# GEOLOGICAL CURATOR

Volume 5 Number 8

## GEOLOGICAL CURATORS' GROUP

The Group is affiliated to the Geological Society of London. It was founded in 1974 to improve the status of geology in museums and similar institutions, and to improve the standard of geological curation in general by:

- holding meetings to promote the exchange of information
- providing information and advice on all matters relating to geology in museums
- the surveillance of collections of geological specimens and information with a view to ensuring their well being
- the preparation of a code of practice for the curation and deployment of collections
- the advancement of the documentation and conservation of geological sites
- initiating and conducting surveys relating to the aims of the Group.

## 1993 COMMITTEE





© The Geological Curators' Group ISSN 0144 - 5294

---

**Cover:** A full size robotic *Deinonychus* from 'Dinosaurs' at the Natural History Museum in London. The model was designed and built by the Japanese Kokoro Company Ltd. © Natural History Museum.

# THE GEOLOGICAL CURATOR

VOLUME 5, No.8

## CONTENTS



GEOLOGICAL CURATORS' GROUP

April 1994

# EDITORIAL

Several pages of this issue (pp.331-334) report GCG's latest initiative to encourage the improvement of collection care - the A.G. Brighton Medal. The need for a prestigious award that recognises real curatorial achievement over a long period was first argued for in 1989 by the late David Price. GCG Committee required little convincing of the merits of David's idea or his association of A.G. 'Bertie' Brighton's name with the award. Following David's tragic suicide in November 1991, it was clearly appropriate to present a posthumous Founder's Medal to his widow Valerie (see p.333), ensuring that David's name too remains forever linked with the establishment of what GCG hopes will become an important triennial award.

As Assistant Curator and then a Curator of the Sedgwick Museum (Dept. of Earth Sciences, Cambridge University) from 1972, David Price made many contributions to the work of GCG, particularly during his years on Committee (1985-1988). Members will be most familiar with the interest he took in computerised documentation and the history of the Sedgwick Museum collections (e.g. 'The computerised Sedgwick Museum', *Geol.Curator* **4**, 45-56; 'Mary Anning specimens in the Sedgwick Museum', *Geol.Curator* **4**, 319-324). David was conscious of a general lack of appreciation of curatorship within the scientific community, and he fought to promote our cause. His inspiring biography of A.G. Brighton ('A life of dedication: A.G. Brighton and the Sedgwick Museum, Cambridge', *Geol.Curator* **5**, 95-99), the Brighton Medal initiative, and his active involvement with the UGC/UFC Review of Earth Science Departments, were all facets of this determination to see the work of curators and the importance of collections receive better recognition.

An extract from David's biography of Brighton was quoted by Ian Rolfe in a tribute he gave at David's funeral. Referring to Brighton's total commitment to curating, David had said:

'To him this work was clearly necessary, urgent, and self-evidently worthwhile. He looked for no further reward. Indeed he felt that among his academic colleagues his efforts were little appreciated. He felt that they regarded curating as an unimportant, peripheral sort of activity which practically anyone could do. This saddened him but did not affect his conviction that the work was of basic importance or his relentless determination to pursue it. In the face of such lack of sympathy his life's work becomes even more remarkable. It remains as an inspiration for all who continue the still often thankless struggle to bring order to our neglected geological heritage and thereby open the doors to new geological research.'

Such words stand as a memorial as much to David himself as to the man he so much admired.

To my mind David's personal tragedy was an extreme example of the gulf that can develop between the curatorial bedrock of good professional practice and the shifting and sometimes conflicting priorities of a museum's operational policy. Such conflicts are by no means restricted to (or even typical of) universities. But they are an inevitable product of the highly fragmented and disorganised nature of the UK museums sector. The curatorial 'good practice' codified by the MGC (Registration, Standards), specialist groups like GCG (the *Guidelines*), the MTI (?) and the Museums Association (??), typify a paradigm which curators take for granted. But we forget at our peril that such a mind-set is not always shared (or even understood) by museum policy-makers. Which of us, for instance, either works for or knows of: weak, disinterested local councillors who succumb to a hidden agenda of senior officers; senior university academics who see curators as so much research/teaching fodder and collections as little more than a waste of expensive space; or so-called 'independent' boards of trustees stacked with political appointees to stifle debate and bleat the market forces mantra when kicked into action? Extreme descriptions? Yes, of course, but a wry smile of recognition probably crossed many members's faces.... We *know* that the attitudes of such governing bodies can dictate the policies which rule our professional lives. In the light of such uncertainties, that curators, conservators, educators, designers, etc. manage to provide the quality of service they do is a continual source of amazement and encouragement to me.

David assumed that certain principles which curators know underpin our profession were universally accepted. That he was wrong seems to have triggered the complex line of events which culminated in his death. In addition to the indelible mark which he left on the Sedgwick Museum, perhaps his memory should remind us that the battle for recognition will never be won while the UK museums sector remains so fragmented, when the curatorial imperative will always be vulnerable to vested interests. Occasionally the personal stresses that result become too great. David Price's death may well have been a tragedy which spotlights the shortcomings of an entire system.

23 April 1994

Peter R. Crowther

*Geological Curator*, Vol. 5, No.8, 1994, pp.303-310

# JOHN WATSON AND THE CAMBRIDGE BUILDING STONE COLLECTION

**by Katherine J. Andrew**

## Introduction

The John Watson Building Stone Collection occupies what was originally the Museum of Economic Geology on the ground floor of the Sedgwick Museum building and is now the common room of the Department of Earth Sciences, University of Cambridge. Watson published a series of three catalogues for the collection (Watson 1911, 1916, 1922) but very little additional information was known about the collection or how the collection came to be formed.

## John Watson the man

### Family details

John Watson was born in 1842 in the north of England (Marr 1918). He was married and had at least one son, Hugh, and a daughter, Kate Burnup (Anon. 1918a).

Hugh Watson was born on 1 June 1885 in Newcastle-upon-Tyne; he went up to Trinity College Cambridge and matriculated in 1907, giving his address in the admissions book as Bracondale, The Avenue, Cambridge. Hugh graduated in the Natural Science Tripos, Part I, in 1910 with a first class degree and became MA in 1914 (pers. comm. Archivist, Trinity College). He continued to live at Bracondale with his mother until after her death in 1926, but the house was listed as empty in the *Cambridge Directory* of 1928. Hugh died on 21 January 1959 (Archives, Cambridge University Library).

### Career

Watson worked in the cement manufacturing industry. He was employed at the Gateshead Portland Cement Works of Isaac C. Johnson where he reached the position of Managing Director. These works had originally belonged to Joseph Aspdin, who patented the first recipe for Portland Cement. Prior to taking over the works in 1890, Johnson had been Manager of White's Cement Works where he had been charged with discovering the recipe for Portland Cement. The recipe patented by Aspdin in 1842 is very vague and the temperature required for calcining the mixture is not specified. The cement produced by Aspdin was of variable quality: one terrace of houses with artificial stone cornices and chimney stacks made of his Portland Cement collapsed (Watson 1922). This naturally led to a loss of confidence in the new cement by architects. After numerous analyses and unsuccessful attempts at manufacture, Johnson eventually discovered the correct constituents and temperature of calcination to produce a reliable hydraulic cement that became the colour of Portland Stone on drying (i.e. Portland Cement).

When Johnson severed his connections with White's and took over the Gateshead works in 1890, he also estabished a cement works on the banks of the Thames.

Clearly Watson worked in the industry during the period when Portland Cement gradually became the

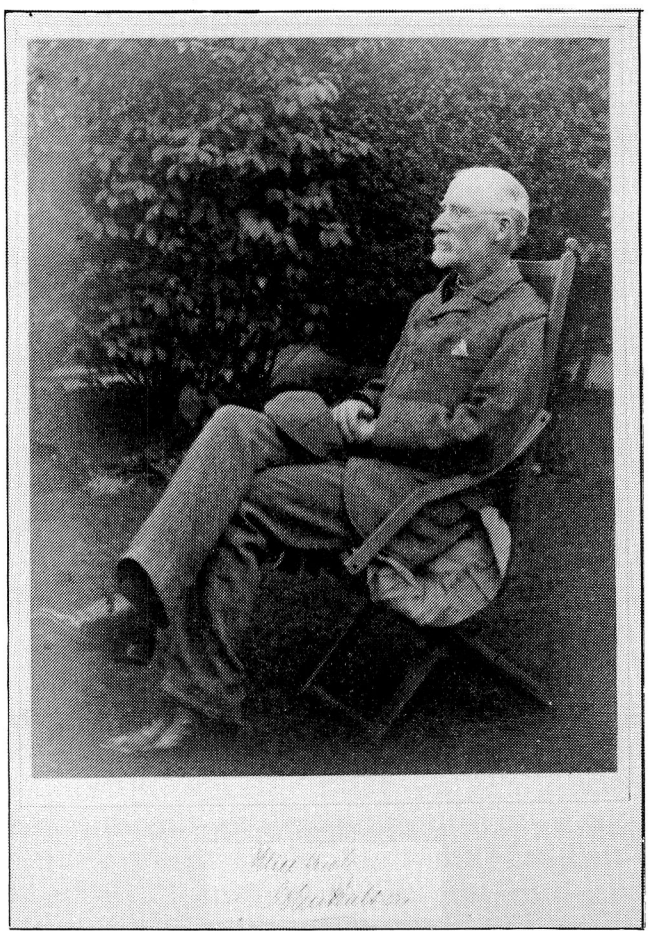

Fig.1. This photograph of John Watson, with his signature, hangs at the foot of the stairs leading out of the ground floor Museum of Economic Geology, Department of Earth Sciences, University of Cambridge.

dominant cement used by the construction industry for everything from mortar to reinforced concrete, paving stones, fence posts and asbestos tiles. Isaac Johnson died in 1911, aged one hundred (pers. comm. Mr K. Court).

### Cambridge and retirement

John Watson is first mentioned as a benefactor to the Sedgwick Museum in the Woodwardian Professor's Annual Report for 1905-1906, and again in 1906-1907. From the 1907-1908 Report onwards he is credited not only with donating specimens to the Museum but also for arranging and cataloguing them. Watson worked at a desk in the Museum of Economic Geology (pers. comm. Dr C. L. Forbes). He must therefore have visited the Museum regularly for at least three years before finally moving to Cambridge in 1909 (*Cambridge Directory* 1909). These dates would fit in with his pattern of donations to the museum and finally to his becoming what would now be called a museum volunteer. He appears to have planned to retire to Cambridge, but for some reason his wife moved into their house two years ahead of him in 1907; this may have been linked to Hugh's matriculation to Cambridge University that year.

The Watsons' move to Cambridge might have been influenced by one other factor. In 1902, the Saxon Cement Works was established at Barrington, near Cambridge, followed in 1904 by the Norman Cement Works at Cherry Hinton, Cambridge (both by A. C. Davis who later became Lord Mayor of London). In 1911, both works joined the British Portland Cement Manufacturers' Association (pers. comm. Mr K. Court) and Watson may have been involved in consultancy work for these new plants.

John Watson was awarded an honorary MA in 1912 for his work in economic geology. He was elected a Fellow of the Geological Society on 24 January 1917; his proposers included the past and present Woodwardian Professors, Thomas McKenny Hughes and John E. Marr.

John Watson died on 3 July 1918 after falling from a low ladder whilst trimming a fig tree in his garden. The *Cambridge University Reporter* and *University Journal* of 10 July 1918 carried a report of the inquest into his death which attributed the cause of death to shock and haemorrhage. He was seventy-five years old, in generally good health (Anon. 1918*b*) and had obviously planned further expansion of the collection at the time of his death. No correspondence and only one manuscript (additions and corrections for a second edition of Watson 1911) survived him.

### Growth of the collection

The Annual Reports of the Woodwardian Professor mention John Watson and his work on building stones every year from 1905-1906 until 1918-1919, with the exception of 1915-1916 (*Cambridge University Reporter* 1906-1919). The final Report records his death and notes that 'Mr Watson's devoted services resulted in the collection of a unique series of building materials.'

The 1905-1906 Report records the gift by Watson of a collection of more than 300 British and foreign building stones, and a series of specimens illustrating the manufacture of cements and plasters from their raw materials. This material must have been collected by Watson before he retired from the cement manufacturing industry; the Portland Cement samples were later listed in his catalogue as being given by his ex-employer, I. C. Johnson & Co. Ltd of London and Gateshead (Watson 1922). Watson continued to give specimens of building stones to the Sedgwick Museum 'bought or obtained by him from every continent' and Professor McKenny Hughes regarded the collection as one of the 'best and most practically useful in the world' (Annual Report 1906-1907).

By 1907-1908, Watson had turned his attention to slates and marbles, adding other examples of decorative stones in 1908-1909. The first mention of a catalogue in preparation also appears in the 1908-1909 Annual Report. In 1911, his building stone collection was officially given to the Sedgwick Museum and the first of Watson's catalogues, *British and foreign building stones: a descriptive catalogue of the specimens in the Sedgwick Museum, Cambridge* was published (Watson 1911). The catalogue lists 1,126 specimens and demonstrates that between 1905-1906 and 1911 Watson amassed more than 800 additional building stone specimens and many slates, marbles and ornamental stones; he also compiled the catalogue, carried out the necessary research for the text, labelled the specimens, and arranged them in the Museum of Economic Geology, displacing much of the existing collection to storage. As the collection became more widely known, it was made use of increasingly by builders and architects (Annual Report 1910-1911).

By 1912 nearly 300 marbles and decorative stones had been added, together with a further 55 building stones (including a complete set from the Philippine Islands). The 1911-1912 Annual Report also mentioned that a catalogue of marbles and ornamental stones was in preparation, that oak wall cases had been specially designed to accommodate the marble collection, and

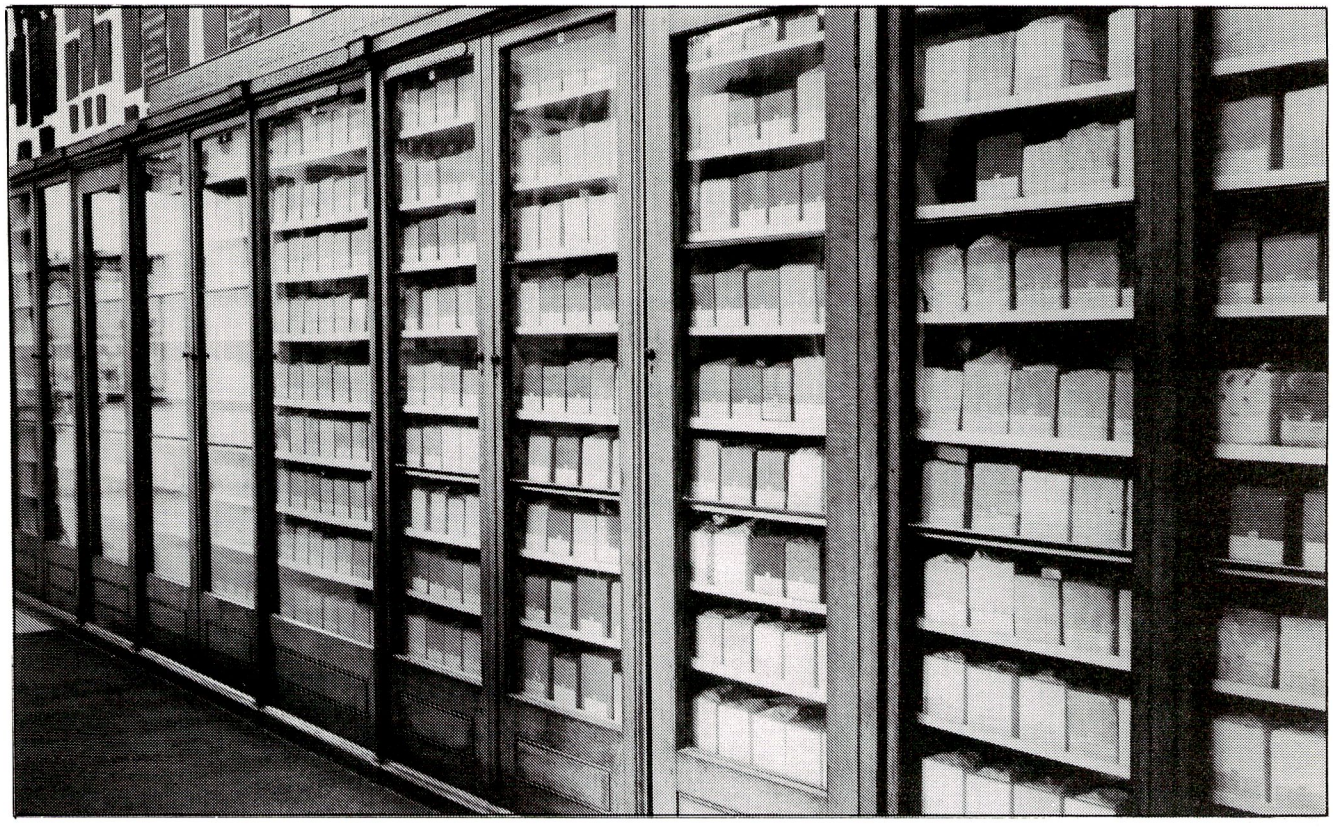

Fig.2. Oak wall cases housing part of the Building Stones Collection, Museum of Economic Geology.

that larger specimens were displayed in oak panels mounted above or alongside the cases. The marbles remain on display today in these oak wall cases and panels, while presumably the main building stone collection had already been housed in the tall oak wall cases that they still occupy (Fig.2).

The promised catalogue duly appeared in 1916, under the title *British and foreign marbles and other ornamental stones: a descriptive catalogue of the specimens in the Sedgwick Museum, Cambridge* (Watson 1916). It lists 808 specimens and again represents a considerable achievement in collecting a further 500 specimens since the 1911-1912 Annual Report. In addition to this second catalogue, Watson had been working on a second edition of *Building stones*, the MS 'Prefatory Note' of which is dated 1916. Never published, this revision incorporates a further 106 specimens from Madras, India, and contains new paragraphs for insertion throughout the text of the first edition (Watson 1911).

McKenny Hughes died in June 1917 and was succeeded as Woodwardian Professor by John E. Marr. Watson continued to work at the Museum, enlarging the collection, adding further examples of roofing slates and expanding the collection of cements and concretes, the core of which he had given to the museum with his original donation (Annual Report 1905-1906). 1917 also brought Watson his Fellowship of the Geological Society of London.

