in palaeontology which, in Lyme, apart from Mary Anning, included Elizabeth Philpot who had a collection of fossil fish that Louis Agassiz found to contain 34 new species.

Womens' knowledge was gained from the lecture courses given by the likes of Buckland, Owen and the Royal Society, the audiences of which often comprised 30%-40% women at a time when the percentage in universities was only 12%-17%. Women were allowed to attend the British Association for the Advancement of Science, but not take a full part until 1840, and they were not admitted to the Geological Society of London until 1919 although the more 'amateur orientated' Geologists' Association had done so earlier.

Dennis Dean (Illinois, USA) looked at Mantell's work on dinosaurs and his links with Mary Anning in *Mary Anning and Gideon Mantell.* Mantell played a pivotal role in the interpretation of the early dinosaurs. Buckland's 1824 paper on *Megalosaurus* was partially re-written after he visited Mantell, while Mantell produced papers on *Iguanodon* in 1825 and *Hylaeosaurus* in 1832 and would go on to discover a further five species. In 1833, he produced an illustration of a scene from the Wealden, which contained all three of Owen's original dinosaurs plus other life-forms, set in a prehistoric landscape. This may be the earliest dinosaur reconstruction although it was not published until 1999. Working only from fragmentary material *Iguanodon* is misinterpreted as a huge, lizard-like animal, with a sauropod pose and *Megalosaurus* as very sinuous and elongate. Both long and short-necked plesiosaurs and an ichthyosaur are shown in the water while wading birds, based on specimens that he had found in the 1820s but which are now known to be pterosaurs, adorn the banks.

After Mantell was admitted to the Royal Society he decided to purchase good specimens and approached Mary Anning. An 1835 letter from her lists a number of ichthyosaur specimens for sale, including one with preserved skin for £40, plus other small invertebrate and plant fossils. In a second letter, dated 4 May 1835, she reports another good quality ichthyosaur and other specimens for sale, including a good *Pentacrinites* with 'fine heads'. In the third edition of *Wonders of Geology* (1839) he mentions her in respect of ichthyosaurs, plesiosaurs and pterodactyls and she is mentioned a further four times in the 1844 edition of the *Medals of Creation* but none occur after her death.

In the final talk of the day, *Pigment, perception and photographs: 19th Century Dorset landscape,* Beryl Hamilton (Galloway) questioned how we perceive what

we see. When looking at C19th landscape drawings with our C20th knowledge are we seeing what the geologist saw or are these images highly selective and, if so, why were those items chosen? Geology is a very visual science and geologists are trained to look at landscapes from a highly selective geological viewpoint, which tends to omit the pretty and the ephemeral. Also, our brains don't like randomness and can distort what we see. As landscapes constantly change we have to take care when interpreting the scenes that artists drew. Artists were also affected by the romantic style which exaggerates the vertical scale turning landscapes, like Turner's views of Lulworth and Lyme, into very much the artist's interpretation rather than a geologist's. However, artist naturalists occupied the role of the modern photographer and produced work that was more valuable than a field sketch and in colour. However, the paper and colours used can also affect one's interpretation. Some pigments didn't last, especially the water-colours, so that much of what we see in pictures today is not as it would have looked originally.

In the evening a splendid symposium dinner was held in the Marine Theatre where we were joined by Mary Anning herself, who took great delight in showing us some of her latest finds - though how she had come by a specimen of *Dactylioceras* from Whitby she didn't say!

The final, packed day looked at Lyme and its geology from a modern viewpoint and whether the suggestion posed at the outset of the meeting was correct. In *Mary Anning: the right woman in the right place at the right time,* Jo Draper (Dorchester) began by indicating that the latter assumption was correct. Operating from a fossil-rich site, in a popular watering hole, Mary was able to use a workforce that was already skilled in working on the ledges. She was intelligent but, being a woman, did not publish papers and didn't travel. Jo's talk produced a vigorous discussion in which a number of interesting points were made and varying views expressed. Hugh Torrens pointed out that Mary had an 'eye' for finding fossils, which others don't necessarily have, and with De la Beche President of the Geological Society at the time of her death, this ensured that she received an obituary, unprecedented for a non-Fellow (and a woman). Stephen Jay Gould noted that she was around at the time when collection sizes, especially in museums, were increasing while Sandra Lello felt that not enough account had been taken of the socio-economic status of Lyme and that Mary did what she did through poverty, not gender or class.

