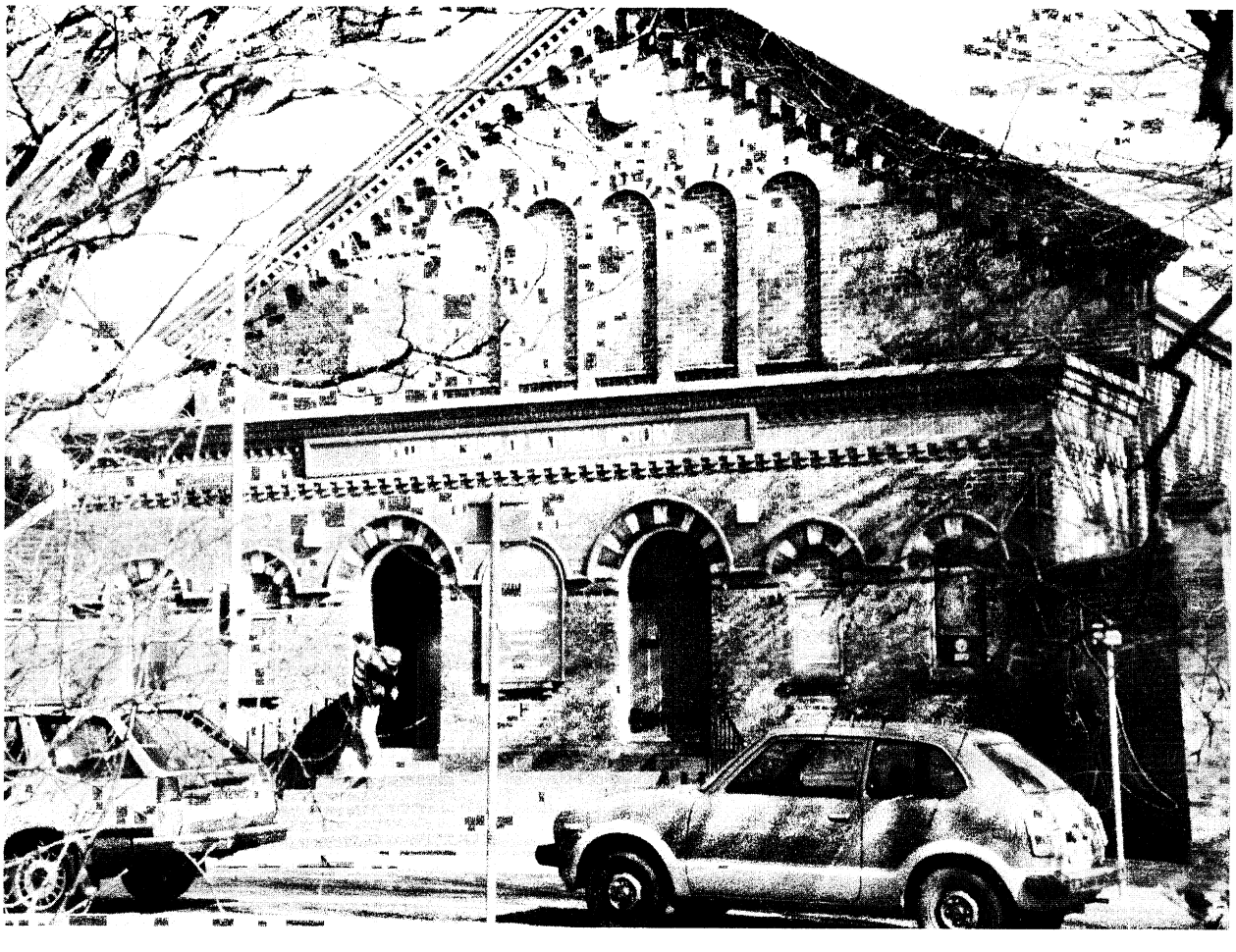
GEOLOGICAL CURATOR

Volume 7 Number 3



GEOLOGICAL CURATORS' GROUP

Registered Charity No. 296050

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 maintenance 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.

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Cover: The Booth Museum of Natural History [see paper by John Cooper].

THE GEOLOGICAL CURATOR

VOLUME 7, No. 3

CONTENTS

GEOLOGICAL CURATORS' GROUP - June 2000

SILVER PAGES: 25 YEARS OF THE *NEWSLETTER OF THE GEOLOGICAL CURATORS' GROUP* AND *THE GEOLOGICAL CURATOR*

by Patrick N. Wyse Jackson

Wyse Jackson, P.N. 2000. Silver Pages: 25 years of the *Newsletter of the Geological Curators' Group* and *The Geological Curator*. *The Geological Curator* 7(3): 95-99.