Prior to his death in 1918, Watson had completed the manuscript of his *Cements and artificial stone: a descriptive catalogue of the specimens in the Sedgwick Museum, Cambridge*; the author's preface is dated 1918 but the catalogue was not published until 1922. It lists 136 specimens and also contains a section of 'Historical Notes', including a knowledgeable description of the emergence of Portland Cement written almost entirely without reference to other authors.

The John Watson Collection also contains examples of flagstones and rock used to make roadstone; these are not catalogued, although some of the specimens are numbered. It may have been Watson's intention to enlarge this part of the collection and publish a descriptive catalogue of flagstones, roofing slates and roadstones. Certainly other projects were underway at the time of his death: not only was there the second edition of *Building stones* in manuscript, but also further corrections and additions of specimens and text in Watson's handwriting occur in one copy of *Building stones* (bound with alternate printed and blank pages) held by the Sedgwick Museum.

The Sedgwick Museum also holds other annotated copies of Watson's published catalogues. One copy of *Building stones* is annotated in Alfred Harker's handwriting. Another copy has a few corrections to the text in a neat hand, possibly that of Marr or McKenny Hughes. Two of the 25 additions made to the building stone collection by Dr Colin L. Forbes (a Curator of


Fig.3. Interior of a wall case showing typical labelling and shape of samples in the Building Stones Collection.

the Sedgwick Museum, 1956-1986) are also recorded in the copy annotated previously by Watson; Dr Forbes made a full list of his additions in the back of an index of British quarries (pers. comm. Dr C. L. Forbes), but this book now seems to be lost.

## Arrangement, labelling and cataloguing

### Building Stones Collection

Watson (1911) listed 1,126 specimens, arranged in two groups: 1, British building stones; and 2, foreign building stones. Within these groups, igneous and sedimentary rocks were separated, and the sedimentary rocks (including slates and tuffs) were arranged stratigraphically. There are occasional gaps in the numbering sequence. The catalogued specimens were described by Watson in his Introduction as 'chiefly in the form of 4 inch cubes, the sides of which are dressed in the usual style adopted for the purpose for which the stone is generally used in the region from which the specimen comes. One face of the cube is polished, when it admits of this treatment, and another side is usually left rough, in order that the grain and texture of the rock may clearly be seen.' Some specimens also have a rusticated surface.

Watson (1911) also described his method of labelling (Fig.3): 'A label is affixed to the front of each specimen bearing the following particulars :- 1. The name by which the stone is best known in commerce. 2. The stratigraphical position of the stone, or in the case of an igneous rock, its petrological designation. (These were determined by Mr A. Harker, F.R.S.) 3. The name and address of the donor of the example.' The absence of any donor information indicated that the specimen had originated from Watson himself. The labels on the additional specimens added by Forbes follow the same pattern but, unlike Watson, he did not normally annotate the catalogue to include his additions.

The *Building stones* catalogue contains further details of each rock's chemical composition, its weight and occasionally the crushing strain. Watson's Introduction and detailed descriptions give information about the seasoning of stone before use, the ability of stone to withstand polluted atmospheres, and examples of where the stone has been used in buildings throughout Britain (not always successfully since seasoning, bedding alignment, poor weathering, etc. were often not taken into account).

### Marble and Ornamental Stones Collection

Watson listed 808 specimens in *Marbles and other ornamental stones* (Watson 1916). Unlike the Buildings Stones Collection, these specimens were arranged in geographical order since, in Watson's view, 'where the rock has been so highly metamorphosed that all traces of organisms have been destroyed, its age is not known with certainty'. Watson's definition of 'marble' is rather unclear; he seems to have used the geological definition of 'a crystalline granular aggregate of calcite' and to have included other stone known commercially as marble within the decorative stone category.

The specimens are mostly polished slabs, either 4 inches square or 18 x 12 inches; the larger specimens (indicated in the catalogue by an asterisk) are mounted in wooden panels and hung on the wall. The catalogue does not contain a description of the labelling scheme, but they are similar in content to those of the Building Stones Collection. Watson (1916) included a detailed entry about the history and use of each specimen, unlike his *Building stones* catalogue, in which the catalogue listing and descriptions are separated.

### Cements and Artificial Stones

Watson listed only 136 specimens in *Cements and artificial stones* (Watson 1922). He adopted the same layout as in *Marbles and other ornamental stones* (Watson 1916), with details of history and use appearing within the catalogue. The section on Portland Cement is by far the longest. The examples are not arranged stratigraphically or geographically, since 'end product' is the relevant part of the classification. No mention is made of the form of the specimens, but they were presumably displayed in glass-topped boxes (like the roadstones). The labelling probably followed the same pattern as the Building Stones and Marble Collections. The entire Cement and Artifical Stone Collection has been lost.

## Current state of the Collections

In 1989 the author made a check of the first part of the Building Stones Collection, housed in the tall oak wall cases (Fig.2); the first 100 catalogued specimens were examined. During the installation of a new piece of equipment in the Department of Earth Sciences, the smaller cases (currently arranged as a low partition) were temporarily emptied and dismantled. This provided an ideal opportunity to check their contents: Building Stones of Jurassic age and younger (Nos. 892E onwards), and Nos. 529 onwards of the Marble and Ornamental Stones Collection.

The late Dr David Price (Curator) made an unpublished detailed analysis of additions, missing specimens and annotated changes to the catalogue. Tables 1-3 detail the numbers of specimens within the parts of the collection that were checked by the author.

Table 1. Specimens in the Building Stones Collection, giving numbers published by Watson (1911) and subsequent additions, as recorded in annotated copies.

| *Cat. No.* | *Category* | *Published* | *Additions* |
|---|---|---|---|
| *British* | | | |
| 1-71 | igneous plutonic | 71 | 16 |
| 72-76 | igneous volcanic | 5 | 2 |
| 77-79 | metamorphic | 3 | 1 |
| 80-419 | sedimentary | 340 | 62 |
| | Totals | 419 | 81 |
| *Colonial and foreign* | | | |
| 425-631 B | igneous plutonic | 208 | 32 |
| 632-708 | igneous volcanic | 77 | 17 |
| 709-719 | metamorphic | 11 | 3 |
| 720-1126 | sedimentary | 407 | 148 |
| | Totals | 703 | 200 |

*Notes.* 25 additions catalogued by Forbes bring final Cat. No. used to 1151. All specimens listed by Watson (1911) are still present, although three of Watson's annotated additions were found to be missing at the time of the author's inventory of Nos.1-100. 54 additional uncatalogued specimens were discovered during the inventory of Nos.1-100 and 892-1126.

### The Building Stones Collection

The first 100 building stones are located in the tall oak wall cases designed for them and are presumably still where Watson placed them. They were very dirty but nevertheless in good condition, and none were missing. A further 22 specimens had been added in manuscript to this section of the printed catalogue by Watson, three of which were missing. Another twelve specimens of rock and three of slate powder had been added to the Collection at a later date by Forbes, but these do not appear in the annotated catalogue.

Many specimens had been chipped, and some were associated with small piles of chippings. It had been the practice during Forbes' time as Curator for assistant staff to make thin sections from the Building Stones Collection, when work permitted. In addition to the catalogued material, there were 45 duplicates, slates and other miscellaneous pieces in the cabinets. Eleven of these were found in the bottom of the cabinets and were not associated with catalogued material.

With the first section of the Building Stones (British granites) was an uncatalogued collection from various Aberdeen granite quarries, labelled as having been presented by A. Milne in 1889. Presumably these formed part of the original Economic Geology Collection which Watson's collection had displaced by 1911.

Building stones of Jurassic age and younger comprised the final 237 specimens in the catalogue (from No. 892E); they were much cleaner than the first 100 specimens in the large upright cases. There were six duplicate and additional specimens and three specimens added by Dr Forbes, none of which appear in the annotated catalogue; no specimens were missing.

### Marble and Ornamental Stones Collection

Since no annotated copy of the marble catalogue exists, in the sequence following No. 529 it was difficult to determine which specimens were Watson's additions to the collection and which were Forbes'. Forbes simply used the next available number in the sequence (in the case of the Building Stones Collection), whereas Watson tended to add specimens at theappropriate places in the sequence and annotate the numbers with A, B, C, etc. The highest additional number used by Forbes was 821 (allocated to a variety of Purbeck marble added to the collection in 1969).

14 specimens bore Watson's suffixes and 12 were labelled but un-numbered (two from the Cookson Collection of 1903 and one from the Spencer George Percival collection of 1921). Nothing was missing from this part of the collection, but the specimens were not all in numerical order as a result of frequent moves. Locating certain specimens proved difficult. The jade had been removed from the sequence and now forms part of the display of minerals in the Whewell Gallery, opened at one end of the main museum in 1988.

### Cements and Artificial Stones

The collection of cements and artificial stones no longer exists. In the front of one copy of Watson's (1922) catalogue, a handwritten note dated 1948 describes the collection as 'somewhat reduced'. The entire collection has since disappeared.

### Thin section collection

Forbes established a microslide cabinet in the Sedgwick Museum, with space allocated for thin sections of the entire Building Stones and Marble and Ornamental

Table 2. Specimens in the Marbles and Ornamental Stones Collection, giving numbers published by Watson (1916).

| *Cat.No.* | *Category* | *Published* |
|---|---|---|
| *British* | | |
| 1-104 | | 104 |
| *Foreign* | | |
| 105-808 | | 704 |
| | Total | 808 |

*Notes.* 13 additions catalogued by Forbes bring final Cat. No. used to 821. A further 15 uncatalogued specimens were found with Cat. Nos. 529-808.

Table 3. Specimens originally in the Cements and Artificial Stones Collection, giving numbers published by Watson (1922). All are now lost.

| *Cat. No.* | *Category* | *Published* |
|---|---|---|
| 1-93 | Portland Cement and products | 93 |
| 94-136 | other cements and plasters | 43 |
| | Total | 136 |

Stones Collections. The first 190 building stones are represented by thin sections with only five gaps. The rest of the collection is represented by occasional thin sections, probably cut as a result of researchers expressing interest in particular specimens. Most of Forbes' additions to the collection are represented by thin sections.

Thin sections of many of the igneous and metamorphic building stones occur within the Harker Petrology Collection (originally the responsibility of the Depart ment of Mineralogy and Petrology, prior to its amalgamation as part of the new Department of Earth Sciences in 1980). Alfred Harker, who built up the collection, was Professor McKenny Hughes' assistant and later a Reader in Petrology. One copy of the *Building Stones* catalogue is annotated with Harker Petrology Collection catalogue numbers for the thin sections, but there is no catalogue of the thin sections in the Sedgwick Museum.

### Other material

A collection of 33 sets of roofing slates (totalling 221 specimens) and 20 flagstones are hung on the walls of the Museum of Economic Geology, above the tall oak wall cabinets (Fig.4). One short bank of cabinets houses a collection of 151 examples of roadstone and other miscellaneous material. An undated framed photograph of John Watson hangs by the stairs (Fig.1).

## Summary

The Building Stones Collection up to No.100 contains over half as much material again as listed in the *Catalogue* (Watson 1911), stored behind the catalogued material and in the bottom part of the large cases. There is little additional space in the smaller cases, so the Building Stones Collection from No.827E onwards and the Marble and Ornamental Stones Collection from No.529 onwards have far less duplicate and additional material. Additions made by Forbes (using the next available number) are present within both collections: the highest Marble number is 821, indicating 13 additions; the highest Building Stone number is 1151, indicating 25 additions.

Additional marbles are stored in the large display cases under the Building Stones Collection. These were received presumably as a result of Watson's request for further specimens (Watson 1916) but were never processed. Many of the larger mounted marble slabs were labelled by Watson but do not bear numbers and are not listed in the *Catalogue*.

In the future, a full catalogue of the collection should be prepared, using the Sedgwick Museum's computerised cataloguing system, to include the slates, flagstones, roadstones and thin sections, and to incorpo-

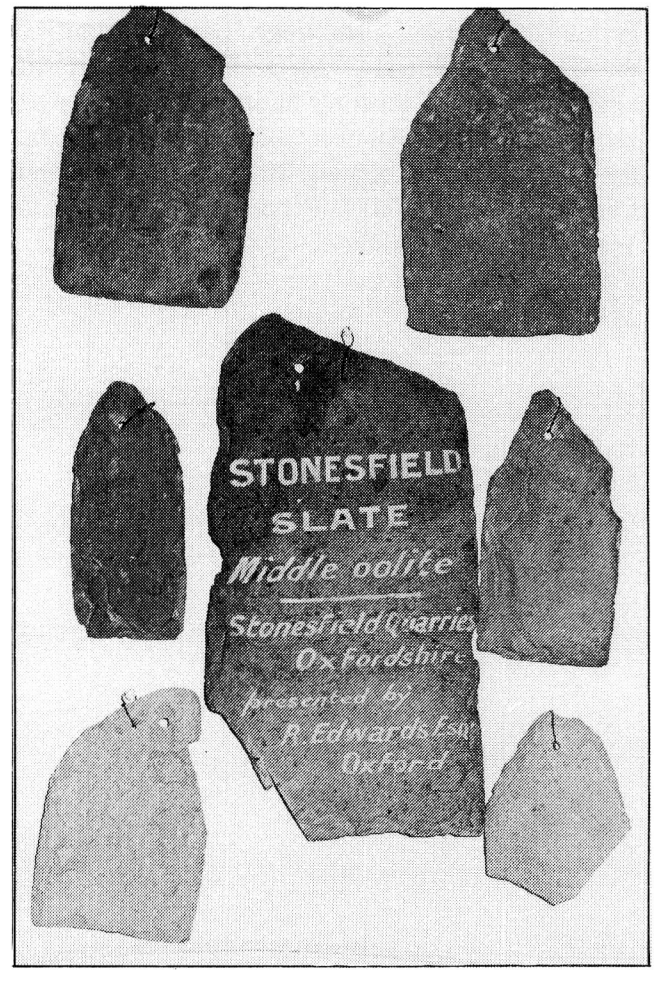


Fig.4. Set of slates illustrating Stonesfield Slate. Such sets are hung above the wall cases housing the Building Stones Collection; further examples can be glimpsed in Fig.2.

rate all the later additions and amendments to the collection and the published catalogues. When Watson made additions to the collection, the published number for an existing specimen was sometimes changed to incorporate the addition in the appropriate place. Such changes were recorded only in the annotated copy of the *Building Stones* catalogue. A second edition of the catalogue should be a longer term aim, thereby making the collection better known and accessible to interested parties.

## Sources and acknowledgements

Information about John Watson's life came from several published obituaries (listed below), copies of the *Cambridge Directory* for the years 1905-1928, the Annual Reports of the Woodwardian Professor in the *Cambridge University Reporter* for 1904-1922, and from his own catalogues (Watson 1911, 1916, 1922).

I thank the staff of Cambridge County Archives Department, Cambridge University Library's Archive Department, the Cambridge Collection of Cambridge Library, Trinity College Library, the Scientific Periodicals Library, Cambridge, and the Library of the Geological Society. Mr K. Court and his wife kindly assisted in locating information, particularly about the development of the Portland Cement industry (Mr Court is a former Director of Blue Circle Cement). Miss Sylvia Humphrey checked part of the Watson Collection at the Sedgwick Museum.

The late Dr David Price (Curator, Sedgwick Museum) prompted me to carry out this research and I would like to dedicate this paper to his memory.

## References

ANON. 1918*a*. Fatal fall from ladder [report of inquest]. *Cambridge Chronical and University Journal*, 10 July 1918.

_____1918*b*. In Memoriam. *Cambridgeshire Weekly News and Express*, 12 July 1918.

_____1919. Obituary of John Watson. *Min. Mag.* **18**, 400.

_____1920. Obituary of John Watson. *Proc. geol. Soc. Lond.* **75**, xxii.

MARR, J. E. 1918. Obituary of John Watson. *Geol. Mag.* **55**, 383-384.

WATSON, J. 1911. *British and foreign building stones: a descriptive catalogue of the specimens in the Sedgwick Museum, Cambridge.* Cambridge University Press, Cambridge, viii + 483pp.

_____ 1916. *British and foreign marbles and other ornamental stones: a descriptive catalogue of the specimens in the Sedgwick Museum, Cambridge.* Cambridge University Press, Cambridge, x + 485pp.

_____ 1922. *Cements and artificial stone: a descriptive catalogue of the specimens in the Sedgwick Museum, Cambridge.* Cambridge University Press, Cambridge, xii + 131pp.

Katherine J. Andrew
c/oThe Conservation Department
Birmingham Museum and Art Gallery
Chamberlain Square
Birmingham B3 3DH

Typescript received 23 February 1990
Revised typescript received 8 February 1991

*Geological Curator*, Vol. 5, No.8, 1994, pp.311-317

# PERPETUAL EXCITEMENT

## THE HEROIC AGE OF BRITISH GEOLOGY

**by Jack Morrell**

## Introduction

This paper is derived from a talk delivered to the annual meeting of the Geological Curators' Group held in the Yorkshire Museum, York, on 6 December 1990. That meeting attempted to examine why geology had lost ground to archaeology in the popular imagination and how museum geologists might help geology to re-capture the initiative. I was invited to review briefly the heroic age of British geology and the nature of curatorship at that time to see what could be learned from the past which might interest curators trying now to promote geology against the competing attractions of archaeology. The talk was accordingly divided into two parts. Firstly, it tried to analyse the attractions of geology in Britain in the so-called 'Heroic Age' which was adorned by such brethren of the hammer as William Smith, Greenough, Buckland, Sedgwick, Murchison, Lyell and Darwin. Secondly, given the location of the meeting, it seemed worthwhile to look at the aims of curatorship pursued by one of those heroic geologists, John Phillips, Keeper of the Yorkshire Museum from 1826 to 1840 and its leading spirit until 1853 when he left York for Oxford. Parts of the talk leaned on my current research towards a biography of Phillips and on my recent analysis of his geological work in the 1820s (Morrell 1989).