David Sole (Dorset), standing behind a magnificent display of specimens belonging to the region's professional collectors, began the final chapter of the symposium with a review of *Recent finds along the coast of Lyme: Mary Anning's heritage.* He gave a potted history of what the local collectors had achieved over the last 20-30 years. He reviewed the new fossil collecting code for West Dorset, paying tribute to Richard Edmonds and the local landowners for its production which he was convinced would be a success but emphasised the need for input

from the scientific community. He raised his concerns that the Jurassic Coast World Heritage bid could have an impact on fossil collecting as such designation requires the production of a management plan which could, if not addressed properly, lead to collecting restrictions. He hoped that the current code would be fully incorporated into any such plan otherwise there was a possibility that local control could be lost to the jurisdiction of a body like IUGS.

The next three talks were very much 'tasters' for the afternoon field meetings. Michael House (Dorset) began with an outline of the local geology in which he emphasised the rhythmic cyclicity of the Blue Lias, which could be due to *Milankovitch cycles as they are obviously of primary origin and indicate oscillating* sea levels. Ramues Gallois (British Geological Survey, Devon) followed with a report on the re-mapping of the East Devon and West Dorset sheet which had not been amended since De la Beche's original survey, and also looked at the thorny problem of coastal protection. Lyme is currently looking at a coastal protection plan and Ramues highlighted how human interference with natural processes was the cause of a lot of the problems. In particular, the disruption of longshore drift, by the construction of structures like the Cobb, caused sediment starvation on the town beach. Shingle protects the soft cliffs, absorbing wave energy, and the weight at the toe reduces slipping, so shingle removal was the cause of the Langmoor Gardens slip in 1962. Most of the major landslips probably began in the Pleistocene but many have now been stabilised.

Richard Edmonds (Jurassic Coast Project Officer) then spoke on the Jurassic Coast project and World Heritage bid in *Geology and geo-tourism on Dorset's Jurassic coast.* The bid is based on the fact that the area exhibits a complete succession of the Jurassic strata, has outstanding geomorphology and superb fossils as well as being an important area for the study of the history of geology. It was hoped that this would strengthen the conservation of the area but also promote geology and 'niche' tourism. Designation would benefit everybody and *he assured delegates that there would still be a Jurassic Coast Project even if the* bid failed. In outlining the plans for a proposed interpretation centre on Portland he enthused about how the area's varied geology affects the landscape and wildlife, gives local character to buildings and villages and provides an incredible cultural heritage.

Finally, Crispin Tickell drew the formal part of the symposium to a close with a review of what the meeting had achieved. He felt that our understanding of Mary Anning was now much clearer than at the start and, although the meeting had made people look for Anning material, he felt that the priority should now be to look closely at what had already been found. Hopefully we are not at the end of the process but the beginning of another. Paying tribute to Liz Anne Bawden, the staff of the Philpot Museum and the two main instigators, Hugh Torrens and Kevin Padian he drew the formal part of the meeting to a close.

After lunch, delegates had a choice of field trips: an historical town trail with Hugh Torrens; a walk along the seafront with Ramues Gallois and Richard Edmonds to look at coastal protection and geo-tourism; or a geological walk from the Cobb to Pinhay Bay with Michael House and Chris Pamplin. Fortunately, the rain held off and when all three trips finished at John Fowles' beautiful garden, for a magnificent Strawberry Tea, the sun even decided to show its face, if only briefly.

The final 'event' of the meeting was an evening public lecture by Stephen Jay Gould (Harvard University, USA) on *Bacon, brought home*. This was a typical Gould presentation, a plethora of amazing facts and digressions from the main theme and, accordingly, extremely difficult to precis. Fortunately, the talk has been published in *Natural History, 6/99*, from p28 onwards so, to find out what you missed get hold of a copy!