Soon after its inception in 1974 the Geological Curator's Group established the publication *Newsletter of the Geological Curators' Group*. In the following years it has undergone several changes not only in style, but also most notably in name to *The Geological Curator*. This reflected an evolution of an original newsletter-style into a journal-style publication. In 1980 the newsletter *Coprolite* was first published. The publications of the Geological Curators' Group have aided the development of professionalisation amongst geological curators.

P.N. Wyse Jackson, Department of Geology, Trinity College, Dublin 2, Ireland. *Received 19th May 1999; revised version received 28th March 2000.*

Introduction

The Geological Curators' Group has been publishing for almost all of its 25 year existence – I have only had responsibility for one of its products – *The Geological Curator* for the last five and a half years. In this brief review, I will attempt to distil the Group's publication history, and will illustrate the major events in the evolution of its publications.

The Group has produced various titles: *Newsletter of the Geological Curators' Group*, and its successor journal *The Geological Curator*, the newsletter *Coprolite*, as well as other additional and occasional offerings.

This review examines the unequal periods coincident with the terms of office held by the five editors responsible for the *Newsletter* and/or *Curator*. Comments about *Coprolite* are made where appropriate. There have been five editors: Brian Page; Hugh Torrens; Tim Pettigrew; Peter Crowther, and myself, all of whom, with the exception of Hugh Torrens who acted as Editor for one issue, oversaw a considerable number of journal issues.

Brian Page (1974-1980) and Hugh Torrens (1980)

The inaugural meeting of the GCG was held in Burlington House, Piccadilly, London on 17th May 1974 and the first issue of the *Newsletter of the Geological Curators' Group* was published soon afterwards in September (Figure 1). It was in an A4 format, copied on a Gestetner machine, and its 26 pages in black and white text (Figure 2) were stapled between pale orange covers. It is worthwhile reminding ourselves what the first editor, Brian Page, of the University of Keele wrote in his first editorial:

> "The *Newsletter* should be the mouthpiece of the Group and it must have something to say; it should be more than just a series of interesting articles. It must be a source of information; a disseminator of ideas and techniques; a vehicle for discussion and argument."

It is perhaps not surprising that the first paper to be published was penned by Hugh Torrens, who was a driving force behind the *Newsletter* and who became a constant supplier of copy: his, the first in the series of *Geological Collections and Collectors of Note,* was on Lichfield Museum. In the same first issue the forerunner of Lost & Found appeared with Mike Jones seeking S.R. Pattison's fossil collection; under the heading 'Technical', museological advice was given on colour coding for collections and Stuart Baldwin discussed fossil reproductions. An indication of inflation can be gained by looking at the price of a 300 page book that was reviewed – it cost only £8.50!

From a comparison of Volume 1, Number 1 (1974), with Volume 6, Number 10 (1998) little seems to have changed in the broad content of the *Newsletter* and *Curator*. Lost & Found, Book Reviews, Museology and methodology, and collections and