## The golden age: individuals and societies

The golden age was one of heroic individuals, some of whom relished appropriating parts of the stratigraphical column for themselves. Fitton worked on the Greensand and Sedgwick was an expert on the Cambrian. Not content with a classic account of the Jurassic, as it was later known, Phillips extended his range to include the Carboniferous strata (Phillips 1829, 1836). The leading stratigrapher was Murchison, a gentleman geologist who brought his previous experience as a soldier to his triumphant geological campaigning in the Silurian, Devonian, and Permian systems and then went on in the 1850s to reconstruct the geology of northern Scotland in such a way as to make a substantial addition to his Silurian kingdom (Rudwick 1985; Secord 1982, 1986; Oldroyd 1990). If the main thrust of British heroic geology was stratigraphical, it had its theoretical codifier in Lyell whose famous *Principles of geology* (1830-1833), echoing Newton's *Principia mathematica philosophiae naturalis*, revealed his ambition to be the dominant theoretician of geology. Again in the early 1830s William Smith was finally canonised as the father of English geology in belated acknowledgement of his being the first in England who conceived, proved, and taught that fossils marked epochs in the deposition of strata so that they could be used to distinguish different rocks and to identify the same rocks in different localities. And, of course, there were spectacular discoveries of fossils, such as the fossil crocodiles found in the 1820s on the Yorkshire coast at Whitby.

The golden age was not just a matter of heroic individuals and spectacular discoveries because the widespread interest in geology was revealed in its institutionalisation. That process began in 1807 with the foundation of the Geological Society of London, the first national geological society to be established in Europe. It was followed, especially in the 1830s, by provincial geological societies, first of all in traditional mining areas with the Royal Geological Society of Cornwall (f.1814) and the Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne (f.1829), and then in the Celtic capitals with the Dublin Geological Society (f.1831) and that of Edinburgh (f.1834); these were followed in industrial areas by the Geological and Polytechnic Society of the West Riding of Yorkshire (f.1837) and the Manchester Geological Society (f.1838) (Morrell 1983). It should not be forgotten that a few of the provincial general scientific societies, usually known as the 'lit. and phils', had strong geological interests. The best-known society of this kind was the Yorkshire Philosophical Society, founded in 1822 in York, which took advantage of local pride and opportunity by devoting itself mainly to the geology of the county of Yorkshire and the antiquities of the City of York (Orange 1973). Why, then, was geology so popular, especially in the 1820s, 1830s and 1840s, and in what ways was it then more alluring than archaeology? The study of antiquities was quite capable on occasion of raising powerful excitement amongst the general public. In 1829 the Reverend Charles Wellbeloved, the Curator of Antiquities to the Yorkshire Philosophical Society, reported that the excavations of St Mary's


Fig. 1. The Yorkshire Museum, with part of the ruins of St. Mary's Abbey, York. From Allen's (1831) *History of the County of York*, Vol.2, p.382.

Abbey, York, brought to light every hour 'some long-buried beautiful specimens of the art and fancy of the monastic sculptor - some memorial of departed splendour, to gratify the eye, to exercise the imagination, to send back the thoughts to times, and persons, and manners long past' (Wellbeloved 1829, p.9).

## The uses of travel

The first attraction of geology compared with antiquities was that it gave extra enjoyment to travelling. Indeed travel was essential for geologists. Lyell gave just three pieces of advice to the geological tyro: travel, travel, and travel (Lyell 1830, pp.56-57). For the geologist travel was not just a means of reaching a desired site; while travelling one could examine the terrain being traversed, such an examination being a continuous operation. In the golden age travel by foot and on horse-back were the preferred modes, the former giving ample opportunities for muscular athleticism, for walking 30 or 40 miles a day, for the manly romance of fieldwork and for satisfying dusty tiredness after a long day's mapping, hammering and collecting. Travel often meant journeys to elevated and elevating scenery where grandeur, sublimity and awe added *frisson* to field work; geology offered romantic wanderings on cliff and mountain and sometimes in wilderness. For a privileged few travel was not confined to Britain: witness Darwin in the Andes of South America and Murchison in the Urals of Russia. In contrast archaeology often focused on sites in towns as well as on those found on heaths or wolds; and it involved back-breaking digging, scraping and lifting in one locality, whether done by the antiquarians themselves or by hired labourers.

## Flexibility of scale

Geology also offered flexibility of scale for surveyors, collectors and mappers as they studied the natural remains of pre-Adamite history, leaving the study of post-Adamite human artefacts to the archaeologists. The leaders of British stratigraphical geology often dealt with a big area: for instance, in his first book Phillips coped with 90 miles of Yorkshire coast and its hinterland. As so often happened, a representative feature of British geology then was enlarged by Murchison who had the wealth and leisure to operate on a grand scale. After his first visit to Russia in 1840, Murchison told Sedgwick: 'nothing short of continental masses will now suit my palate' (Geikie 1875, vol. 1, p.303). Yet local experts could still make an important contribution to the geological enterprise from their knowledge of local quarries, cliffs, mines,

and (from the 1830s) railway cuttings. They could participate by collecting local rock specimens and fossils and calling attention to good sections; if they were in touch with a local society, they could provide specimens for it; or local experts could be consulted by the leading metropolitan men. For example, the fossil collectors at Scarborough and Whitby sent fossils in the 1820s to the Yorkshire Museum where they were invaluable for Phillips' work on the geology of the whole Yorkshire coast. Even more importantly, the Reverend T.T. Lewis of Aymestrey, Shropshire, was the leader of a group of local men in Shropshire and Herefordshire who helped Murchison to establish and publish the Silurian system. Lewis was not just a humble collector of fossils: he did pioneering stratigraphic work in his locality and, using fossils, worked out the succession of rocks below the Old Red Sandstone (Thackray 1977). Geology offered therefore various sizes of terrain to be studied. The patricians undertook large areas, while the plebians worked on small ones; but all participated at different levels and with different skills, in a geological version of Bacon's utopian vision of Salomon's House in his *New Atlantis*. In contrast, archaeologists dealt not with terrains of variable sizes but with specific small sites.

## Economic benefits

Archaeology offered no equivalent to the promise of economic benefit to be derived from geology. It was widely assumed that geology had great practical and commercial importance, especially among the aristocracy and the upper gentry who could parade 'both a lofty, dignified brow and commendable horny-handedness' (Allen 1976, p.59). At a time when Britain was becoming the workshop of the world, partly based on the exploitation of coal and iron ore, geology offered the prospect of nationalistic economic advantage as mines became deeper and existing veins became exhausted. Many geologists suspected or denigrated the rule of thumb methods, involving nothing more than oral traditions, which they alleged were pervasive in the secretive mining industry. At the most, such geologists claimed that the extension of old workings and the discovery of new seams or veins needed methods of prediction based on geological knowledge and techniques; at the least, they claimed that in a given area it was quite futile to hope to find certain minerals in commercially exploitable quantities. Thus Phillips averred in 1829 that there was no hope of discovering coal seams more than two feet thick in strata *above* the Upper Lias or Alum Shale in north eastern Yorkshire (Phillips 1829, p.182). In the late 1830s he told the Lancaster Mining Company that in the vicinity of Lancaster geology forbad boring for coal other than in the Poulton-Garstang area where there was some chance of discovering workable deposits. Phillips reasoned that because of an unconformity it was possible that there might be coal there *under* the red marl and sandstone, a conclusion at odds with the common yet delusive view of practical colliers whose lore was that marls and sandstones cut off coal and that good coal lies deeper (Phillips 1837, pp.11, 15, 18).

The economic motive to pursue or patronise geology grew stronger in the 1830s than it had been before. Economic geology, not polite geology, was the chief concern of a number of geological societies in the mining areas of north-eastern England, West Yorkshire and south-eastern Lancashire. The Geological Survey, officially recognised in 1835, started in a mining area, and its associated institutions such as the Museum of Economic Geology (founded 1835), the Mining Records Office (1839) and later the School of Mines (1851) all show that government was responsive to arguments about the practical utility of geology (Flett 1937; McCartney 1977). Whether geology delivered the economic goods *in actu* is beside the point if one is trying to understand the allure of geology. It is enough to recognise that the promise of economic gain, even if it often remained *in potentia*, was a powerful motive for participating in the geological enterprise, especially to aristocrats who also appreciated it as ornamental learning.

## Geology and religion

Geology was also a part of polite general culture for a reason which archaeology at that time did not possess: namely, its relation to religion - a topic which aroused widespread public interest. Though that topic was a complicated question, the broad context of the relation between geology and Christianity was provided by the peculiarly British propensity to continue to proclaim a holy alliance between science and religion for decades after Hume had demolished the philosophical basis of it (Brooke 1979, 1991). In the early nineteenth century one leading approach to maintaining that alliance was provided by the liberal Anglicans, who believed that God had written two books: the Bible, which revealed spiritual truths; and the book of nature, which was to be studied by scientists using their characteristic methods. Ultimately there could be no conflict between science and religion because both books were produced by a benevolent God who was often assumed to be the Christian one. Thus for liberal Anglicans any conflict between religion and science was caused by humankind's mental incapacity, and in any case would be merely temporary (Morrell and Thackray 1981, pp.224-245).

Natural theology was not merely a defensive enterprise: it provided regulative principles which helped the pursuit of science. For instance, the more one studied living creatures, present and past, the more evidence was accumulated for adaptation as part of God's harmonious design for His universe. Although natural theologians delighted in portraying the contrivances shown by living creatures, such as the woodpecker's bill and tongue, geologists were not backward in proclaiming that even creatures which had become extinct showed adaptation to their environment. So in 1832 Buckland revealed to the British Association for the Advancement of Science that the peculiarities of the *Megatherium* (a giant extinct sloth) were examples of contrivance which indicated the wisdom, goodness and care exercised by the Creator (Buckland 1833). Four years later in his *Bridgewater Treatise* Buckland argued that design was not confined to the present living world, nor had that world emerged from a less designed condition. Even the earliest known forms of life, such as the Silurian trilobites, showed that vital correlation of structure and function: witness their compound eyes and all-round vision (Buckland 1836, vol.1, pp.389-404; Rudwick 1976, pp. 202-203). Buckland was a representative liberal Anglican who wished to demarcate science from religion in a way which defended Christianity against scoffers and sceptics, which preserved the central religious truths of scripture and which left scientists free to research without constraint. The liberal Anglicans at one and the same time proclaimed that science and religion should be autonomous enterprises, yet they insisted that ultimately natural and revealed religion were congruent. For most of them the Bible was therefore not a scientific text to be read literally but, as the geologist Conybeare said, it was exclusively the history of the dealings of God towards men (Conybeare 1834).

This claim was denied by the scriptural geologists who enjoyed a vigorous phase in the 1830s. They believed that the Mosaic record irrefutably established the creation of the universe in six days, about six thousand years ago; and they claimed that there had been a deluge, recorded in the Old Testament, which had occurred after the Creation. Generally they based their beliefs on a literal reading of scripture and were suspicious of the view that the Earth was very old or eternal. For the scriptural geologists every verse of the Old Testament was inspired, so for them it was absurd to argue that a particular verse which alluded to natural phenomena was *not* inspired. They sensed the danger of assigning religion and science to separate spheres.

Extinction was a problematic issue because it highlighted questions about the nature of God's providence. It was possible to see extinction and the changing forms of past life as actualisations over time of a divine plan. This was the view held by the mature Phillips who believed in general that nature was the expression of a divine idea and, in particular, that the succession of life on Earth was the result of separate creation. By this term he meant a process by which God had provided for the appearance of new forms and new structures at definite times and in certain places, but that process could not be explained because it referred to an act of God which transcended all human thought and experience (Phillips 1860, pp. 3-5, 46, 213). Not everyone was happy with the notion that God's processes were inscrutable and unknowable. For some the contemplation of the facts of extinction led to melancholic agnosticism and resignation. The classic statement of the latter view is, of course, Tennyson's *In memoriam* where the poet, having contemplated the wastefulness of nature's fecundity, concluded that present-day nature was careless of the single life but careful of the type. But then, when he turned to geology, Tennyson had to accept that in the past the evidence from 'scarped cliff' and 'quarried stone' was that a thousand types had become extinct. His next move was to contemplate the prospects for humankind, the fate of whom was to:

> Be blown about the desert dust,
> Or seal'd within the iron hills.

In deep despair, Tennyson concluded that the answer to such questions lay behind the veil of nature (Tennyson 1850, sections 54-55). In contrast to Tennyson's agnosticism, the works of Hugh Miller remind us by their very titles that the positive religious meaning of geology had not become *passé*: witness such a title as *The testimony of the rocks* (Miller 1847). Thus geology provided some particularly controversial and difficult issues for the widespread early- and mid-Victorian debate about the relation between science and religion, a debate which was not merely confined to technical specialists but was part of the polite culture of the period.

## Archaeology and the politics of conservation

If British heroic geology was more exciting and alluring than archaeology in serving the four different interests just described, it was deficient in one respect which over the years was to become highly important. Though geologists were united as brethren of the hammer, their *esprit de corps* was not fortified by the pressure group politics, local and national, of conservation, i.e. fending off destructive building develop-

ments, recording data before and while new building took place, preserving an important site from spoliation, or recovering artefacts and remains for preservation in a public museum. I am not sure that geology in the heroic period offered the satisfactions of supporting such conservation lobbies which tapped a sense of local pride and responsibility. Geology could not offer the *frisson* of launching and maintaining archaeological rescue operations conducted in a desperate race against time. The long-term importance of archaeology as in part the politics of conservation is well shown in the case of York, the ancient northern capital, from the 1820s when the Yorkshire Philosophical Society excavated the ruins of St Mary's Abbey to the 1970s when the York Archaeological Trust began to investigate the Viking remains in Coppergate (Addyman 1981).

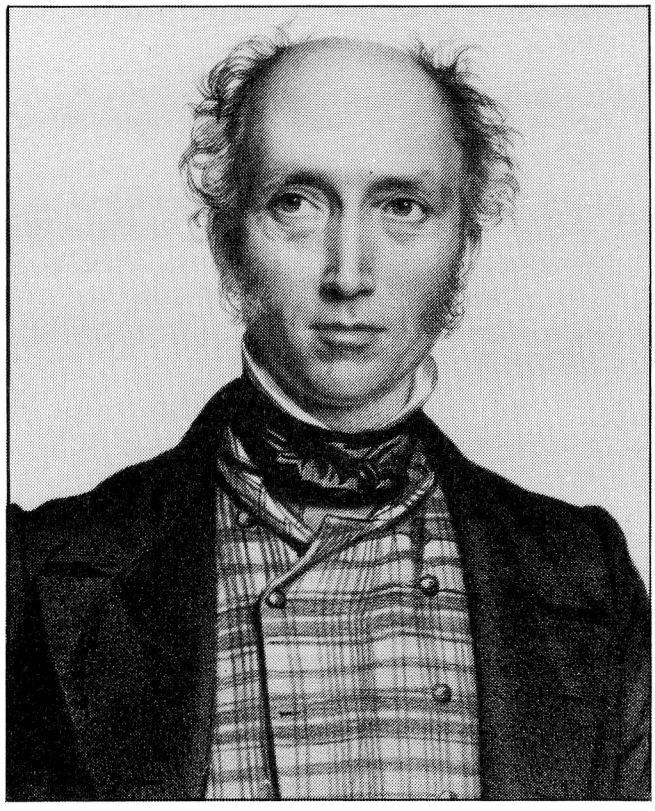

Fig.2. John Phillips (1800-1874) from an engraving by T.H. Maguire made in 1851 (copy in National Portrait Gallery, London).

## Geological curating in the heroic age

Many of the leading figures in the heroic age of British geology were either university academics, or they were gentlemen of science, free and unconfined, and sometimes of considerable or great wealth. But one leading geologist was left at an early age as a poor orphan who later had to earn a living from his love of geology. This was John Phillips, the nephew of William Smith. Though Phillips was at different times a professor of geology in three universities (King's College, London; Trinity College, Dublin; and Oxford), he also spent much of his career as a curator, with particular respect to geology, initially as the first Keeper of the Yorkshire Museum, York (1826-1840), and subsequently at Oxford as Keeper of the Ashmoleum Museum (1854-1870) and of the new University Museum (1857-1874). No other major figure in the heroic age of English geology had such long experience in curating. It is therefore a matter of considerable interest to know what activities were deemed by Phillips to be the proper functions of a geological curator, especially in his York period which began in 1823, three years before he became the official Keeper of the Museum.

Obviously he devoted much attention to soliciting and accepting donations of specimens, especially local ones, to the museum where he labelled, catalogued and ordered them in display cabinets not just for his own research but also to educate the public (Morrell and Thackray 1981, pp.439-444; Morrell 1989; Pyrah 1988). In his public lecturing in York, Yorkshire, and then in the 1830s further afield in Manchester, Bristol, Chester and London, he drew on his knowledge of local geology, derived in part from the specimens he curated. His early published papers, which were often given a preliminary hearing at a meeting of the Yorkshire Philosophical Society in the Yorkshire Museum, were not infrequently based on the collections under his care. He also saw curating as nurturing a centre of geological intelligence based partly on the collections and partly on his own expertise. Thus he entertained and talked fruitfully with such distinguished visitors to York as Murchison and Adolphe Brongniart. The former's work on Brora in Scotland was much indebted to Phillips who in 1826 in the Museum explained to Murchison the geology of the Yorkshire coast before Murchison went to Scotland. The previous year Brongniart visited the Museum where Phillips showed him some Whitby fossil plants which the Frenchman immediately and happily realised he had seen previously in Denmark.

Phillips saw curatorship as providing an opportunity for collaborative field research in the local area with local enthusiasts. A fine example was his work in 1826 with William Vernon Harcourt, then President of the Yorkshire Philosophical Society, on the strata below the chalk at Cave (on the south-western edge of the Yorkshire Wolds) which they showed was the connecting link between the oolitic Yorkshire coast and the main line of oolitic hills south of the river Humber. Indeed, Phillips' enthusiasm for collaborative research in the field did not wane. Though by the 1840s he was no longer an official curator in York, he

spent much time there in the later years of the decade and was active in field clubs which were less exclusive than philosophical societies and propertyless. It is significant that he promoted both the Yorkshire Naturalists' Club and the Yorkshire Antiquarian Club; for him there was no conflict between the 'nats' and the 'ants'. Though Phillips' own research speciality was regional stratigraphical geology using fossil labelling and censuses of fossils, he took a wide view of geology: as befitted a friend of the antiquary Charles Wellbeloved and the historian John Kenrick, he saw geology as verging on the study of the remains of previous human beings and their artefacts. At the other extreme he believed that the rational investigation of the history of the Earth included such aspects of terrestrial physics as the temperatures of mines and the earth's magnetism.