Overall, the meeting provided an extremely detailed review of Mary Anning, the society and environment in which she lived, her associates and contemporaries and the fossils she found. No doubt most delegates will have come away with a much fuller understanding of the woman. Being so close to her birthplace added an important element to the 'feel' of the meeting while the informality of the whole affair would, no doubt, have been something that Mary herself would have been happy with. An awful lot was crammed into the three days and although a few of the talks seemed a little peripheral to the main theme they were all well presented and interesting. It would have been nice to have been able to participate in all of the field trips but perhaps this is the excuse that we need to have another meeting in Lyme. Congratulations and thanks must go to all who helped in the organisation of the event, particularly Liz-Anne Bawden and the staff of the Philpot Museum who made such an eclectic bunch so welcome.
Steve Howe, National Museum of Wales

GCG Seminar: Mineral collections in Cornwall
Camborne, 26-28 September, 1999

Well, we made it, though five people out of a membership of 400 is not exactly stunning, especially as it turned out to be an excellent meeting. Since there were so few of us, I can tell you that we came from Plymouth, Weston-super-Mare, Manchester, Scunthorpe and Newcastle. So where was everybody else?

We began on the Sunday afternoon by being taken by Lesley Atkinson and Alan Bromley down to the Lizard Peninsula to look at what we were promised definitely was an ophiolite. (This was still conjectural at least when I was doing my degree, but Alan was quite confident and persuasive about it). The reason people took so long to decide is because in being thrust onto the continent it was seriously smashed up, making the rocks and relationships difficult to establish. Nevertheless, they are all there, although the small amount of pillow lavas are very badly deformed. We saw coarse grained gabbros, dykes, peridotites and even some suggested cumulate sequences, (which looked a perfectly reasonable

proposal to me), though the rising tide meant we couldn't see all parts of the sequence, even if time had allowed. One could easily spend a week just being shown around this geology, and the rocks are spectacular. We finished off the afternoon at a local ice cream parlour where the heavens finally opened, as they had been trying to do all afternoon.

We began the Monday at the Camborne School of Mines. At three hundred students this seems like a pretty small institution, but considered as a university geology department, and a highly specialised one at that, it suddenly seems much larger. About 40% of the students are from abroad the rest coming from all over Britain. The museum is pretty small, but looks very nice, with cases of superb mineral specimens in the centre, and around the outside a series of cases showing material with a more didactic aim. Lesley is the curator, but does just six hours a week on the museum and collections, and it seems clear that the department do not see public displays as being a significant use of their resources, which is really rather sad, particularly as in the region around them, there is clearly a big push towards developing the old mining heritage for tourism purposes.

Having had look around the museum, we had a demonstration of gold panning by Simon Camm, (his specially prepared gravel containing pyrite rather than real gold). We all had a chance to have a go, and it turned out to be rather easier than I had expected, particularly as gold, at three times the density of pyrite, would have separated out more easily. Mind you, in the field, panners would have been working with a kilo or so at time, not the few grams we used, and I suspect it could get pretty tiring after a while.

Our high speed tour then took us to Truro Museum and the Rashleigh collection, of which we given a potted account by Roger Penhallurick. Rashleigh was a local worthy who had a keen interest in the local minerals, and the money to pay other people to go and collect them for him. He wasn't really interested in the science behind them, unlike other local collectors, but kept a detailed record of where and when they came from. Of course this collection has been through the same trials and tribulations as so many other collections, but remains an impressive record of the local geology. It is further supplemented by a large collection of photographs, including a specially commissioned series from the mines of the area, taken in the early part of this century. A number of these are on display in the museum, and was clearly a tour de force on the part of the photographer, having to work underground, in primitive conditions and without the benefits of modern photographic technology.

Following a Cornish pasty lunch on the move, we headed down to St. Austell, and the Wheal Martin Mine. This is a working china clay mine, but an interpretation centre has been added to it. This has, in addition to a very swish looking shop, some small displays and a film theatre, in which we saw a short film giving an

account of the history of the mine, and how the china clay is extracted. Outside, there are two trails, a nature trail and a history trail. At the top of the nature trails is a view over the mine itself, an extremely big hole, which looked to be a couple of hundred feet or so deep and perhaps half a mile long. Sadly the great conical spoil heaps are rarely in evidence, having had to be lowered and levelled for safety purposes, but the whole sight is still very impressive. Sobering is the sight of the one person on sight, a truck operator. Everything else is automated, and what once would have been a hive of activity for hundreds of people is now an almost lifeless landscape.