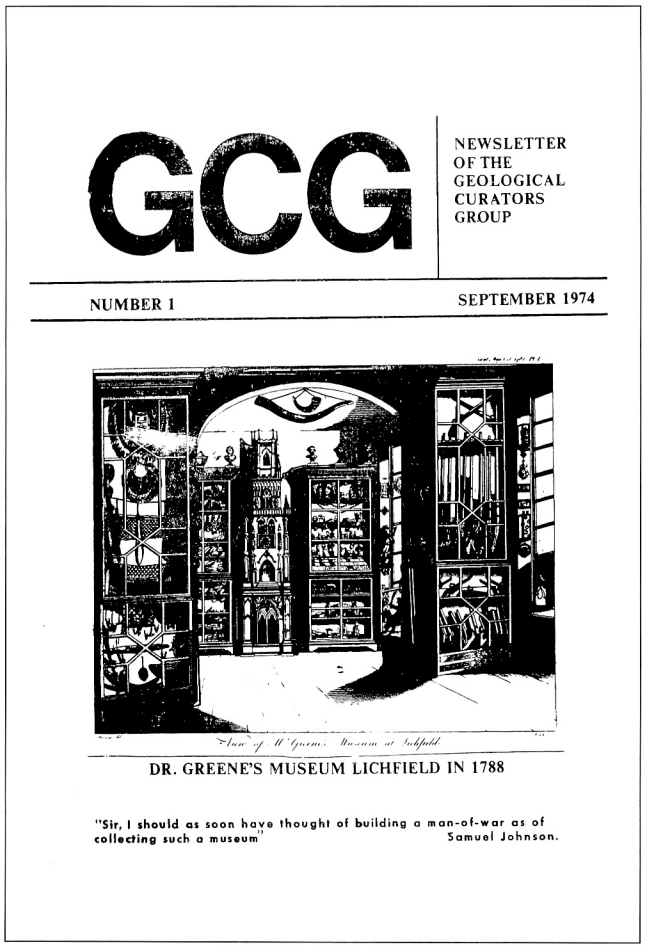
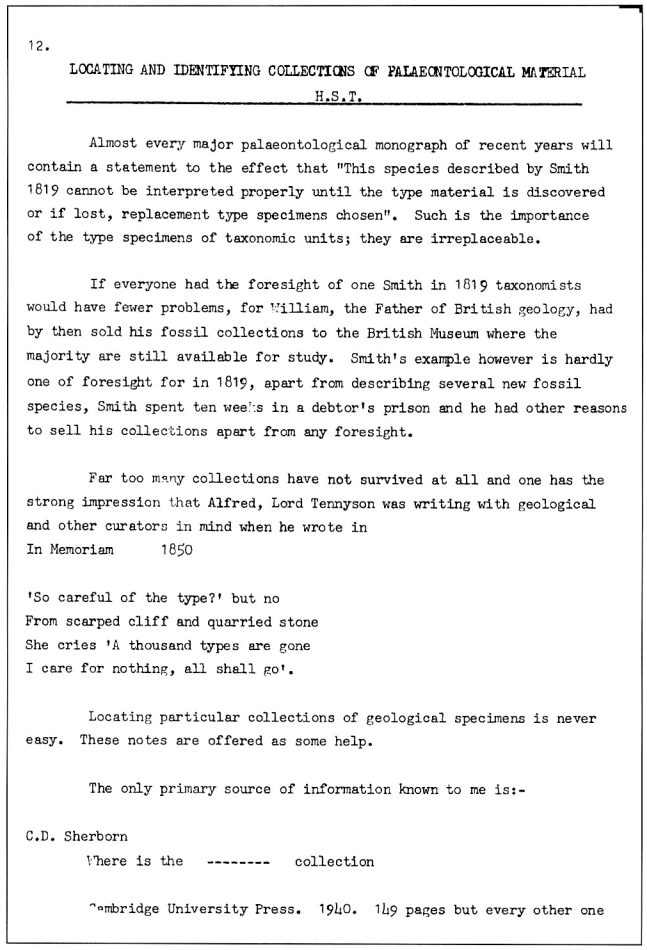


Figure 1. Cover of *Newsletter of the Geological Curators' Group*, Number 1, September 1974.



12.

LOCATING AND IDENTIFYING COLLECTIONS OF PALAEONTOLOGICAL MATERIAL

H.S.T.

Almost every major palaeontological monograph of recent years will contain a statement to the effect that "This species described by Smith 1819 cannot be interpreted properly until the type material is discovered or if lost, replacement type specimens chosen". Such is the importance of the type specimens of taxonomic units; they are irreplaceable.

If everyone had the foresight of one Smith in 1819 taxonomists would have fewer problems, for William, the Father of British geology, had by then sold his fossil collections to the British Museum where the majority are still available for study. Smith's example however is hardly one of foresight for in 1819, apart from describing several new fossil species, Smith spent ten weeks in a debtor's prison and he had other reasons to sell his collections apart from any foresight.

Far too many collections have not survived at all and one has the strong impression that Alfred, Lord Tennyson was writing with geological and other curators in mind when he wrote in
In Memoriam 1850

'So careful of the type?' but no
From scarped cliff and quarried stone
She cries 'A thousand types are gone
I care for nothing, all shall go'.

Locating particular collections of geological specimens is never easy. These notes are offered as some help.

The only primary source of information known to me is:-

C.D. Sherborn
Where is the -------- collection

Cambridge University Press. 1940. 149 pages but every other one

Figure 2. Inside page of *Newsletter of the Geological Curators' Group*, Number 1, September 1974.

collectors all survive. Clearly, like *Lingula*, a structure was established early on which has stood the test of time.