Finally, Phillips saw paid curatorship as above all a research post from which other functions followed. By research he meant published results, especially in monograph form. It was from his position of general Keeper and Curator of geology in York that he wrote his two classic works on the geology of Yorkshire (which in effect were treatises on the Jurassic and Carboniferous systems), just as later in his career when Keeper at Oxford he produced a major study of the geology of the Thames Valley (Phillips 1829, 1836, 1871). Of course, he promoted geology *qua* curator in a variety of ways which I have enumerated. He was particularly committed to the popularisation of geology via lectures, displays of specimens, textbooks and articles in encyclopaedias, but for him the central function of a curator was to make an enduring contribution via original publication to the advancement of geology, a science which both fed and delighted him.

## References


ADDYMAN, P. 1981. Archaeology in York, 1831-1981. Pp. 53-87. *In* Feinstein, C. (ed). *York 1831-1981: 150 years of scientific endeavour and social change*. Sessions, York.

ALLEN, D.E. 1976. *The naturalist in Britain*. Penguin Books, Harmondsworth.

BROOKE, J.H. 1979. The natural theology of the geologists: some theological strata. Pp. 39-64. *In* Jordanova, L.J. and Porter, R.S. (eds). *Images of the earth: essays in the history of the environmental sciences*. British Society for the History of Science, Chalfont St Giles.

_____ 1991. *Science and religion: some historical perspectives*. Cambridge University Press, Cambridge.

BUCKLAND, W. 1833. Lecture on the *Megatherium*, June 1832. *Rep.Br.Ass.Advmt Sci.*, Oxford 1832, 104-107.

_____ 1836. *Geology and mineralogy considered with reference to natural theology* (2 vols). Pickering, London.

CONYBEARE, W.D. 1834. Conybeare in reply to Layman on geology. *Christian Observer*, **34**, 306-309.

FLETT, J.S. 1937. *The first hundred years of the Geological Survey of Great Britain*. HMSO, London.

GEIKIE, A. 1875. *Life of Sir Roderick I. Murchison* (2 vols). Murray, London.

LYELL, C. 1830. *Principles of geology*, Vol.1. Murray, London.

McCARTNEY, P.J. 1977. *Henry De la Beche: observations on an observer*. National Museum of Wales, Cardiff.

MILLER, H. 1847. *The testimony of the rocks; or, geology in its bearings on the two theologies, natural and revealed*. Constable, Edinburgh.

MORRELL, J.B. 1983. Economic and ornamental geology: the Geological and Polytechnic Society of the West Riding of Yorkshire, 1837-53. Pp. 231-256. *In* Inkster, J. and Morrell, J.B. (eds). *Metropolis and province: science in British culture, 1780-1850*. Hutchinson, London.

_____ 1989. The legacy of William Smith: the case of John Phillips in the 1820s. *Arch nat. Hist.* **16**, 319-335.

_____ and Thackray, A.W. 1981. *Gentlemen of science: early years of the British Association for the Advancement of Science*. Clarendon Press, Oxford.

OLDROYD, D.R. 1990. *The Highlands controversy: constructing geological knowledge through fieldwork in nineteenth-century Britain*. University of Chicago Press, Chicago and London.

ORANGE, A.D. 1973. *Philosophers and provincials: the Yorkshire Philosophical Society from 1822 to 1844*. Yorkshire Philosophical Society, York.

PHILLIPS, J. 1829. *Illustrations of the geology of Yorkshire; or, a description of the strata and organic remains of the Yorkshire coast: accompanied by a geological map, sections, and plates of the fossil plants and animals*. Wilson, York.

_____ 1836. *Illustrations of the geology of Yorkshire; or a description of the strata and organic remains: accompanied by a geological map, sections, and diagrams, and figures of fossils. Part II. The Mountain Limestone district*. Murray, London.

_____ 1837. *A report on the probability of the occurrence of coal and other minerals in the vicinity of Lancaster. Addressed to the Lancaster Mining Company.* Lancaster.

_____ 1860. *Life on earth: its origin and succession.* MacMillan, Cambridge and London.

_____ 1871. *Geology of Oxford and the valley of the Thames.* Clarendon Press, Oxford.

PYRAH, B.J. 1988. *The history of the Yorkshire Museum and its geological collections.* Sessions, York.

RUDWICK, M.J.S. 1976. *The meaning of fossils: episodes in the history of palaeontology.* Science History Publications, New York.

_____ 1985. *The great Devonian controversy: the shaping of scientific knowledge among gentlemanly specialists.* University of Chicago Press, Chicago and London.

SECORD, J.A. 1982. King of Siluria: Roderick Murchison and the imperial theme in nineteenth-century British geology. *Vict. Stud.* **25**, 413-442.

_____ 1986. *Controversy in Victorian geology: the Cambrian-Silurian dispute.* Princeton University Press, Princeton.

THACKRAY, J.C. 1977. T.T. Lewis and Murchison's Silurian system. *Trans. Woolhope Nat. Fld Club,* **42**, 186-193.

WELLBELOVED, C. 1829. *Account of the ancient and present state of the Abbey of St Mary, York, and of the discoveries made in the recent excavations.* Society of Antiquaries, London.

Typescript received 20 June 1991
Revised typescript received 19 September 1991

Jack Morrell
Department of European Studies
University of Bradford
Bradford BD7 1DP

# BOOK REVIEWS

Benton, M. J. 1990. *The reign of the reptiles*. Kingfisher, London, 144 pp. ISBN 0-86272-640-9. Price £14.95.

A large, brightly coloured, highly illustrated book on reptiles of the past written by Mike Benton promises to be an enjoyable, fascinating and informative read. Indeed it was, though not at all what I had expected from a cursory glance at the cover.

The book is attractively produced, in full colour on fine paper, with an exciting jacket illustration. The type is clear and readable, well laid out and without any spelling mistakes in the text that I noticed. Almost every page has at least one colour photograph or diagram, the latter being specially drawn for the book. Altogether it is a pleasure to turn the pages and learn (or in my case, re-learn) all about reptiles of old.

The Introduction is curious, being a brief but informative history of discovery and research into fossil reptiles, but signed and dated by the author at the end, as if it were a Preface. This clever device suggests that the book really starts with Chapter 1, 'The Dawn of an Era'. Following a (swift!) introduction to the origin of the universe, life and everything, the reader is soon brought up to the first fishes, amphibians, and then, of course, the reptiles. The other four chapter headings are self-explanatory: 'The Reptiles Take Over', 'The Ruling Reptiles', 'Reptiles of the Air', and 'Reptiles of the Sea'. In addition to a general index, there is one giving Latin names, suggested pronunciations, English translations, and authors and dates of fossil amphibians and reptiles. Another index lists important museums around the world, together with their main holdings of fossil reptiles; though short, this is an informative compilation of major collections, from Argentina to Zimbabwe (but excluding commercial 'dinosaur shows').

So what did I expect? I suppose I thought this was a children's book. Perhaps too often we presume showy dinosaur books are designed with children in mind, and a fault of this one may be that it could be bought for a child who would find it difficult to read. The style and language level is that of a good textbook. A keen teenager would enjoy it, as would an undergraduate craving pretty pictures and slightly lighter reading than prescribed works.

It is not without faults, however. Many of the photographs (particularly those credited to Dr R. Wild) are excellent, but far too many are badly lit, out of focus, or with poor depth of field. These are not printer's faults but are due to poor originals. Contrast, for example, the crisp ichthyosaur (not an easy subject) across pp. 122-123 with the fuzzy *Archaeopteryx* on p. 104. Almost none of the photographs or diagrams has any scale on it, so the occasional intruding piece of human anatomy gives a mild shock when one realizes how small many of these animals really are. Similarly, there are few references to the pictures in the text, though most are relevant and not out of place. I can think of one or two more that should have been there: for example, it would be better to show a picture of an ammonite which had been attacked by a mosasaur rather than trying to describe it (p. 135).

There are three main kinds of diagrams. The skeletal drawings are clear, relevant, and confined to boxes giving background detail or special topics. The reconstructions are bright and colourful, but very stiff and cartoon-like, thus emphasizing the childish idea of extinct animals as unreal monsters. The third type of diagram is called a 'cladogram', which it is not. Chapter 1 includes the grand 'cladogram' and each chapter thereafter has the relevant portion of this in greater detail. These useful diagrams show the phylogeny of the reptiles on a background of the geological time scale. To call them cladograms is confusing since cladistics is not explained. A few of the diagrams are problematical: the geological time scale on pp.18-19 is good, but the exploded section ends at the late Cretaceous and not the Recent, as the legend suggests. I can see little point in showing the world distribution of rocks on p. 28, and on p. 29 the continental drift maps have an odd black line around the continents which is not explained. The 'cladogram' on p. 74 is useful apart from the poor labelling of bones on the key; the legend to the diagram on p. 49 makes no sense at all. An added bonus are the odd prints from nineteenth-century popular science books; the reconstructions seem comical now, but I wonder if twenty-first-century palaeontologists will be reprinting 1990 reconstructions to add humour and credibility to *their* popular works.

There are some minor irritations in the text. The seventh sentence tells us that 'the end of the reptiles came 65 million years ago' - surely an editing error for 'the end of *the age of* the reptiles'. At the other end of the book (p. 137), the reptiles apparently 'conquered every lifestyle on land, in the air, and in the sea' (including infaunal, sessile colonial, internal parasitic ...?). In general, the textual information is sound and up-to-date, although when the author turns (rarely) away from the vertebrates, to invertebrates and plants for example, it is obvious to me that he is on less familiar ground. I would have liked to have seen more detail in places: the origin of the mammals

is a straightforward story which could have been described more clearly, and with the aid of a simple diagram showing the relative increase in size of the dentary.

These are relatively minor complaints about a generally sound work. Provided it is not seen as a children's book, it is good value for the price, and covering not just dinosaurs but all extinct reptiles, it fills a niche both for the keen amateur scientist and as an alternative student text.

Paul Selden
Department of Geology
University of Manchester
Manchester M13 9PL

14 January 1991

---

Gould, S. J. 1991. [dated 1990]. *The individual in Darwin's world.* The Second Edinburgh Medal Address. Edinburgh University Press, Edinburgh. ISBN 0-7486-0227-5. Price £3.95.

There are many brilliant scientists in the world but relatively few are outstanding communicators. Without doubt Stephen Jay Gould ranks as one of the few and it was in recognition of his contribution to the understanding of evolutionary theory, and particularly its communication to the lay public, that he was awarded the second Edinburgh Medal at the Edinburgh International Festival of Science and Technology in 1990.

This small, 42 page book is a transcript of the address which Gould gave at the presentation of the medal. It was an address given without the aid of slides or a written text, in which he takes the individual in Darwin's world as his theme. This is explored from two different angles, a division which neatly splits the essay into two roughly equal halves.

In the first half Gould deals with the status of us as human beings - the individual - within the world of life's history - Darwin's world. We, as human beings, have often placed ourselves at the pinnacle of the evolutionary tree. We have seen ourselves as the most important species to have evolved and, on viewing the fossil record with blinkered eyes, have regarded ourselves as the obvious outcome of evolution. This somewhat arrogant attitude is thoroughly dismissed by the author who, through the use of the geological record, shows how insignificant we actually are when placed within the 3.5 billion year history of life on Earth, and how our presence is due to good fortune rather than being the product of a predictable pathway. Using the Burgess Shale fauna as his example, he emphasises how the history of life is not a history of expansion and perennial progress but a story of decimation and how, if faunal decimations had occurred on a slightly different pattern to the way they did, then there is a probability that the vertebrates, let alone us, would never have arisen.

Having put us firmly in our place, Gould then turns his attention for the second half of his discourse to what exactly constitutes an individual and why Darwin used the struggle of the individual organism for reproductive success as the centrepiece of his theory. He suggests that this struggle of the individual, for reproductive success, is a culturally and historically bound notion which reflects the world in which Darwin was brought up. He takes recent evidence which suggests that Darwin's thinking was influenced by the ideas propounded by the Scottish economic school and shows how the two are apparently intertwined. The final part of the essay deals with the problem as to just what constitutes an individual. If natural selection works at an individual level, then it is important for us to define what an individual is, be it gene, cell or body. Having led one to conclude that he has the right answer, Gould then produces an argument that forces us to think again.

The main essay occupies 34 pages and is followed by three appendices: the first is an Introduction to the address and medal citation by Eleanor McLaughlin (the Lord Provost); the second is an Oration by Tam Dalyell; and the third is the Vote of Thanks from Ian Rolfe.

In a short preface to the printed address Gould asks us to remember that written and spoken English are different languages, and that the latter does not translate well into the former. He need have had no worries. This is a delightful, thought-provoking essay, very much in the typical Gould style, which once again has the reader looking in a totally different light at items often taken for granted. I am only sorry that I missed the address.

Stephen R. Howe
Department of Geology
National Museum of Wales
Cathays Park
Cardiff CF1 3NP

9 September 1991

---

Fortey, R. A. 1991. *Fossils: the key to the past* [2nd edition]. Natural History Museum Publications [in USA with Harvard University Press], 187 pp. ISBN 0-565-00107-3. Price £12.95.

As we have come to expect from Fortey's pen, this book is written with an easy, uncomplicated style

helping to bring fossils alive. Anyone familiar with the first (1982) edition will recognise snippets of up-to-date revised information, but the main additions are: the recent discovery of the conodont animal; further discussion on early Precambrian life; the new dinosaur *Baryonyx,* which is used as an example in reconstructing extinct animals; and new illustrations to enliven these sections. The book is authoritative yet enjoyable to read, providing a splendidly broad introduction to palaeontology.

C. Howard C. Brunton
Department of Palaeontology
Natural History Museum
Cromwell Road
London SW7 5BD

18 September 1991

---

Baldwin, S. A. and Halstead, L. B. 1991. *Dinosaur stamps of the world.* Baldwin's Books, Witham, Essex, 128 pp. (incl. 96 colour plates). ISBN 0-9508063-4-X. Price £10.

To quote from this book, 'the world fell in love with dinosaurs [1854] and has remained fiercely faithful ever since'. Never more so than today with television series, videos, films, exhibitions, books and hundreds of plastic models and cut-outs. Even the British Post Office, after much prompting, succumbed and produced a set of five commemorative stamps which were issued on 21 August 1991 to celebrate the coining of the word Dinosauria by Richard Owen at the Plymouth meeting of the British Association for the Advancement of Science in 1841. Now to celebrate Owen, the B.A. and the issue of the stamps we have *Dinosaur stamps of the world.*

It was planned that Beverly Halstead would write most of the text, Jenny Halstead design the volume and Stuart Baldwin track down the stamps and publish the book. Unfortunately, only about six weeks before the planned publication date Beverly was tragically killed. Little of the text had been written so Stuart had to go it alone and, remarkably, the book was published in August. Understandably there is some evidence of hasty production.

This attractive and interesting little volume, with 96 of its pages in high quality colour, illustrates 280 stamps from 50 countries. Only 176 are true dinosaurs, the rest being other reptiles, birds and footprints. There is a wide variety of information, although perhaps not enough about the animals for palaeontologists and not enough about the stamps for philatelists - but there is a little for everybody.

By far the largest section (88 of the 128 pages) is devoted to illustrations of all known dinosaur (and associated) stamps which had been published up to June 1991. Accompanying the plates there is data on the fossils (dates, size, appearance), corrections of misspellings of names and sometimes the origin of the pictures (most of which are reconstructions but a few, such as the British ones, are skeletal). Burian is the favourite primary source.

It is interesting to compare the quality of the reconstructions and of the artists' portrayals. One *Iguanodon* looks more like a floppy pantomime horse; some look benign and inoffensive, others apprehensive or skittish; some are not anatomically correct. *Stegosaurus* is way ahead in the popularity stakes, followed by *Tyrannosaurus* and *Triceratops.*

Not all the sets are devoted entirely to fossils: the British Antarctic Territory (1982) set shows the break-up of Gondwana and the drift of Antarctic, while the marvellous Tonga (1989) set depicts the evolution of the Earth. Not all are scientific: St Vincent (1990) and Mongolia (1991) show the Flintstones and their tame 'Dino' while Hungary (1990), for International Literary Year, has a green dinosaur reading a newspaper.

The brief introductory account of 'Richard Owen's Dinosauria' is followed by an outline of the procedures adopted by the Post Office in the selection and production of commemorative stamps and by an account of the designs and the fossils illustrated in the British 1991 set. These show detailed skeletal reconstructions of the skull and bits of the fore-skeleton of *Iguanodon, Stegosaurus, Tyrannosaurus,* and *Triceratops.* Useful additional elements are miniature representations of the whole animal with a man for scale. It is interesting to be shown the four other sets of designs which were rejected.

Snippets on dinosaur cancellations, cigarette cards, a check list of all dinosaur stamps, a classification of amphibians and reptiles, a geological column, and a back-cover reproduction of the poster prepared by Jenny Halstead for the 1991 Plymouth meeting of the British Association complete the offerings in this enjoyable and informative book.

Such is the rate at which dinsoaur stamps are being issued that a second edition will no doubt soon be necessary. If so, the author should consider dispensing with the plate numbers and the publisher should look to the glue - my copy is already disintegrating rapidly.

Reg Bradshaw
Coombe Dingle
Bristol

31 October1991

---

Carpenter, K. and Currie, P. J. (eds). 1990. *Dinosaur systematics: approaches and perspectives*. Cambridge University Press, xvi + 318 pp. ISBN 0-521-36672-0. Price £40.

These papers from a 1986 symposium at the Tyrrell Museum, Alberta are, as you would expect, serious academic pieces. Their authors don't even necessarily agree with one another - as the editors say in the preface, there were 'disappointments but no hostility' - so a non-dinosaurophile curator might question the value, at £40, of such a book to an ordinary museum geologist.

Perhaps dinosaurs are palaeontologically unique in this respect: as geological curators, we are expected by visitors and media to be instant dinosaur experts. Only meteorite falls and earthquakes produce similar public expectations. We can refer to 'popular' dinosaur books, like David Norman's 1985 *Illustrated encyclopedia of dinosaurs* (but this is a bit like a teacher reading the textbook the night before the class), or we can use primary sources, like *Dinosaur systematics* ..., and make our own informed interpretations. Personally, I would do both.