Along the history trail you get a very complete picture of how the china clay used to be processed, by separation, collection and drying. Much of the original machinery has been preserved (there was much discussion about exactly how some of this worked) and you can follow the trail of the excavated material through the channels, ponds and buildings used to turn it into the finished product. At this time of the year there were very few people around, but at the height of the season I'm sure it must a very busy site.

Before our evening meal at a local pub, Alan Bromley gave us an excellent lecture on the history of the mineralisation in the area. It was quite clear he could have talked for the whole day on this, and what was an hour seemed like half as long.

The following day we headed for Penzance and the Royal Geological Society of Cornwall Museum. Here we found a tale of real woe, and grave uncertainty. Some of you will be aware of the concern of the sale of this society's library, about which I will say no more, as the honorary secretary, Bruce Grant, who told us all about it, has written an account, which you will find elsewhere in these pages. The society is plagued by a chronic shortage of funds, and a history of poor management and indecision, some flavour of which you will get from Bruce's article. The contrast between the poor conditions for the collections, in the basement, and the beautiful, HLF funded, displays upstairs was quite startling. Like so many of the collections we saw, the material is quite superb, and here they are shown to their best advantage, in a gallery of which most of us would be proud.

We finished our tour of Cornish geology with a trip down the King Edward Mine. This is the School's own training mine, and indeed a party of students were on their way down as we left. Although there were some fears about the descent, down a series of vertical ladders, this proved to be less worrying than expected. At the bottom we were shown the relationships between the load and the country rock, and the mining techniques were explained to us. Although the mine is not used for commercial purposes, all the activities are still carried out for training purposes, and the mine is well used by the school at all levels of training. At various places, equipment was all set up for use, and being a training mine, it was ideal for explaining to us how it all operated.

All in all, despite being rained on at regular intervals, the whole trip was excellent, the only drawbacks being that it was so poorly supported and that we couldn't spend another week there looking at the many other aspects that we weren't able to see this time round. We would like to thank all those involved in putting this trip on, including Simon Camm, of the Camborne School of Mines, Roger Penhallurick of Truro Museum and Bruce Grant of the Royal Geological Society of Cornwall, for their time and efforts. We would particularly like to thank Lesley Atkinson and Alan Bromley of Petrolabs for, despite their protestations to the contrary, their very considerable work in organising the meeting, transporting us to and from sites, and effectively sponsoring the meeting by paying not only for ice cream and tea but more particularly all our drinks and meals on the Monday evening.

Steve Thompson, Museum of North Lincolnshire

Forthcoming GCG seminars and courses

3-5 December 1999 Department of Geology, Museum Building, Trinity College, Dublin.

GCG Seminar and 25th AGM: Geology and the local museum: a decade of progress?

This seminar will examine aspects of geology in local museums in the decade since the publication of Knell and Taylor's seminal volume *Geology and the Local Museum* (1989). Participants may also wish to view the collections of Trinity College, the National Museum of Ireland, and the Geological Survey of Ireland. The field excursion on Sunday 5 December will examine two classic geological sites in the greater Dublin region. In the morning, the group will visit the Leinster Granite and associated lead workings at Ballycorus, and in the afternoon will visit Portrane where Ordovician volcanics and fossiliferous limestones crop out. The field excursion is limited to 26 participants (on a first-booking basis). There will be opportunities to study the building stones of Dublin city and to sample its culinary and cultural delights.

Friday 3 December

18.00-18.30 Registration: Museum Building, Trinity College

Saturday 4 December

Department of Geology, Museum Building, Trinity College.

09.00	Registration
09.30	Simon Knell (University of Leicester): *The provincial museum in the Heroic Age of Geology*
10.00	Paul G. Davis (Surrey History Centre): Hardcore and rockeries - the best use for geology in the local museum?
10.30	Chris Collins (University of Cambridge): Conservation developments for the small museum.
11.00	Coffee
11.30	Matthew A. Parkes (Geological Survey of Ireland) and Patrick N. Wyse Jackson (Trinity College Dublin): Geology in local museums in Ireland.