The publication schedule adopted was that three issues were to be published each year – clearly the Group members were optimistic and authors busy. At this time approximately 250 copies of the *Newsletter* were distributed to subscribers worldwide. Papers on resins, site recording in Derbyshire, type collections in Norway, pyrite collecting in the 1700s all appeared in the first 10 issues which contained 516 pages in total. Number 10 was the first to carry an ISSN number [ISSN 0308-681X] which was to subsequently change on Volume 2, Number 9&10 [ISSN 0144-5294].

In some issues the only photographs published were on the covers: the first photograph published in the body of a *Newsletter* was that of a specimen of *Chirotherium* that appeared in Number 6 in April 1976.

The first issue of Volume 2 oddly numbered Number 11, Volume 2 appeared in December 1977, and by the next issue the numbering scheme of Volume and Numbers was firmly established. Volume 2 contained 642 pages of the usual mix of articles, newspaper snippets, and notes (which from Number 8 were drawn together in the section *Notes and News* under the editorship of Tony Cross). Collections and Collectors of Note had reached contribution number 38, which focussed on the North Devon Athenaeum, and Lost and Found (split into separate Lost and Found sections) had reached the dizzy heights of number 107). The most significant event in the period of Volume 2 was the change in 1980 in name of the journal to *The Geological Curator* (Figure 3). This change was effected by the committee in a successful attempt to move away from the perception that what was being produced was not merely a newsletter, but was actually a journal. This name change, it was hoped, would result in increased institutional subscriptions.

Brian Page edited the first eighteen issues of the *Newsletter*, while Hugh Torrens was responsible for editing the last issue of Volume 2. As Geoff Tresise noted in 1980, the reason the Group had a strong and good *Newsletter* was largely down to the excellent job Brian did as editor. Not only did he edit the *Newsletter* but also arranged for it to be printed, and in the face of rising costs which threatened its existence

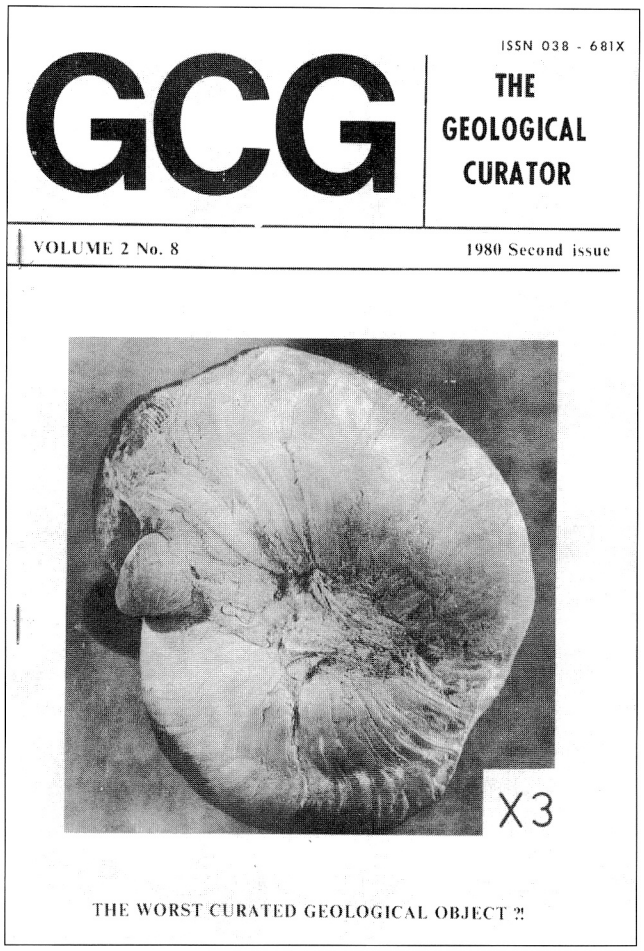


Figure 3. Cover of *The Geological Curator*, Volume 2, Number 8, May 1980 showing journal name change.