So is *Dinosaur systematics* ... up to this use? Like most symposium volumes it is of variable quality; although the editors have done a good job on the typography and general presentation, and their preface and summary are good pieces in their own right, they do seem to have allowed some authors to write in their own rather individual style and invent their own syntax. My favourite incomprehensible passage is 'The secure niche afforded variation by evolutionary theory seemingly has attracted attention ...'. Also, the referees appear to have had difficulty with some of the more idiosyncratic contributions - and it shows! Nevertheless, there are some good and some very good papers and, anyway, science needs mould-breaking, idiosyncratic papers once in a while.

There are twenty-two contributions (inexplicably the editors count only nineteen in the preface), plus a foreword by Loris Russell and the editors' preface and summary, so there is no space here to review every one in full. While the whole volume is about names and classifications, and therefore about what constitutes a dinosaur species, the editors remind us of the problems: first, that fossil species are either artificial constructs or essentially indefinable concepts, because many of the characters on which modern biological species are defined are not fossilised; second, the recent, belated realisation that, like extant animals, members of fossil species must have shown individual, ontogenetic (age and growth changes) and probably sexual differences; and last, the impossibility (with a few very rare exceptions) of applying cladistic analysis to dinosaur systematics because of the pathetically inadequate fossil record. These reservations provide a valuable context for the individual papers which follow.

P. Sereno, in an introductory 'methods' section, gives most of an introduction to *cladistics* (although he omits to explain the absolute basics) and gives a readable defence of the technique against its commonest criticisms. This is the only paper to suffer from the delayed publication of the volume between 1986 and 1990, as most of the arguments with which it deals have been settled in the meantime. R. E. Chapman outlines one 'method', then new, of computer-aided analysis of the shape of dinosaur skeletal elements (RFTRA - resistant-fit theta-rho-analysis) which a sceptic (who, me?) might dismiss as a very expensive way of measuring bones.

RFTRA was not apparently used by Chapman and D. Weishampel to analyse the shapes of a suite of prosauropod femora from southern Germany. The thighbones of this well-known *Plateosaurus* fauna from Trossingen resisted-fitting any-old-analysis, and the results were inconclusive; it is still not possible to resolve the taxonomic affinites of *Plateosaurus* 'species'. In contrast, J. McIntosh provides a substantial re-classification of all the sauropod dinosaurs based on his unchallenged world views of all the known materials; his authoritative lists of characters for defining six families and the genera and species within them reveals that 'no cladogram can accommodate all this data without admitting parallel development of some characters' (like tooth shape and divided neural spines), and he recognises that (with exceptions like *Camarasaurus* and the new material from China) sauropod fossils are far too incomplete to be used in statistical analyses. McIntosh does, however, provide the first *serious* attempt at fitting familiar dinosaur names (*Diplodocus*, *Brachiosaurus*, *Cetiosaurus*, etc.) into meaningful higher taxa.

Six papers on theropods (bipedal carnivores) begin with R. Molnar on how species vary, how much difference constitutes a specific difference, and why we cannot apply biological criteria to fossils. *Coelophysis* was a smallish Triassic theropod; many good specimens have come from New Mexico, and E. H. Colbert writes elegantly about how this presumed death-assemblage, with all the variations for age, size and sex it shows, contributes to our understanding of one species. Colbert shows that, because the youngest individuals are not preserved, even this large sample is not really representative of the 'biological' taxon *C. mauri*. M. Raath, in another example of good writing and good palaeontology, does much the same for a large sample of the southern African theropod *Syntarsus*

*rhodesiensis*, not only getting close to defining the species by understanding its variability but also speculating about the animals' sociability and the possibility that the biggest individuals, like some birds, are old females, not macho males. Theropod teeth, according to P. J. Currie, J. K. Rigby and R. E. Sloan, can be used to establish a taxonomy to genus level, providing the sample is large enough, and may be useful for biostratigraphy. However, because 'teeth provide few clues to relationships...' (which means the authors don't know which theropods smiled with which teeth), this kind of taxonomy is, like footprint studies, rather far removed from real dinosaur systematics.

Real systematics is used by A. J. Charig and A. C. Milner to try to estabish the systematic position of *Baryonyx walkeri*; they take advantage of the publication delay to submit a 1989 update of the read paper and so are able to add to their original announcement and diagnosis some comments on the cladistically-based theropod classifications of Gaultier (1986) and Paul (1988): *Baryonyx* is clearly a theropod, but cannot be fitted into Gaultier's classification (it seems to be in two suborders at once), while Paul's classification, in which *Baryonyx* appears in a family Spinosauridae on the basis of three shared characters (the authors disagree anyway), is dismissed as 'idiosyncratic ... based on guesses at unknown characters'. Charig and Milner solve all this by erecting a family Baryonichidae, which is at least likely to be closer to the biological 'reality' than the evident artifice of trying to apply cladistic analysis to the tiny sample we have of the dinosaur world. Commonsense reminds us that 265 genera (perhaps 1,400 species) cannot be enough of a sample for any classification to be a true reflection of the relationships of the tens of thousands of dinosaur species which may have come and gone through the 140 million years from mid-Triassic to end Cretaceous.

K. Carpenter discusses variation in the well-known theropod *Tyrannosaurus rex*; although there is still not much material, it is possible to distinguish two morphs within the species for which the obvious explanation is sexual dimorphism. As with *Syntarsus*, the most robust form is thought to be the female, especially as the angle between the tail and ischia is wider, perhaps for the passage of eggs.

A set of papers about ornithischian dinosaurs begins with one by D. Norman showing that *Vectisaurus* is a juvenile *Iguanodon*. R. E. Chapman and M. K. Brett-Surman used RFTRA on hadrosaurs, showing that they are a monophyletic group, contrary to J. Horner who performed an hierarchy-independent cladistic analysis to show that hadrosaurs are in fact of diphyletic origin. Clearly the data is not good enough. Other papers on pachycephalosaurs, psittacosaurs, chasmosaurs (sexual dimorphism and systematics) and other ceratopsians follow. J. H. Ostrom and P. Ellnhofer give an example of 'flawed systematics', which some other authors would have done well to review, discussing the pitfalls of classification of *Triceratops* type specimens on inadequate material. Of the sixteen published species, only one proves to be valid! Dong Z. describes up-to-date stegosaur finds from Asia, mostly middle Jurassic forms from Sichuan Province, China, and proposes a Chinese origin for the family based on one indeterminate skull fragment. W. Coombes, looking at ankylosaur teeth, shows that they cannot be relied upon for taxonomy because they vary in incompletely known ways according to their position in the mouth and the age of the animal, as well as interspecifically.

Finally, W. Sarjeant writes on 'A name for the trace of an act', a paper worthy of a full review in its own right. He asks whether 'Linnaean classification applied to dinosaur footprints is innately absurd', but goes on to re-propose (following a rejected proposal to ICZN by Sarjeant and Kennedy 1973) a separate 'Code of Nomenclature' for trace fossils so that they can be named and thus classified, both for interest and so that we can use that information (i.e. inferred relationships in space and time) to do other useful things. Richard Owen believed that there was no need to give a footprint a name, and some would still agree that because footprints are not genetically related and do not evolve it is, at best, misleading to give them binomials, which look like animal names and do imply hierarchical relationships.

Although this book has almost nothing else to do with Richard Owen, 1841 and the dinosaur sesquicentenary, it is still entirely appropriate that it appears now. We might wish to modify the editors' American-based closing comment, 'For many attending the conference, this was the first time that it became evident that dinosaur research had finally reached the level of activity comparable to the surge at the turn of the century', to 'in the 1840s'; otherwise it is true, for Britain (*Baryonyx, Vectisaurus* and all) as well as for the rest of the world. Any curator who is serious about dinosaur enquiries would be brought up to date by reading this book.

John Martin
Leicestershire Museums Service
96 New Walk
Leicester LE1 6TD

5 December 1991

---

# LOST AND FOUND

## Compiled by Peter R. Crowther and Hugh S. Torrens

Enquiries and information, please, to Peter Crowther (City of Bristol Museums and Art Gallery, Queens Road, Bristol, BS1 1RL). Include full personal and institutional names and addresses, *full* biographical details of any publications mentioned, and credits for any illustrations submitted.

The latest index to 'Lost and Found' was published in *Geol. Curator* **5**(2), 79-85.

**Abbreviations:**

CLEEVELY - Cleevely, R.J. 1983. *World palaeontological collections*. British Museum (Natural History) and Mansell Publishing Company, London.

GCG - *Newsletter of the Geological Curators' Group*, continued as *Geological Curator*.

LF - 'Lost and Found' reference number in GCG.

### 45 White WATSON (1760-1835) and the collections of Georgiana, Duchess of Devonshire

GCG **2**(1), p.44; **2**(2), p.85

Michael P. Cooper (41 Albany Road, Sherwood Rise, Nottingham NG7 7LX) writes:

'Watson has been the subject of several items and articles in GCG and his life and dealings have been well documented. Collections made by him are relatively uncommon, however, and it is worth noting here that a group of volunteers from the Russell Society, headed by myself, is currently engaged in the restoration of a substantial collection of 'fossils' (mainly minerals) at Chatsworth House, Derbyshire which was catalogued, and probably partly, if not largely, supplied by Watson. The collection was made by Her Grace the Duchess Georgiana (1757-1806). Watson's original MS catalogues of the collections, dated 1798 and 1804 and listing about 2,150 specimens, survive in two hard bound notebooks together with an interesting *'Catalogue of external characters of fossils' by White Watson F.L.S. Bakewell, Derbyshire* dated 1798, in which he tabulates useful characteristics for the identification of minerals. The collection was extended by Georgiana's son, William Spencer Cavendish (1790-1858), who became the 6th Duke of Devonshire, though the only specimens so far attributed to him are purchases from the collection of Sir Alexander Crichton in 1827. Approximately 2,500 specimens survive at Chatsworth.'

### 49 Miss Mary Hannah FFARINGTON

GCG **2**(2), p.82; **2**(3), pp.127-128; **2**(4), pp.195-199; **3**(8), p.490

Nora McMillan (Liverpool Museum, William Brown Street, Liverpool L3 8EN) writes:

'Miss Mary Hannah Ffarington's extensive collection of Pleistocene shells from the Worden Hall gravel-pit which has been referred to by J. Blundell (GCG **2**, 127-128) and S. Jusypiw (GCG **3**, 490) has now been curated and housed in the Clitheroe Museum. All except two of the 88 species and varieties listed from the site by Miss Ffarington (aided by Alfred Bell) in her privately-printed catalogue of 1879 are present; the missing taxa are *Venus casina* and *Venerupis pullastra*.

### 217 Bryce McMurdo WRIGHT Snr (1814-1875) & Jnr (1850-1895)

GCG **5**, pp.232-234

Michael P. Cooper (41 Albany Road, Sherwood Rise, Nottingham NG7 7LX) writes:

'My earlier plea (GCG **5**(6):232-234) for information on these dealers in minerals, fossils, shells, gems, etc. resulted in a reply from Steve Laurie of the Sedgwick Museum, Cambridge who produced from the collection a copy of the catalogue of Wright Jnr's bankruptcy sale at Stevens, of Covent Garden, in 1888. This previously unremarked catalogue - Chalmers-Hunt (1976) makes no mention of it - sheds much light on Wright's business premises, listing, in addition to his stock, all of his shop fittings and office equipment down to his 'extra thick india-rubber doormat'. Professor W.J. Lewis of Cambridge bought many lots at the sale, and a copy of his inventory of the contents of each lot purchased accompanies the catalogue. This is a very useful addition, often listing many more pieces than appear in the sale catalogue.

Although the accompanying request for examples of Wright labels turned up two new variants from their years in Great Russell Street (for which thanks to Bill Baird of the Royal Scottish Museum, Edinburgh), no examples of labels from either Regent Street or Savile Row have been proffered. The writer would be pleased to hear from anyone with such items in their collections (they may appear with any of Wright Jnr's stock

items, including ethnological and archaeological material).'

## 219 Missing Ordovician nautiloids from the Yale Peabody Museum

In January 1989 representatives of Yale University's Peabody Museum of Natural History visited the new Mexico Bureau of Mines and Mineral Resources at Socorro, New Mexico, to retrieve Ordovician nautiloids from western Newfoundland which were on loan to the late Rousseau H. Flower. Only 65 of the original 325 Ordovician nautiloid lots loaned to Flower were recovered.

In most cases, the Peabody nautiloids are marked with 5/16-inch-diameter green stickers with a handwritten locality number in black ink on each. Common examples are 3100/2, 3450/21, 3476/40, 4656/28. Peabody specimen labels accompany most lots, but some may have become separated from the specimens. Should anyone know the whereabouts of Peabody nautiloids fitting the above description, please contact Russell D. White, Collection Manager, Division of Invertebrate Paleontology, Peabody Museum of Natural History, Yale University, 170 Whitney Avenue, P.O. Box 6666, New Haven, Connecticut 06511, U.S.A.

## 220 Fossil insects in amber

Alison Henwood (Department of Earth Sciences, University of Cambridge, Downing Street, Cambridge CB2 3EQ) is anxious to trace specimens of insects in amber in museum collections for her research on taphonomy and identification of insects, principally flies. Please inform her at the above address of any specimens in your collection or in others.

## 221 Foraminifera described by L. v. FICHTEL and J. P. C. v. MOLL in 1798

H. S. Torrens (Dept. of Geology, Keele University, Keele, Staffs. ST5 5BG) draws attention to a paper by Rögl (1982) which describes the discovery of a major type collection in Vienna. *Testacea microscopica* by Fichtel and Moll (1798) has been a great influence on the investigation of the Foraminifera. Many of the described species and variations are type species of genera created by Montfort (1808, 1810). So the discovery of the type-collection at the Natural History Museum in Vienna is of importance for the solution of many nomenclatorial problems. Rögl and Hansen (1984) provided full taxonomic revisions, with colour reproductions of Fichtel and Moll's beautiful 1798 plates and a history of the collections (in English).

Johann Paul Carl von Moll, born 1735 in Oettingen (Bavaria), was involved later on in the work of the Naturalien Cabinet in Vienna, the forerunner of the Natural History Museum. He died in Vienna, 1812. His co-author Leopold von Fichtel, son of the enthusiastic naturalist Johann Ehrenreich von Fichtel, became famous for his collection of natural objects and his worldwide travels. He was born in 1770 in Hermannstadt (Sibiu, Rumania) and died young in Vienna in 1810.

Rögl, R. 1982. L. v. Fichtel und J. P. C. v. Moll und ihre wissenschaftliche Bedeutung. *Ann. Naturhist. Mus. Wien*, **84/A**, 63-77.

Rögl, F. and Hansen, H. J. 1984. Foraminifera described by Fichtel and Moll in 1798: a revision of *Testacea Microscopica*. *Neue Denkschr. Naturhist. Mus. Wien*, **3**.

## 222 Thomas WILLCOX (fl. 1890s)

Mrs Susan Cowdry (Lion House, Etchilhampton, Devizes, Wiltshire) writes:

'As part of the my interest in old mineral specimens from the Mendips, Somerset, I am trying to trace the whereabouts of the collection of Thomas Willcox; he was manager in the 1890s of Higher Pitts Mine and St. Cuthbert's Lead Works, both near Wells. Neither Bristol, Taunton, Bath, Cardiff nor Oxford museums have any knowledge of Willcox. I would be most grateful for any help.'

## 223 Lost manuscript autobiography of Richard Cowling TAYLOR (1789-1851)

H. S. Torrens (Dept. of Geology, Keele University, Keele, Staffs. ST5 5BG) writes:

'Taylor was a pioneer English geologist trained 1805-1811 by both William Smith (1769-1839) himself and by Edward Webb who had also earlier trained William Smith as a land surveyor. Taylor was active as an engineer, mineral and land surveyor in England and wrote a large number of papers up to 1830 when he decided to emigrate to the USA where he arrived in 1831.

Here he had a second distinguished career as a mining advisor and geologist and continued to publish many papers. He died in Philadelphia in October 1851. In

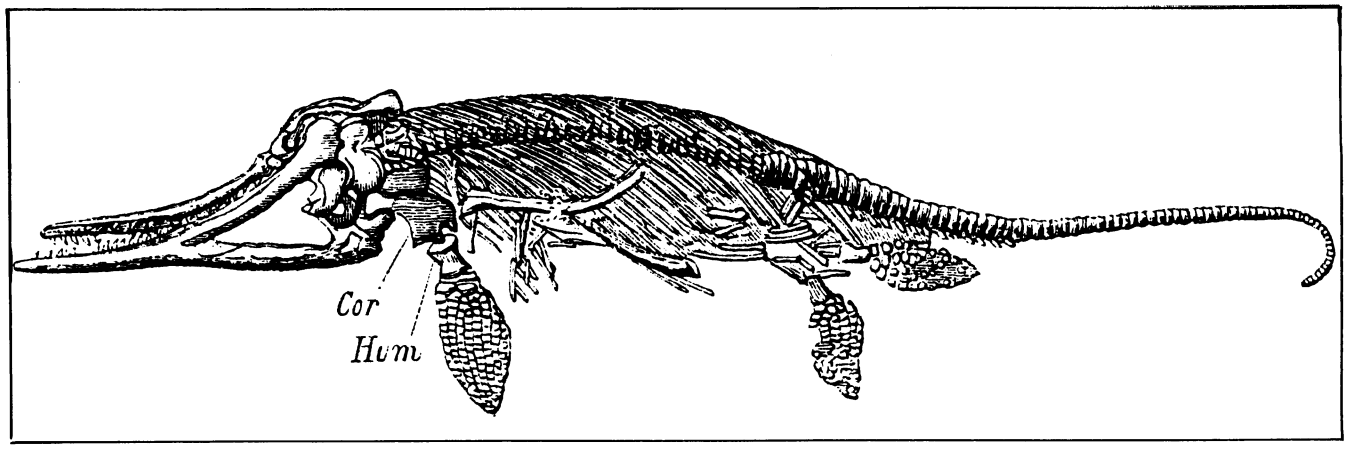


Fig. 1. *Ichthyosaur communis* from the Lias, Lyme Regis, Dorset, as figured by S. Haughton in his *Manual of Geology* (1865, fig. 35, opp. p. 272).