12.00 Nigel Monaghan (National Museum of Ireland): Recent developments at NMI and planning a new Earth Science gallery at Collins Barracks.
12.30 Geological Curators' Group 25th Annual General Meeting
13.00 Lunch (taken in the Earl of Kildare Hotel)
14.00-17.00 Opportunity to view the collections of the Geological Museum Trinity College Dublin, the National Museum of Ireland and/or the Geological Survey of Ireland.

Sunday 5 December
Fieldtrip. Leaders: Patrick Wyse Jackson & Matthew Parkes
09.30 Assemble at the Museum Building, TCD.
10.30 Catty Gollogher and Ballycorus, Co. Dublin – Cambrian quartzite klippe; lead-zinc mineralisation in Leinster granite.
Lunch Packed lunch (supplied).
14.30 Portrane, Co. Dublin - Ordovician volcanics and carbonates.
16.30-17.00 End of excursion; airport drop for delegates; return to city centre.

Please complete the booking form on the centre pages and return it to Patrick Wyse Jackson, Department of Geology, Trinity College, Dublin 2, Ireland tel +353 1 608 1477, fax 353 1 671 1199, e-mail wysjcknp@tcd.ie

7 March 2000 The Time Machine Museum, (formerly Woodspring Museum), Burlington Street, Weston-super-Mare, Somerset

GCG training course: Gemstone identification for natural science curators

A one-day workshop on the basics of gem identification, from the perspective of natural science curators. Participants will have the opportunity to use most of the simpler and more affordable instruments employed by gemmologists and will be able to examine some of the more commonly encountered gemstones and synthetic gemstones.

10.15 for prompt 10.30 start
Introduction and overview of gemmology & gem testing. Opaque gemstones. Getting clues using your hand lens. Use of the polariscope. How to spot glass 'gemstones'. Distinguishing amber from copal and plastics. Using 'heavy liquids' to test specific gravity (relative density) of gemstones

Buffet lunch at the museum and an opportunity to see the museum displays.

Gemstone curation. Use of the hand-held spectroscope. Use of the dichroscope and Chelsea Filter (if time allows). Demonstration of using a refractometer to discover the optical nature of a stone and measure its refractive index.
Course ends 16.30

Places are limited to 12 participants so it is advisable to book early. Participants should bring a hand lens (x10 or similar), a pen torch and tweezers. By the end of the course participants can expect to:

be able to use, at a basic level, the following gem-testing instruments: handlens/microscope; polariscope; hand-held spectroscope and 'heavy liquids'. Also dichroscope and Chelsea Filter if time allows;

have a basic understanding of what can be discovered using a refractometer (use of the

refractometer will be demonstrated);
to know where gem-testing instruments can *also* be used to aid in the identification of *non* gem-minerals, especially where the specimen should be identified without causing damage;
be familiar with some of the features and properties found in a selection of the more commonly encountered gemstones (NB The short nature of the course will mean that participants should not expect to be able to identify with certainty more than a few specific gem species. Diamond and its simulants will also *not* be covered in this course.);
be able to spot some of the most commonly encountered 'fakes', in particular glass and garnet-topped doublets;
know about good practice in the curation of gemstone collections;
know about what literature and courses are available for pursuing an interest in gemstones.

The course will be geared towards geological/natural science curators who encounter gem materials within their collections or as enquiries. No previous experience of gem testing is required. However, participants should have a science background and be familiar with the main properties of minerals, eg lustre, hardness, cleavage and fracture, and the terms used to describe them. Awareness of single and double refraction (isotropic/anisotropic minerals) would be beneficial but will not be assumed. The course will be very practical with the approach of 'What can the feature I am seeing tell me about the stone's identity?' rather than 'How do I *explain* the cause of the feature I am seeing?'

Course fee: £20 (includes buffet lunch and a small pack of gems to be used in the workshop by each participant). Please make cheques payable to North Somerset Council.
Tutor: Dale Johnston (Fellow of the Gemmological Association, and Exhibition & Outreach Officer with North Somerset Museum Service).