1889 almost all his papers were apparently destroyed in the great Johnstown Flood in west Pennsylvania (2,209 people lost their lives). One exception was a notebook of 1841 which was saved and presented to the New York State Museum in 1913 by Thomas T. Wierman (see *New York State Museum Bulletin*, **173**, (November 1914), pp. 40-42, 2pls.

Two English sources *predating* this tragic loss show that his manuscript autobiography (or a copy of it) had come to England immediately after his death, e.g. the *Bath Chronicle* of 1874 and in a book of 1888 by Bath-based Sir Jerom Murch (1807-1895), the Unitarian divine and politician who married Taylor's first cousin Anne Taylor. This autobiography must be his 'private journal' referred to as having come to England from America in 1852 (*Gentlemans Magazine*, 1852, p. 218). All efforts to trace this MSS have failed and any news would be welcomed.

## 224 Duke of BUCKINGHAM Collection

Vincent C. Smith (64 New Heys Way, Bolton BL2 4AQ) is compiling information on geological collections or individual specimens acquired from or through Prof. James Tennant FGS (Mineralogist by Appointment to Her Majesty, 149 The Strand, London) between 1850 and 1857. Tennant was a lecturer at King's College, London, and a trade supplier of geological books, specimens and cabinet collections. He is known to have acquired the Duke of Buckingham's collection at the Stowe sale and later sold it to an unknown buyer for £2,000. The collection comprised approximately 3,200 specimens and was noted for exceptional varieties of coloured diamonds and unusual examples of Australian gold.

## 225 *Ichthyosaurus communis* missing from Trinity College, Dublin

Patrick N. Wyse Jackson (Curator, Geological Museum, Dept. of Geology, Trinity College, Dublin 2, Ireland) writes:

'I am attempting to trace the wherabouts of an ichthyosaur that is missing from the collections of the Geological Museum, Dept. of Geology, Trinity College, Dublin. It is an example of *Ichthyosaurus communis* from the Lias of Lyme Regis. The specimen is quite distinctive in that both sides of the lower jaw are visible, and the tip of the tail is flexed downwards. It was figured by S. Haughton in his *Manual of Geology* (1865, fig. 35, opp. p. 272) (reproduced here as Fig. 1); a second ichthyosaur figured on this page (Fig. 36) is still extant in the collections. It is possible that this specimen was sold when the museum was reduced in size in the late 1950s. Hopefully someone knows of its present location?'

## 226 Foraminifera from the Portland, Purbeck and Wealden

Jon Radley (Museum of Isle of Wight Geology, High Street, Sandown, Isle of Wight PO36 8AF) writes:

'I am interested in tracing examples of foraminifera from the Portland, Purbeck and Wealden strata of southern England. The most likely sources would probably be in the collections of ostracod workers. If anyone has any material which might be of interest, please contact me.'

## 227 Diana Maria DONDESWELL (active *c.*1825-1846)

Michael P. Cooper (41 Albany Road, Sherwood Rise, Nottingham NG7 7LX) would be grateful for any information on the mineral collectors listed below (LF227-232) and the whereabouts of any extant specimens from their collections. He writes:

'The name of this apparently unknown woman collector appears on a bookplate in a copy of the 1818 edition of John Mawe's *A new descriptive catalogue of minerals*, the interleaved blank pages of which have been used for a manuscript catalogue of part of a collection of minerals. There are about 500 entries in the catalogue, which lists species and locality, together with some provenance data. The front cover bears a hand-written label: 'List of Metallic Ores / Cabt 4 - Middle', and notes in the text refer to drawer numbers in the range 1-20, all of which suggests that the whole collection was quite substantial. A few specimens are dated, in the range 1825-1843. Named sources of the collection include Stutchbury, Heuland, Sowerby, and the collections of Sir A. Crichton and Sir S. Yonge. One specimen is recorded as having been 'given to me by Miss Lowry'. The first three names are obviously those of the well-known mineral dealers Henry Rome Stutchbury, John Henry Heuland, and George Brettingham Sowerby I. Miss Lowry may well be Delvalle Lowry, author of *Conversations in mineralogy* (1826). Crichton and Yonge are mentioned below under LF228 and 231. The name Dondeswell is an unusual one and very few records of it appear in the UK section of the *International Genealogical Index* of the Mormon Church. Of those that do, the christening of a Louiza Dondeswell in Bidford on Avon, Warwickshire in 1821 is the only one in the nineteenth century (others are much earlier) and may afford a clue.'

## 228 Sir Alexander CRICHTON FRS, MD, FRCS, FLS, FGS (1763-1856)

Michael P. Cooper (see LF227) writes:

'Crichton was, among other things, physician to Emperor Alexander of Russia 1803-1814. His mineral collection was sold by G.B. Sowerby in 2,600 plus 121 bis lots over a period of 16 days from April 20 to May 8, 1827. Some of Crichton's specimens ended up in the collection of Isaac Walker (1794-1853) and are now in the Natural History Museum, London. A copy of the sale catalogue was donated to the museum along with the specimens by F.N.A. Fleischmann; it was listed by Chalmers-Hunt (1976) but contains no buyers' names. Another copy in private hands in the USA is likewise uninformative. A further buyer of Crichton specimens was Diana Maria Dondeswell (see LF 227). And a specimen from the collection of Sir George Tuthill (see LF 229) was offered for sale in New York in 1846; it is described in the sale catalogue as 'Dioptase, Steppen of the Kirgises, Caucasus. (This specimen cost the late Sir George Tuthill, in 1827, in Sir Al. Crichton's sale, £16.)'

## 229 Sir George TUTHILL (1772-1835)

Michael P. Cooper (see LF227) writes:

'Mineral specimens from this collection, among others, were offered for sale in New York in 1846 'during the session of the *American Naturalists* the first week in September'. The specimens had been 'recently purchased by a gentleman in London, long distinguished for his devotion to Mineralogy, by whom they were sent to a friend in this country'. A copy of the sale catalogue is in the possession of Nick Carruth, mineral dealer in Cornwall. Tuthill is presumably the physician George Leman Tuthill (1772-1835), FRS 1810, knighted 1820. His library was sold by Sotheby in June 1835 (*DNB*).'

## 230 Sir Francis Leggat CHANTREY (1781-1841)

Michael P. Cooper (see LF227) writes:

'This well known sculptor had a very fine mineral collection, which known specimens suggest was amassed for aesthetic appeal rather then scientific interest. On his death it was offered entire by the dealer Henry Heuland to Prince Albert for £1,000 but the sale was prevented by Queen Victoria (see Allingham's *A romance of the rostrum*, 1924). The collection was eventually dispersed at auction for much more than that. A substantial number of specimens was acquired by Gerard Troost of Philadelphia and over 100 can still be identified in his collection in the Museum of History and Science, Louisville, Kentucky. The writer, together with Alan Goldstein of the Louisville museum, is trying to reconstruct a picture of the Chantrey collection, and its dispersal, and would be grateful for any information on the present whereabouts of specimens.'

## 231 Sir S. YONGE (fl. *c.* 1818-1843)

Michael P. Cooper (see LF227) writes:

'Mineral specimens from this collection were included in that of Diana Maria Dondeswell (see LF 227) and were probably bought in the period 1818-1843. There is no entry for Yonge in *DNB* or other obvious sources (*Burke's Peerage, Gentry* etc).'

## 232 ?? of 'Berbeth' (fl. 1849)

Michael P. Cooper (see LF227) writes:

'The writer has recently received from a private collector in the USA copies of pages from a manuscript catalogue titled *List of minerals in the cabinet at Berbeth 1849*. The catalogue is a classified one and the selected entries suggest an extensive and thorough collection: there are about 2,950 numbered entries, which include, for example, over 30 garnet specimens, 43 fluorites, 120 entries for 'carbonate of lime', and at least 15 meteorites. A further section of the catalogue lists the 'Separate collection of crystals at Berbeth'. None of the original entries gives acquisition information, but annotations in another hand note Sowerby and Heuland (with prices in Sterling) as sources of a few pieces. 'Berbeth' is not a place name to be found in the UK gazetteers available to the writer (with the exception of a Strath Berbeth in Scotland) and may be the name of a country house or estate. Any suggestions as to the identity of this collection would be welcome.'

# NOTES AND NEWS

## News from the Natural History Museum in London

The exhibition 'Dinosaurs' celebrated its first birthday on 15 April 1993. This block-buster exhibition has boosted the Museum's annual visitor numbers to 1.7 million - an increase of 100,000 visitors on the previous year. With the advent of Steven Spielberg's dinosaur movie 'Jurassic Park' in July, 1993 looks set to be another good year for dinosaurs. The Museum's retail sales were also well up - an increase of 24%, with dinosaurabilia accounting for half of all sales. A hot seller for the year was chocolate-coated dinosaur biscuits with visitors getting their sticky fingers on over 40,000 packets.

**New Visitor services:** a complex of new visitor facilities opened at the end of May on the ground floor, including three new shops, a restaurant and new admission and information desks.

**'Wonders':** on 1 July, *Diplodocus* in the Central Hall was joined by other wonders of the natural world, making up a new introductory exhibition to the whole Museum; real specimens and interactive computer displays guide visitors around the Museum, in a total of six languages.

Recent research has shown that *Diplodocus* would not have dragged its tail around on the ground as was originally supposed, but would have carried it straight out behind. Consequently the Museum's most famous dinosaur cast has recently undergone a dramatic tail-lift. Each of the 73 tail vertebrae has been recast and a steel superstructure designed to support its 13-metre length, at a height of 3 metres. The finished skeleton follows the lines of a well designed cantilever bridge.

## Royal Literary & Scientific Institution, Bath

Eddie Avent (Chairman, Bath Geological Society) writes:

'The RLSI (16-18 Queen Square, Bath), established in 1824 for the advancement of science, literature and art in Bath, is in the process of being revitalised after over fifty years of inactivity and is now looking to create a new membership. For a century after its inception the Institution flourished and enjoyed a membership which included many scholars and men of science, some of whom made significant contributions to the advancement of knowledge. Several early members donated various artefacts, leaving the Institution with a large and interesting collection including outstanding geological and natural history specimens, fine paintings and sculptures, an extensive library and manuscripts (including original letters written by Charles Darwin).'

The tortuous 'progress' made by the RLSI has been the subject of many references in *Geological Curator* over the years. Indeed, the fate of its geological collections was a major stimulus in creating GCG in 1974, while Ron Pickford's role in almost single-handedly rescuing the museum from oblivion was recognised by the Group in 1986 when Ron became an Honorary Member.

Anyone interested in being considered for founder membership of the newly-formed Institution should write to Brenda Vicary-Finch (RLSI Subscription Secretary, 24 Lambridge Place, Bath BA1 6RU) for further information.

## Diary of a fossil hunter

Cindy Langham writes:

'Peter Langham of 'Dinosaurland' (Lyme Regis, Dorset) continues to live up to his reputation as one of the most successful collectors to have worked the Dorset coast since the days of Mary Anning. Peter began collecting early this winter season (1992-1993) when August Bank Holiday weekend saw him out on the beach for the first time after a busy summer at 'Dinosaurland'. On his first day out, he discovered a 4m ichthyosaur at Pinhay, Lyme Regis. This is at present being developed to museum display standard by Peter.

Mid-November, Somerset: an ichthyosaur skull plus scattered body section (the tail had been eroded away).

End-November, Somerset: a small ichthyosaur skull and paddle.

Early December, Lyme Regis: the complete middle section of an ichthyosaur, approx. 0.6m in length (tail and skull missing); this baby would have been approx. 1.2m long.

Early December, Somerset: in one day Peter discovered the middle section of an ichthyosaur (skull and tail missing) approx. the same size as the Lyme Regis baby; a 0.3m *Lepidotes* fish and an ichthyosaur skull about 0.3m long with open jaw showing good dentition (very impressive).

The following day, Somerset again: a 1.2m x 1.2m slab, bearing scattered ribs, vertebrae and one articulated paddle from a large ichthyosaur.

What with all this and the Langham family getting 'Dinosaurland' into swing for the 1993 season, life is never boring!'

## New finds and displays on the Isle of Wight

Jon Radley (Museum of Isle of Wight Geology, High Street, Sandown, Isle of Wight PO36 8AF) writes:

'Ammonite and dinosaur enthusiasts need look no further. We are currently running a small exhibition of spectacular heteromorph ammonites, collected and prepared by Mr Paul Newton, a local enthusiast. The ammonites come from the Lower Greensand of Chale Bay - a familiar locality to academics, students and petroleum geologists, as well as private and commercial collectors. The display has attracted much interest and includes text on the postulated palaeobiology and palaeoecology of ammonites.

During the winter of 1992-1993 we have updated our public gallery. A case of Isle of Wight minerals (surprisingly diverse) adds a splash of colour, and new displays of reconstructed dinosaurs, structural geology and erosion problems are in the pipeline.

Out on the Wealden outcrops we are excavating a partial skeleton of a sauropod, found by Steve Hutt (Museum Curator) in late February 1992. We have been assisted greatly in this task by many volunteers and financial support from English Nature and the Curry Fund of the Geologists' Association. This beast is a bit of a rarity and probably represents the most complete example from the Lower Cretaceous of north-west Europe. Despite our efforts to keep things under wraps, it caught the attention of the national press in October 1992 and has since become quite a conversation piece on the Island. Despite this premature publicity the site appears safe and we hope to have all the material out of the cliff and in the museum before long. The bones are chemically stable (but fragile) and our main problems are storage space and finding time to work on them. Preparation is consequently proving to be a slow process and the finished item is still probably many years from completion. Further information on new finds and displays is always available from the museum.'

## *Silurian System* update

*Geol. Curator* **5** (6) carried a review of J. D. D. Smith's *The Silurian System by R. I. Murchison : a catalogue of the fossils illustrated in Part 2* (published 1989 by the British Geological Survey, Research Report SH/89/2). The author has prepared a TS Supplement of Amendments and Additions, giving references published since the *Catalogue* went to press. Perhaps the most interesting addition is the discovery in the Museum National d'Histoire Naturelle, Paris, of three of the specimens figured in *The Silurian System.* The author wil be happy to send readers a copy of his Supplement on request (J. D. D. Smith, International Commission on Zoological Nomenclature, c/o Natural History Museum, Cromwell Road, London SW7 5BD. Tel. 01 938 9387).

## Conservation of the marine reptile collection at the Natural History Museum, London

Natural History Museum staff have recently started a major conservation programme on the fossil marine reptile collection. The Museum holds the world's most comprehensive collection of Lower Jurassic marine reptiles. The collection is important because it includes early specimens collected by Mary Anning, whose finds from the Lyme Regis area were central to the early science of geology, and by fellow palaeontologist Thomas Hawkins. It is an irreplaceable scientific and historical resource because many of the specimens are primary types, and because some of the localities represented no longer exist.

The specimens were mounted in mahogany framed cases and the remaining spaces filled with a mixture of sand and wax resin, covered by a thin layer of painted plaster. More than 120 specimens were mounted on the walls of the Marine Reptile Gallery in the 1920s. A survey of the specimens in 1987 revealed that some of the specimens had deteriorated. Environmental changes and disturbances had dislodged the sand and plaster, while excessive humidity had caused oxidation of the iron pyrite in the specimens (producing sulphuric acid which can dissolve bone, matrix and damage the wooden frame). The conservation project involves several time consuming procedures. The first is to remove the oxidation products and neutralise the sulphuric acid. Affected areas will be treated with ethanolamine thioglycollate in alcohol to neutralise

the sulphuric acid and dissolve the oxidation products. This requires careful dismantling of the specimens along natural breaks, allowing access to the decayed areas underneath. The bones are then consolidated with a synthetic plastic resin. Cracked and loose plaster and sand are removed with engraving tools and hammer and chisel and replaced with new plaster of Paris. Gaps and cracks are injected with consolidant and any spaces filled with a resin-based fibre 'dough'. A final coat of thin consolidant is then applied to help protect each specimen from future deterioration before it is put back on display in the gallery.

A special glass-walled laboratory has been built in the public galleries of the Museum to accommodate the nine larger specimens where visitors can watch the conservators at work. The project is expected to take three years to complete, during which time sixty specimens will be treated.

## Another poem

J. Kinsella of Pound Hill, West Sussex, sends a piece of frivolity:

*The Ailing Geologist*

I went to the doctor today
For a pain in my right olivine.
He checked on my idocrase count
And tested my ilmenite spleen.
The litmus showed spessartite pink,
My haemo-autunite was green,
My epidote rating was fine
And my rhodochronite was quite clean.
The spots on my uvarovite
He dismissed as benign spodumene.
The X-rays showed negative iron
And the barium no tourmaline.
It's clear, said the doctor to me,
That your carnotite sense is still keen,
So keep taking the orthoclase tablets,
Which will spinel your right olivine.

## End piece

Roger Clark (Bristol City Museum and Art Gallery, Queen's Road, Bristol BS8 1RL) spotted the following gem in the *Western Daily Press*, 31 January 1930:

'A Scientific Dream, - And the Awakening!

Members of the scientific mission from Madrid, who have been examining the skeleton of a "dinosaur" discovered near Tetuan (Morocco), have come to the conclusion that the "remains" are really those of a hay-making machine abandoned by a Spanish farmer in 1917.

Although the original investigators were in error in mistaking the curved iron teeth of the automatic rakes for the ribs of a species of dinosaur only known heretofore in the Rocky Mountains, they were clearly right in giving a transatlantic origin to their discovery, for the machine bears the name of a well-known Canadian manufacturer of agricultural implements.'

# THE A. G. BRIGHTON MEDAL

## Terms of reference

These notes are based on the proposal originally submitted to GCG Committee by the late Dr David Price (Sedgwick Museum, Dept. of Earth Sciences, University of Cambridge). They were subsequently amended slightly by Dr Roy G. Clements (Dept. of Geology, University of Leicester) and approved by Committee on 17 June 1992.

'When Albert G. Brighton became curator of the Sedgwick Museum in 1931 the collection of over half a million fossils was almost entirely uncatalogued. Indeed much of it was packed away in crates and boxes. Brighton dedicated the rest of his working life to bringing order to this vast mass of material, unpacking it, physically organising it, painstakingly investigating its origins and history of use and then rigorously cataloguing and indexing it. In this way he gradually released a vast and rich collection for effective use in research and teaching. By the end of his career in 1968 he had been responsible for documenting some 375,000 specimens at an average rate of over 10,000 a year.

It was in no small part due to this careful and patient curation that the Department of Geology at Cambridge was able to consolidate its high reputation for teaching and research in palaeontology and came to occupy an unrivalled position in that field. Many generations of undergraduates and research students, as well as established research workers from Cambridge and elsewhere who have used the Sedgwick collections, are enormously indebted to A. G. Brighton for the dogged and exacting work which enabled them to use the collections so effectively.

The sophisticated cataloguing system which Brighton built up was an important step in the evolution of modern standards of specimen documentation. It was later to prove of benefit to the whole museum community when it became the basis for pioneering studies at the Sedgwick on computerised museum documentation - studies which Brighton encouraged and for which he obtained the initial supporting funds.

Despite the stupendous curatorial achievement of bringing such a high degree of order to a major geological collection and despite the broader significance of his work in establishing modern curatorial standards, Brighton's efforts received no official recognition from any source during his life. His death pricked consciences throughout the geological community and promoted belated recognition from us. At the same time the opportunity was taken to more generally acknowledge the importance of good curation in advancing our science. To achieve both aims the Geological Curators' Group (which is affiliated to the Geological Society) has instituted an A. G. Brighton Medal using monies raised by subscription to an A. G. Brighton Memorial Fund. It is intended that the Medal shall be awarded triennially to medallists chosen from those who have devoted a significant part of their working lives to the actual care of geological specimens, or who have introduced innovations which have led to significant improvements in the care of geological specimens or who, through their example or by teaching (including writing), have inspired others to the better care of geological specimens. It might also be awarded to those who have fostered an increased awareness of the value of geological collections, e.g. through collections research. There is no more fitting way to commemorate the achievements of A. G. Brighton than by encouraging others, through a prestigious award, to emulate them.'

## Rules for awarding A. G. Brighton Medals

These rules were drawn up for GCG Committee by Dr Roy G. Clements and approved on 17 June 1992.

### A Preamble

A1 The medal will normally be awarded triennially.

A2 Normally this will be one medal only; but it is not precluded that exceptionally, and subject to sufficient resources, more than one medal might occasionally be given.

A3 One award, or one set of awards, will normally coincide with the period of office of the then current Group Chairman, and will normally be made in the last year of his or her office. [It is clear there might have to be exceptions to this, i.e. in the case of Chairmen who depart after one or two years of office.]

A4 The Group Treasurer will act, *ex officio*, as Treasurer to the Fund. Proper and separate financial accounts of the Brighton Medal Fund will be presented annually to the Group's AGM.

A5 The wording in the terms of reference of the medal describing its purpose, suggests that the award is to recognise actual achievement over a

long period, rather than potential for achievement. Thus it will normally be given to a senior person.

A6 It is seen to be inappropriate that the award should be made on the basis of formal nominations and secondings, with public discussion (recorded or not), or with ballots, either at the level of the Group as a whole, or within GCG Committee. The medallist(s) will thus be a counselled choice of the Chairman.

## B Procedure for choosing Brighton Medallists

B1 The process will normally be started, at the penultimate AGM of a Chairmanship, by inviting informal suggestions (with supporting written statement) for possible medallists to be sent direct to the Chairman.

B2 The GCG Committee, normally at its meeting next following the AGM, will agree the names for a 'medal advisory panel', consisting of four senior members of the Group, but should not include current members of Committee. The GCG Treasurer and Secretary will be available for consultation on specific points.

B3 The Chairman will choose the medallist(s) on the basis of informal discussions with the 'medal advisory panel', who will ensure (subject to veto) that the choice conforms to the terms and conditions of the award.

B4 Agreement having been reached, GCG Committee and the Medallist will be informed, normally in sufficient time to allow the presentation to be made at or before the Chairman's final AGM.

B5 From time to time, and as the need arises, GCG Committee may determine modifications or temporary departures from these procedures, e.g. to accommodate the problems identified at the end of paragraph A3 above.

## The Memorial Fund

An appeal to establish 'The A. G. Brighton Memorial Fund' was launched by GCG in 1989 in order to fund the A. G. Brighton Medal. By the time of the award of the first two medals on 27 March 1992 (see below), contributions had reached a total of nearly £2,200. GCG would like to acknowledge generous donations received from the following individuals and institutions.

Dr S. O. & Mrs J. E. Agrell
Professor P. & Mrs M. F. Allen
Muriel A. Arber
Dr F. B. Atkins
Stuart A. Baldwin
Dr H. W. & Mrs P. M. Ball
Dr M. G. Bassett
Rhona M. Black
Dr W. W. Black
Dr & Mrs R. Cave
Dr G. A. Chinner
Dr E. N. K. & Mrs C. M. Clarkson
Dr P. R. Crowther
Professor W. T. Dean
Dr J. M. Dickens
Philip S. Doughty
Dr Dianne Edwards
J. G. Essame
Dr R. A. Fortey
Dr P. F. & Mrs J. Friend
Professor B. M. Funnell
Professor J. M. Hancock
Dr R. W. Hey
Professor Michael House
Dr N. F. & Mrs P. Le B. Hughes
Dr C. V. Jeans
Dr R. P. S. Jefferies
Michael D. Jones
Dr K. A. Joysey
Dr W. J. Kennedy
Dr Porter M. Kiaer
Dr R. J. King
Professor W. S. Lacy
Dr Nicol Morton
Dr C. R. C. Paul
Dr G. Playford
H. P. Powell
Dr D. Price
Dr W. D. I. & Mrs J. M. M. Rolfe
Dr A. W. A. Rushton
Professor R. J. G. Savage
Dr Isles Strachan
Sir James Stubblefield
Dr Margaret Sudbury
Professor R. G. West
Professor H. B. & Mrs D. A. Whittington
Dr George Zammit-Maempel
Department of Earth Sciences, University of Cambridge
Geological Curators' Group
The Ulster Museum

# Inaugural Brighton Medals

At a ceremony on 27 March 1992 hosted by the Dept. of Earth Sciences, University of Cambridge, the Chairman of GCG, John A. Cooper (Booth Museum of Natural History, Brighton) introduced the presentations of the first two Medals as follows:

## Presentation of the first Brighton Medal to Mrs Edith Brighton

'As Philip Doughty (1981) has argued, it is a defensible proposition that geology as a science is a British invention - I need only mention the names of men like Hutton, Smith, Lyell, Murchison and Darwin. As a result of their labours, and those that flowed from them, geology became a major national and international science, contributing massively to the welfare not only of this country, but also of many others around the world. But since the heady nineteenth-century days of discovery, when a prime minister felt moved to attend the funeral of an eminent geologist, the science has fallen from the pedestal of public approbation - it no longer holds significance for a society in which 'culture' has become synonymous with the 'Arts'. But whilst one must argue that the wealth of our nation owes much to geology, we must also make the case that our inheritance is not only in a sense abstract; it is also very much a material one. Geology began as an observational science (and in many respects still is) and our inheritance of rocks, fossils and minerals, together with those collections which current research demands that we accumulate now, are part of the very stuff of science. Specimens may be survivals from past scientific ventures. But they remain to form research tools continually and conveniently available in order that they may contribute to the science even now. Unfortunately, geological collections have too often been consigned to the common stock of museum basements and cellars, eventually to suffer far worse fates - decay, destruction, wholesale disposal - whilst the more elusive and exciting truths awaiting completion of the next research project are preferred, perhaps with more collections being made only to suffer the same future demise.

The lessons of such histories have not always been quickly or well learned. The GCG was formed in 1974 by geological curators and their kind who were already well aware of the poor state of the material heritage of their science, as well as the high value attached to it, but who found no forum for improvement. Philip Doughty examined the *State and Status* of geological collections and reported his sad findings in 1981. The *Geological Curator* has fully documented many instances of the neglect, mismanagement and disorder that he uncovered on a scale of frightening proportions. Since his report, the GCG has had its successes in combating this situation but much remains to be done.

Universities do not escape the grim conclusions of the Doughty Report, and indeed many of them have provided classic examples of collection decay. But here in Cambridge, at the Sedgwick Museum, there has been a long history of excellence and we are here today to inaugurate an award which celebrates the work of one man who perhaps above all is responsible for the emergence of this reputation. I regret that I did not know Bertie myself but I guess that few even of his close friends and colleagues were fully aware of his achievements until David Price published 'A life of dedication' in 1989 (*Geological Curator*, **5** (3), 95-99). I fear that Bertie's contribution to the Sedgwick Museum, to the Department of Earth Sciences and to curatorship remained, until that paper was published, largely unrecognised or ignored, except by those who had worked closely with him. Today, it is not just the 348,000 specimens he catalogued that we acknowledge, not just his curatorial skills, his display work, his teaching or his scholarship which we recognise. It is the totality of all those things that mark the exceptional man that Bertie was. I am proud to be the Chairman of the GCG but I am particularly proud to be able to usher in the Brighton Medal as the GCG's celebration of Bertie's work and life, and of those values of curatorship which he so clearly upheld.

I am delighted that we meet in surroundings so familiar to Bertie and thrilled to be able to welcome his wife Edith here to receive for Bertie the first of the medals minted in his name.'

[Professor Sir David Williams (Vice Chancellor of the University of Cambridge) made the presentation of the first Brighton Medal to Mrs Edith Brighton.]

## Presentation of the second Brighton Medal to the late Dr David Price as Founder of the Medal, received by Mrs Valerie Price

'The tragic loss of David Price from the Earth Sciences Department of Cambridge University, from the Sedgwick Museum and from geological curatorship has in many ways thrown into high relief some of the issues raised by the inauguration of the Brighton Medal. Bertie failed to win the contemporary recognition of his achievements and much of his work was marginalised. Curators and curation continue to be marginalised, as many recent events evidence, and it

seems clear to me that this process operates not only in local government but also in universities, including Cambridge. This is the wrong time and the wrong occasion to rehearse the arguments and circumstances which led to David's death. Suffice to say that we all have many lessons to learn. I want today to take the positive view that we have much to be thankful to David for - his scholarship, his curatorship, his friendship and the vocational dedication which, like Bertie, he brought to his work and which we all knew him for. Those who attended his funeral will remember the moving tributes from Professor Ron Oxburgh (University of Cambridge) and Dr W. D. Ian Rolfe (Keeper of Geology, National Museums of Scotland). In particular, the GCG and the community it represents is grateful to David for his perceptive insights into Bertie's work and for his conception and prosecution of a Brighton Medal to recognise outstanding achievements in museum geology.

Recently, Cambridge among other universities benefitted from funds released by the University Funding Council for the employment of geological curators to service the most senior of geological collections, as well as those devolving to these centres from university departments lately closed [see Editorials in *Geol. Curator* **5**, Nos.1, 3, 4 and 6]. The Sedgwick Museum is now reaping the benefits in terms of both new staff and a magnificent new museum store. Much of their work will be based on that of Bertie Brighton and his successors including David Price. I hope that they can continue in the sound traditions of curatorship and excellence for which the Sedgwick has long stood.

It is therefore with the greatest pleasure that the Group has awarded David this founder's Medal and we offer it to Valerie and her children with the sincere hope that it will help to ease the burden of bereavement and contribute to the long term pride in a life well lived.'

[Professor Sir David Williams made the presentation of a founder's Brighton Medal to Mrs Valerie Price.]

# GEOLOGICAL CURATORS' GROUP

## 16th Annual General Meeting

**Thursday 14 December 1989 at the University Museum, Oxford.**

Thirty members were present.

### 1. Apologies for absence

Alison Armstrong, Bryan Cooper, Tony Cross, Mandy Edwards, Dorothy Hardy, Bob King, Wendy Kirk, Peter Knight, John Martin, Kate Pontin, Tim Riley, Mike Taylor, Steve Tunnicliffe, Geoff Tresise, and Martin Warren.

### 2. Minutes of the 15th Annual General Meeting 1988

They were approved and signed by the Chairman.

### 3. Matters arising

Di Smith asked about the launch of the *Rescue - a Heritage on the Rocks* leaflet and the formation of a joint committee as mentioned in the PRO's 1988 Report. Mick Stanley explained that the PRO had not taken matters further during 1989 but expected that the 1990 Committee would look into the matter.

### 4. Chairman's Report - from Mick Stanley

'Museums Year was successful for the Group with an excellent public response to the Geological Walks, coordinated by Geoff Tresise and Phil Phillips who produced and distributed leaflets to the 30 or so museums taking part. This brand of geological awareness is good public relations and will hopefully be repeated annually. Congratulations to Phil for winning the Museum Professional of the Year award, and to Liverpool Museum's Natural History Centre as runner up in the Community Museum Award (both Times/Shell Awards).

Simon Knell and Mike Taylor's book *Geology and the Local Museum* was successfully launched at Worcester and has subsequently received much acclaim for its simple, practical and common-sense approach to the problem of non-geologists caring for geological collections. It fully complements the *Guidelines* and in addition provides simple classifications for fossils and rocks together with a full mineral listing and classification including environmental requirements and hazards. *Guidelines* is currently receiving an appraisal with a view to an up-date of those sections now either 'not green' or merely containing out of date information. When printed, the single sheets will simply insert into your ring binders.

GCG's response to the Hale Report and the subsequent formation of the Museum Training Institute galvanised a working party to look closely at the training of geological curators. We propound that a geology graduate must have received one or two days tuition in curation (and Earth Science conservation) before entering a museum, where a general induction course would lead to a six month attachment to a training museum. On the successful completion of this course, a Certificate of Geological Curation, endorsed by GCG and MTI, will launch the graduate's career in museums. We will shortly be submitting our proposals to MTI.

The success of last year's Curatorial Course jointly organised by GCG and BCG prompted your Committee to arrange another for March 1990, but organised by the Division of Continuing Education of Sheffield University through the good offices of Bob Toynton. Next year's course will run from Sunday 18 March to Friday 23 March and place a greater emphasis on the practical aspects of curation. This course could become the model for the proposed Introduction to Training in Geological Techniques leading to the attachment of Specialised Training, outlined above.

Peter Crowther's editorials in *Geological Curator* have kept you fully informed of the progress of the UFC's Earth Science Review and its affect on collections. GCG continues to monitor the 'rationalisation' of collections which is now, certainly in England, unlikely to commence until April 1990. Horror stories in Scotland, where two weeks notice was given to move two collections, is not the way we anticipated 'rationalisation' working.

Museums Year was also the time to pay homage to Bob King for his sterling work training curators on the Leicester Course over the past 20 years and his many papers on minerals and their care. He was made an Honorary Member of the Group at the Bristol meeting in March.

Finally, I would like to thank formally the many members of GCG who have made my three years as President both enjoyable and rewarding, especially the long suffering Secretaries, Geoff Tresise and Simon Knell, for their patience; Tom Sharpe, the retiring Treasurer, for his attention to the finances when we wanted to do more than he advised; Peter

Crowther for the excellent editorials putting matters of concern more eloquently than I ever could; and to all committee members for the long, long hours in meetings (which never get shorter) and those local secretaries at our general meetings for the superb organisation of events.'

There were no questions.

## 5. Secretary's Report - from Simon Knell

'The Group held four seminars and two field days in 1989. The year began with 'Here be Dragons!' in March - a visit to Bristol City Museum and Art Gallery's 'The Great Sea Dragons' exhibition. The exhibition contained many superb fossil reptiles from Bath Geology Museum and private collectors, and included Bristol's recently acquired giant Lias ichthyosaur from Charmouth and the Westbury Kimmeridgian pliosaur. A full programme of speakers from Bristol's Geology Section discussed the mounting of the ichthyosaur, the turbulent history of the Museum's geology collections and the educational use of the exhibition. In June the Group met in Worcester for the first of two two-day seminars held this year. The first day was spent in blazing sunshine discovering the geology and scenery of the Malverns. On the second day the Group met at Worcester City Museum and Art Gallery to discuss past and present day problems of 'Geology and the Local Museum', as well as the NCC's new geological guide to the Malverns. 'What price the 1990 orogeny?' at the Hancock Museum in September provided the Group with its first opportunity to examine in detail the likely effects of the Earth Sciences Review on collections in university geology departments. The transfer of collections in Liverpool was found to be relatively painless, but recent movements of collections in Scotland as a result of the reorganisation provided a frightening picture of what might be in store for other departments. The preceding day was spent in the field examining the exceptional Westphalian exposures between Tynemouth and Seaton Sluice in the entertaining company of Dr J. M. Jones who made members feel like first year students again (especially the ornithological section!). 'Facets of our glittering heritage' at the AGM held in Oxford University Museum in December meant that the Group could catch up on developments in mineral conservation, mineral collections in the SE, amateur mineral collecting and the latest happenings at the Natural History Museum.

Meetings planned for 1990 include a joint meeting with the BCG on 22 March at Peterborough, Dublin in June, Cromer in October, with the AGM in York in December. The highly successful Natural Sciences Training Course organised jointly with the BCG and held at Losehill Hall in 1988 will be repeated on 18-23 March 1990 in Sheffield and looks to be even better. A joint seminar with the Museums Association on 'Geology for Non-Specialists' is also planned for 1990.

The Committee met on four occasions in 1989 (January, April, September and December). Tim Schadla-Hall, Roy Clements and Geoff Stansfield attended one of these meetings to discuss the future of training geological curators. Discussions left us in no doubt that the problems in this area are becoming acute as Leicester University's Department of Museum Studies and the Museums Association appear to have nothing to offer in this area. As a result, a Training Working Party was established under the Chairmanship of Geoff Tresise to examine training needs and made recommendations to the Group.

*Geology and the Local Museum* was finally published in May and launched at the Worcester meeting. It appears to have met with a favourable response from its intended audience. *Coprolite* a new 'newsletter' will be produced by Tom Sharpe for the Group in 1990. This will aim to keep members up-to-date with news and events - something we have been unable to do with *The Geological Curator*. The Committee is also investigating the production of information sheets covering the type of material typically entering museums as geological enquiries.

Di Smith replaced me on the Geological Society's Conservation Committee, and deserves particular thanks for attending Museums Association and other Geological Society meetings on behalf of the Group. Monica Price and I have been in discussions with various national geological organisations in an attempt to launch a 'Geology Collector of the Year' award - more on this in the new year.

There are many changes to the Committee for 1990. Mick Stanley completes his three year term as Chairman. Tom Sharpe and Mike Taylor have resigned from the offices of Treasurer/Membership Secretary and Recorder respectively. Both have given many years service to the Group. Howard Brunton completes his term on the Committee, Paul Selden has resigned from the Committee and John Cooper, who is currently a Committee member, becomes the new Chairman.