Please complete the form on the centre pages and return it, with the course fee to: Dale Johnston, North Somerset Museum Service, Burlington Street, Weston-super-Mare, Somerset BS23 1PR tel 01934 621028

3-4 April 2000 (provisional) Scarborough
Joint BCG/GCG Seminar: Access to biological and geological collections
Our collections are held in trust for all people, here and abroad, lay and scientific. How do we balance care against access and what kinds of messages do our audiences take away?
Contact: Steve McLean, The Hancock Museum, Barras Bridge, Newcastle upon Tyne NE2 4PT tel 0191 222 6765, fax 0191 222 6753, e-mail s.g.mclean@ncl.ac.uk

10-11 or 17-18 May 2000 (to be confirmed) Edinburgh
GCG Seminar and study visit: Museum of Scotland and Dynamic Earth
Among the recently-opened (or soon-to-open), large-scale exhibition centres and museum developments in Britain are the Museum of Scotland and Dynamic Earth in Edinburgh. The long-awaited Museum of Scotland provides an opportunity to study geological and biological interpretation in a new museum environment while Dynamic Earth, funded by the Millennium Commission, provides a more high-tech, visitor-centre style attraction. This study visit will provide GCG members with a valuable insight into the interpretative methods employed in by

these two state-of-the-art attractions. It is also hoped to include a speaker from the International Centre for Life which is due to open in Newcastle upon Tyne in 2000.
Contact: Dr Michael A Taylor, Curator of Vertebrate Palaeontology, Department of Geology and Zoology, National Museums of Scotland, Chambers Street, Edinburgh EH1 1JF fax 0131 220 4819 e-mail mat@nms.ac.uk

September 2000 Manchester Museum, Oxford Road, Manchester
GCG Seminar : New Developments at The Manchester Museum.
Contact: Dr John Nudds, Keeper of Geology, The Manchester Museum, University of Manchester, Oxford Road, Manchester, M13 9PL tel 0161 275 2634, fax 0161 275 2676, e-mail john.nudds@man.ac.uk

late October 2000 Munich, Bavaria, Germany
GCG study visit: The Munich Show and the Museums of Southern Germany
The Munich Show is Europe's premier fossil and mineral show and provides a excellent opportunity for curators to familiarise themselves with the current state of the market, or even to acquire material if purchase funds allow. In addition, this region of southern Germany has some spectacular geology, most notably the famous late Jurassic Lagerstatte of Solnhofen and the Miocene impact site of the Ries Crater at Nordlingen. Both sites have wonderful museums, with the Jura Museum in Eichstatt housing one of the few known specimens of *Archaeopteryx*. There will also be an opportunity to visit working quarries in the Solnhofen Limestone. Planning is at an early stage, but it is envisaged that this study visit would last 3-5 days.
Contact: Steve McLean, The Hancock Museum, Barras Bridge, Newcastle upon Tyne NE2 4PT tel 0191 222 6765, fax 0191 222 6753, e-mail s.g.mclean@ncl.ac.uk

5-6 December 2000 Yorkshire Museum, Museum Gardens, York
GCG Seminar, fieldtrip and 26th AGM : Storing giant tracks
Contact: Phil Manning, Keeper of Geology, The Yorkshire Museum, Museum Gardens, York Y01 2DR tel 01904 629745, fax 01904 651221.

Other meetings and seminars

13 November 1999 University College, London
Geologists' Association Reunion
Contact: Sarah Stafford, Executive Secretary, Geologists' Association, Burlington House, Piccadilly, London W1V 9AG tel 0171 434 9298 fax 0171 287 0280 e-mail Geol.Assoc.@btinternet.com

30 November 1999 Geological Society, Burlington House, Piccadilly, London
History of Geology Group: Geology in the field

10.30 Coffee
11.00 *John Fuller: The prehistory of geological fieldwork*
11.25 Hugh Torrens: Coal hunting at Batheaston, Bexhill and Brewham, 1804-1813. Practice where it mattered most.
11.50 Simon Knell: John Phillips and friends on the Yorkshire coast in the 1820s
12.15 Annual General Meeting
12.30 *Lunch in local pubs and restaurants*
13.30 Alfred Whittaker: Sir Charles Giesecke's early nineteenth-century field geology in Greenland
13.55 Patrick Boylan: William Buckland's cave explorations
14.20 Richard Wilding: Charles Darwin's geological fieldwork
14.45 *Tea*
15.15 Michael Roberts: Charles Darwin in North Wales
15.40 Neville Haile: G.A.F. Molengraaff: pioneer field geologist in Borneo in the 1890s
16.05 Eric Robinson: The Geologist's Association in the field
16.30 Wine and nibbles.

Contact: Simon Knell, Department of Museum Studies, 105 Princess Road East, Leicester LE1 7LG tel 0116 252 3963, fax 0116 2523960, e-mail sjk8@le.ac.uk

28-30 January 2000 Dresden
International Hanns Bruno Geinitz Symposium: History of geosciences, regional geology, biostratigraphy and palaeontology in central Europe
Contact: Geinitz Symposium, Staatliches Museum fur Mineralogie und Geologie zu Dresden, A B Meyer Bau, Konigsbrucker Landstrasse 159, D-01109 Dresden, Germany tel + 49 351 89 26 403, fax + 49 351 89 26 404 e-mail mmg@sik.de

1-2 March 2000 Edinburgh
Scottish Natural Heritage: Selling geology to the public
Contact: Sharing Good Practice Administrator, Scottish Natural Heritage, Battleby, Redgorton, Perth PH1 3EW.

4-8 April 2000 Natural History Museum, London
Natural History Museum's Millennium event: Nature's Treasurehouses? An international conference on the role of natural history museums.

17-20 April 2000 University of Manchester
Geoscience 2000
Half-day session to be organised by GCG and the Palaeontologcal Association
Contact: Conference Office, Geological Society, Burlington House, Piccadilly, London W1V 0JU

26-30 May 2000 Brighton
Geologists' Association: Earth Alert
Contact: Sarah Stafford, Executive Secretary, Geologists' Association, Burlington House, Piccadilly, London W1V 9AG tel 0171 434 9298 fax 0171 287 0280 e-mail Geol.Assoc.@btinternet.com

28-29 June 2000 Geological Society, Burlington House, Piccadilly,

London

HOGG: Celebrating the age of the Earth

Contact: Dr Cherry Lewis, History of Geology Group, Wells Cottage, 21 Fowler Street, Macclesfield, Cheshire SK10 2AN tel/fax 01625 260049 e-mail clelewis@aol.com

6-12 September 2000 South Kensington, London

British Association for the Advancement of Science Annual Science Festival

Contact: British Association for the Advancement of Science, 23 Savile Row, London W1X 2NB tel 0171 973 3055, fax 0171 973 3051

6-30 September 2000 South Kensington, London

British Association: creating SPARKS

Contact: Jill Nelson, Director, creating SPARKS, British Association for the Advancement of Science, 23 Savile Row, London W1X 2NB tel 0171 973 3055, fax 0171 973 3051, e-mail jill.nelson@britassoc.org.uk

16-19 October 2000 Jersey

Museums Association 106th Annual Conference

Contact: Museums Association, 42 Clerkenwell Close, London EC1R 0PA tel 0171 608 2933 fax 0171 250 1929.

4-8 December 2000 Melbourne, Australia

4th International Conference on Mineralogy and Museums

International Mineralogy and Museums conferences are an important forum where museum-based mineralogists can discuss developments in their research and collection-based activities and how best to communicate them. The conferences are held every four years, with the previous meetings being in London (1988), Toronto (1992) and Budapest (1996). M&M4 will be in Melbourne, Australia's second largest city. The program will embrace the three main aspects of museum work - research, collection development and public programs. Field trips to important mineral deposits in southeastern Australia, including Broken Hill, western Tasmania and the central Victorian gold province will form part of the program. A preliminary brochure is available, with the second circular due August/September 1999.

Contact: Bill Birch, Museum Victoria, PO Box 666E, Melbourne, Victoria, 3001, Australia, fax 61 3 9270 5043, e-mail bbirch@mov.vic.gov.au

2-6 April 2001 University of Oxford

Third international conference on trilobites and their relatives

Four days of indoor sessions will be based in Oxford, with field trips preceding (to Scotland and northern England) and following (to South Wales and the Welsh Borderlands). The formal programme will include both thematic and open sessions, the topics for the former to be 'functional morphology, mode of life and

ecology' and 'biodiversity and evolutionary patterns'. The conference proceedings are to be published as a Special Paper of the Palaeontological Association.
Contact: Dr Derek Siveter, Geological Collections, University Museum of Natural History, Parks Road, Oxford OX1 3PW tel 01865 272953 email Derek.Siveter@earth.ox.ac.uk

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