Finally, I must thank the officers, Committee members and local meetings organisers for taking on so much of the work which would otherwise be undertaken by the Secretary.'

There were no questions.

## 6. Treasurer's Report - from Tom Sharpe

### (i) Membership

'28 new subscribers joined the Group this year (19 UK Personal; 4 Overseas Personal; 1 UK Institutional; and 4 Overseas Institutional). Resignations and removals for subscription arrears totalled 48, giving a net reduction in membership of 20. Our total membership is 448 and comprises:

| | |
|---|---|
| UK Personal Members: | |
| (including 3 Honorary Members) | 247 |
| Overseas Personal Members: | 41 |
| UK Institutions: | 102 |
| Overseas Institutions: | 58 |

In addition, we distribute 14 complimentary and copyright copies of the journal.

### (ii) Finance

The accounts for the period 9.11.88-15.11.89 appear below.

Our greatest expense continues to be *Geological Curator* which, from Vol. 5 No. 3 has been printed and distributed by a printer in Nottingham. This has resulted in an increase of 66% in the cost of producing the journal. We must look to sponsorship and advertising to help defray these extra costs and members' assistance would be welcome in this respect. If you know of, or deal with, a company which might consider sponsorship or advertising, please inform a committee member.

Delays in production of *Geological Curator* during the last few years have benefitted the Group by accruing interest which this year totalled £1126.87.

This is my last report as Treasurer. Since I took up the post in 1983, membership has gone up from 331 to 448, and our annual income has increased from £2900 to £5100. This is not of my doing. I have been fortunate to have been Treasurer during a period of growth and I wish my successor the same good fortune. In closing, I would like to record my thanks to Steve Howe and Bob Owens for their rigorous annual audit which has kept me on my toes every year.'

Roy Clements asked how much *Coprolite* will cost to produce; Tom replied £600 p.a. and explained that the special mailings which had been necessary over the last two years to give members sufficient notice of meetings will now cease. Roy also expressed concern that 48 members had been lost. Tom explained that he had deleted several members for non-payment of subscription.

The Chairman thanked Tom for all his hard work as Treasurer over the last eight years.

## 7. Editor's Report - from Peter Crowther

### (i) 1989

'Three issues of the *Geological Curator* have been published this year: Vol.5, No.2 (Issue 2 for 1987), pp.53-92, published 8 February 1989; Vol.5, No.3 (Issue 3 for 1987), pp.93-132, published 26 October 1989; and Vol.5, No.4 (Issue 1 for 1988), pp.133-172, published 23 November 1989

A change of printer was forced upon us in the early part of the year, due to pressure of work within the Reprographics Department of Leicestershire County Council. Reprographics have been printing our journal since I became Editor in 1985 but have had to withdraw from such non-Council contracts this year. Committee decided to engage Barnes and Humby of Nottingham for Vol. 5, Nos. 3 and 4. While we have suffered no loss of quality in the changeover, there has been an inevitable increase in printing costs, resulting from the very favourable rates given previously by Reprographics. This, together with the fact that we are now paying for distribution (by Barnes and Humby), will force some economies next year.

Note: the discussions with Oxford University Press referred to in my 1988 AGM Report came to an abrupt end when, quite out of the blue, the University decided to close the Printing House operation altogether (thereby bringing to an end several centuries of printing by the University, and leaving a large number of journals looking for new printers at short notice).

### (ii) 1990

Vol. 5, No. 5 will be devoted largely to a major article by Hugh Torrens and Mike Taylor on the chequered history of geological collections in Cheltenham during the last 200 years. 1990 will see the launch of a *regular* GCG newsletter under the title *Coprolite*, to be compiled by our retiring Treasurer, Tom Sharpe. This will provide what the journal cannot guarantee (given present production arrangements) - an up-to-date summary of forthcoming events and 'hot' news for personal members. Much of what has traditionally gone into 'Notes and News' will in future adorn *Coprolite* and should thereby reach its intended audience more quickly.

The *Index for Volume 2 of Geological Curator* compiled by Justin Delair is almost ready for pasting up, and will be equivalent in size to a normal issue of the journal. It will be distributed to all current members of the Group and will hopefully encourage people to buy any back issues from Vol. 2 that they currently lack! I anticipate publication in the Spring.

### (iii) Thanks

A generous grant of £200 was made by Liverpool Museum towards the publication costs of Geoff Tresise's article on *Chirotherium* in Vol. 5, No. 4, for which the Group is very grateful.

With the change of printer this year has come a change in distribution arrangements. Vol. 5, No. 2 was the last issue to be sent out by the geologists at Leicestershire Museums, with No. 3 and subsequent issues being handled for us by our new printers in Nottingham. So thanks again to John Martin's happy band in Leicester for their efforts over the last few years. Also at Leicester, Dr Patrick Boylan (Director of Museums and Arts) continues to support GCG's publishing activities by making available word processing facilities in the museum, which Judy Marvin continues to operate for us with top quality results. Mike Taylor relinquishes 'Lost and Found', 'Notes and News', and (with the Recorder's post) the 'CING' column, and will be a hard act to follow.

As ever, my most heartfelt thanks go to all who have contributed material for publication this year. Keep it coming!'

Roy Clements asked if the Geol. Soc. Publishing House in Bath had been approached. Peter said that he had not yet spoken to them and that he was waiting to see how the new Publishing House gets on.

The Chairman thanked Peter for his Report.

## 8. Recorder's Report - from Mike Taylor

'It has been a quiet year. The entire CING database is now on computer disc (PC-compatible or PCW) and I have taken the opportunity to add data from other sources, not least the Museums Association's Database. This exercise brings two facts to light: 1, there are many more collections in the UK than even we thought - some 580 on present data (some of which have yet to be confirmed); and 2, the data we have is incomplete and unreliable - some 75% of data fields are effectively empty. We plainly need a wholesale revision and I have sent printouts to all Regional Coordinators to update the data in their areas; but so far only Simon Timberlake in the south-east has made a return.

Computerisation is already proving useful, not least in the ease of making copies of the whole database for security and the Secretary's use. We have produced sticky labels for the free mailing of *Geology and the local museum* to all known UK geological collections, and answered one enquiry.

The content of the CING database remains a listing of institutions, staff, services and curatorial standards, with only brief comments on the content of the collection. We thus avoid duplicating the work of FENSCORE and the regional Natural Science Collections Research Units on the content of collections, or the specialist survey work which the Area Museum Councils are (or mostly ought to be) doing. It remains a matter of considerable concern that only AMSSEE and (through their agents) AMCSW and WHAMS are doing anything in this line.

FENSCORE has shown some signs of revival with a proposal for a union catalogue of type material in UK museums. I have been unable to keep in contact over this.

For personal reasons I have had to resign the Recordership and, while thanking the Regional Coordinators and all the museum staff involved, I wish my successor John Nudds the best of luck with the job at this difficult time. Completeing the CING project must be one of the key roles of the GCG, which I leave with regret and the thought that the Museums Association's much-vaunted Museums Database could only name some 358 out of the 580-odd geological collections in the UK. If we don't list them, who will?'

The Chairman thanked Mike for all his hard work as Recorder.

## 9. Public Relations Officer's Report - from Phil Doughty

No report was given.

## 10. National Scheme for Geological Site Documentation Report - from Mick Stanley

### (i) Geological Records Centre

The GRC is now up and running. The Nature Conservancy Council awarded the contract to the British Geological Survey, to undertake inputting the 25,000 records held by centres within the National Scheme, in April of this year. There have, not surprisingly, been teething problems: recruitment of data inputters has been difficult but the very slow flow of copy records from Centres has been the main problem. The intention was to phase the supply of records to allow a continual flow but this has not happened. The situation is recovering and more records are at last appearing. Copy records are still urgently required at BGS and I have written to Centres to remind them of their promised dates of delivery. This golden opportunity to provide a centralised record of sites held by the scheme is a one-off and we will almost certainly not get another chance. It will provide Centres with a computerised record of their holdings for the minimal cost of photocopying and postage to BGS.

**(ii) Future activities**

The next two years should see the Geological Records Centre at BGS functioning as was originally intended. By the end of 1990 all 25,000 (estimate) records held by the 52 Geological Locality Record Centres within the scheme should be entered into the data base. Further, the originating centres will have checked the hard copy, corrected same and returned to BGS for update. Each centre will have received the final hard copy of their data or a disk of that data in the required form.

It is hoped that within the same period finance will have been obtained to provide hardware for each centre to enable them to access CDROM (or similar) which holds all records held within the scheme at the Geological Records Centre. This will allow any centre access to all data to answer enquiries or at least allow a contact point for further enquiry. It is also hoped that much BGS data will be made available to Record Centres through the medium of CDROM.

Much closer liaison is anticipated with BGS, especially with their proposals to become more involved with the recording of temporary and other sections by their staff and others.

**(iii) New Centres designated**

51 Isle of Man: The Manx Museum,
Isle of Man (Dr L. Garrard)

52 Bedfordshire (North): Bedford Museum,
Castle Lane, Bedford (Miss R. Brind)

Peter Crowther asked about the source of funding to equip record centres with CDROM hardware. Mick explained that he hopes to secure sponsorship from British Gas.

## 11. Election of Officers

The Committee nominated John Cooper (Booth Museum, Brighton) as Chairman and there being no other nominations he was declared elected. The Committee nominated Andy Newman (Hancock Museum, University of Newcastle-upon-Tyne) as Treasurer and John Nudds (The Manchester Museum) as Recorder and there being no other nominations they were declared elected. All the other Officers agreed to remain in post and there being no other nominations they were declared elected.

John Nudds nominated Amanda Edwards (Dept. of Geology, University of Manchester), Chris Collins nominated John Martin (Leicestershire Museums) and the Committee nominated Monica Price (Oxford University Museum) as Ordinary Committee Members and there being no other nominations they were declared elected.

## 12. Nomination of auditors

Tom Sharpe nominated Ken Sedman and Tim Pettigrew as auditors.

## 13. Any other business

John Cooper expressed heart felt thanks from the Group to Mick Stanley for his term as Chairman and for his valuable contribution on the Committee over the last 12 years. This was warmly applauded.

## 14. Date and venue of 17th AGM

To be 6 December 1990 at the Yorkshire Museum, York.

# Annual Accounts 1989 (9 November 1988 - 15 November 1989)

| | 1989 | 1988 |
|---|---|---|
| ***Current Account Income*** | | |
| Subscriptions | 3477.16 | 2913.09 |
| Sale of backnumbers | 193.32 | 239.80 |
| Advertisements[1] | - | 785.00 |
| Sale of reprints | 23.38 | 30.60 |
| Meetings fees | 90.00 | 90.50 |
| Conservation Conference Account[2] | - | 400.61 |
| *Guidelines* order | 11.00 | - |
| Donations[3] | 220.00 | - |
| Cheque conversion | 5.00 | - |
| | 4019.86 | 4459.60 |
| Unpresented cheques | - | 87.00 |
| Transfer from HICA | 1000.00 | 1050.00 |
| | 5019.36 | 5596.60 |
| Balance | 1203.08 | 832.59 |
| | £6222.94 | £6429.19 |

1. 1988 includes £700 sponsorship of Vol. 4 No. 9 by Bruynzeel.
2. 1988 transfer of balance of Conservation Conference Account to Current Account
3. 1989 includes £200 contribution to costs of producing *Geological Curator*.

| | | |
|---|---|---|
| ***Current Account Expenditure*** | | |
| *Geological Curator* | | |
| Printing[1] | 1770.94 | 1470.00 |
| Postage[2] | 388.89 | 497.60 |
| Typing[3] | 242.00 | 222.00 |
| Handling[4] | 119.37 | - |
| Stationery | 154.08 | - |
| Other expenses | 18.00 | - |
| *Meetings* | | |
| Printing meetings card | 33.35 | 50.26 |
| Postage and other expenses | 134.90 | 94.00 |
| Committee Meetings expenses | 70.40 | 43.50 |
| Belfast Mason Conference Fee | - | 200.00 |
| *Other expenditure* | | |
| CING expenses | 43.65 | - |
| Walks leaflet printing | 615.25 | - |
| 'Thumbs Up' expenses | 6.30 | - |
| *Guidelines* order | 11.00 | - |
| NMW facility fee | 50.00 | - |
| *Index* Vol. 2 | - | 100.00 |
| Stationery | - | 40.25 |
| Girobank charge | - | 2.50 |
| Returned cheque | 14.00 | 6.00 |
| | 3672.13 | 2726.11 |
| Transfer to HICA | 2200.00 | 2500.00 |
| | 5872.13 | 5226.11 |
| Balance | 350.81 | 1203.08 |
| | £6222.94 | £6429.19 |

| | 1989 | 1988 |
|---|---|---|
| ***Committed expenditure*** | | |
| *Geological Curator* 5(4)-5(9) | *c.*8880.00 | |
| *Index* Vol. 2 | *c.*1480.00 | |
| | 10360.00 | |
| Advance subscriptions | 196.00 | |
| | £10556.00 | |

1. 1989 Vol. 5(2) and 5(3) 1988 Vol. 4(9) and 5(1)
2. 1989 Vol. 5(2) and 5(3) 1988 Vol. 4(9) and 5(1) and distribution of 1987 AGM papers.
3. 1989 Vol. 5(2), 5(3) and 5(4)
4. 1989 includes cost of envelopes.

| | | |
|---|---|---|
| ***High Interest Cheque Account Income*** | | |
| Transfer from Deposit Account[1] | - | 108.19 |
| Transfer from Current Account | 2200.00 | 2500.00 |
| Interest | 1126.87 | 560.85 |
| | 3326.87 | 3169.04 |
| Balance | 8583.33 | 6464.29 |
| | £11910.20 | £9633.33 |

1. Deposit Account closed 2.2.88

| | | |
|---|---|---|
| ***High Interest Cheque Account Expenditure*** | | |
| Transfer to Current Account | 1000.00 | 1050.00 |
| Balance | 10910.20 | 8583.33 |
| | £11910.20 | £9633.33 |

| | | |
|---|---|---|
| **Total income** | 5146.73 | 5108.25 |
| **Total expenditure** | 3672.13 | 2726.11 |
| **Surplus** | 1474.60 | 2382.14 |
| **Income due** | 920.00 | 1002.50 |
| **Cash in Bank** | 11261.01 | 9786.41 |
| | 12181.01 | 10788.91 |
| **Committed expenditure** | *c.*10360.00 | *c.*7720.00 |
| **Carried forward (including advance subscriptions)** | *c.*1821.01 | *c.*3068.91 |

[signed] T. Sharpe
*GCG Treasurer*

Auditors: S. R. Howe R. M. Owens

## Publication scheme

Three issues of the *Geological Curator* are published for each year; a complete volume consists of nine issues (covering three years) and an index.

### Notes to authors

ARTICLES should be submitted typed on good quality paper (A4 size) double spaced, with wide margins. Two copies should be sent to the succeeding Editor, Patrick Wyse Jackson, Department of Geology, Trinity College, Dublin 2, Ireland. Line drawings should be prepared in black ink at twice desired publication size. Photographs for halftone reproduction should be printed on glossy paper. Both drawings and photographs should be proportioned to utilise either the full width of one column (85mm) or two (175mm). References in the text follow the Harvard system, i.e. name and date '(Jones 1980)' or 'Jones (1980)'. All references are listed alphabetically at the end of the article and journal abbreviations should follow the *World List of Scientific Periodicals* where appropriate. Authors will normally receive proofs of text for correction. Fifty reprints are supplied at cost. Major articles are refereed. Copyright is retained by authors.

WORD-PROCESSED ARTICLES: please also send your article on disk specifying your computer make/model, your operating system (e.g. MSDOS5.0), the word-processing package you use, and the document name. Further guidance on word-processed articles can be obtained from the Editor. Your disk will be returned to you after use.

### Regular features

LOST AND FOUND enables requests for information concerning collections and collectors to reach a wide audience. It also contains any responses to such requests from the readership, and thereby provides an invaluable medium for information exchanges. All items relating to this column should be sent to the Editor (address above).

NOTES AND NEWS contains short pieces of topical interest. Please send contributions to the Editor (address above).

CONSERVATION FORUM helps keep you up to date with developments in specimen conservation. Information on techniques, publications, courses, conferences etc. to Christopher Collins, Sedgwick Museum, Department of Earth Sciences, University of Cambridge, Downing Street, Cambridge CB2 3EQ (tel. 0223 62522)

BOOK REVIEWS contains informed opinion about recently published books of particular relevance to geology in museums. The Editor welcomes suggestions of suitable titles for review, and unsolicited reviews can be accepted at his discretion. Publishers should submit books for review to the Editor.

INFORMATION SERIES ON GEOLOGICAL COLLECTION LABELS consists of loose A4 size sheets, issued irregularly, which carry reproductions of specimen labels usually written by a collector of historic importance. The aim of the series is to aid recognition of specimens originating from historically important collections.

### Advertisement charges

| | |
|---|---|
| Full A4 page | £60 per issue |
| Half A4 page | £40 per issue |
| Quarter A4 page | £25 per issue |

Discounts for space bought in three or more issues

Further details from the Editor.

Inserts such as publishers' 'flyers' can be mailed with issues of the *Geological Curator* for a fee of £60. 550 copies of any insert should be sent to John Martin, Leicestershire Museums, Arts and Records Service, 96 New Walk, Leicester LE1 6TD.

### Subscription charges

| | |
|---|---|
| UK Personal Membership | £7 per year |
| Overseas Personal Membership | £9 per year |
| UK Institutional Membership | £10 per year |
| Overseas Institutional Membership | £12 per year |

All enquiries to the Treasurer/Membership Secretary, Andrew Newman, Department of Archaeology, University of Newcastle, Newcastle upon Tyne (tel./fax 091 222 7426)

### Backnumbers

Backnumbers of the *Geological Curator* (and its predecessor, the *Newsletter of the Geological Curators' Group*) are available at £2.50 each (£5.25 for the double issues of Vol. 2, Nos. 9/10 and Vol. 3, Nos. 2/3; £7.50 for Vol. 4, No.7 Conference Proceedings) including postage. Orders should include payment and be sent to John Nudds, The Manchester Museum, The University, Oxford Road, Manchester M13 9PL (tel. 061 275 2634)