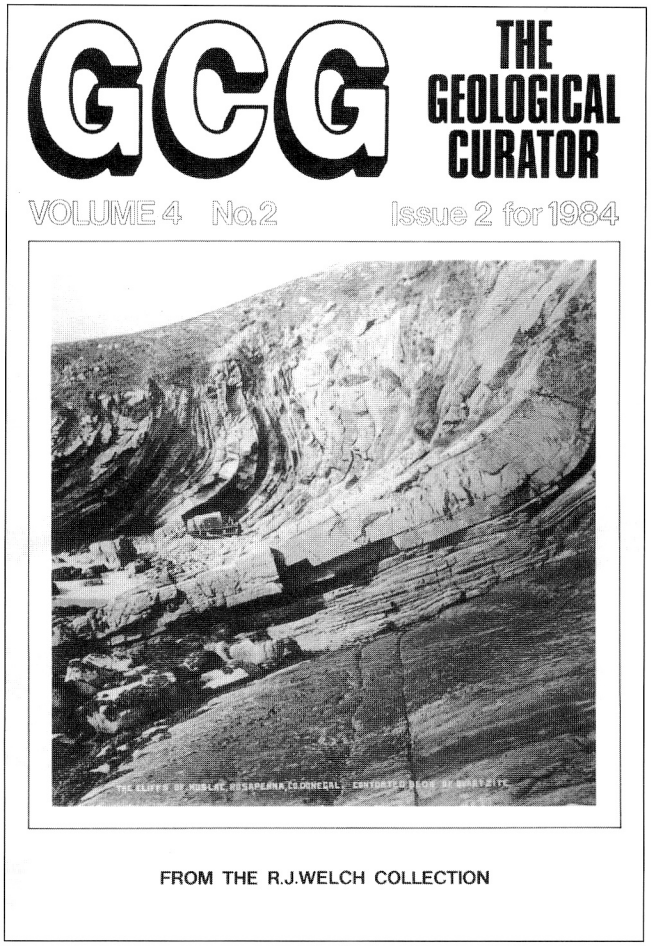


Figure 4. Cover of *The Geological Curator*, Volume 4, Number 2, April 1985 showing new style.

he successfully brought in advertising revenue. Brian's contribution was marked by his being elected an Honorary Subscriber to the *Newsletter* (the Group had no Honorary Life Membership at that stage). Brian was elected to Honorary Life Membership in 1999.

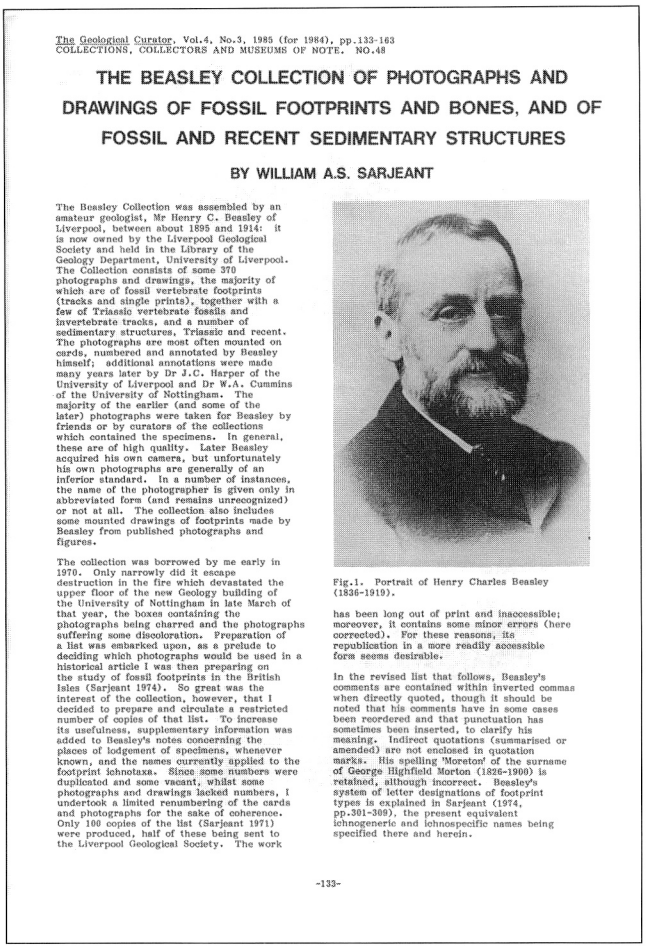
Tim Pettigrew (1981-1985)

In 1981 conveniently at the beginning of Volume 3, Tim Pettigrew of Sunderland Museum took over as Editor, and continued much in the style of his predecessor.

By Number 2 & 3 a new ISSN number had appeared, and the cover consisted of a wrap-around A3 card rather than two A4 cards. Another major change in style came during Tim's editorship when in his last issue Volume 4 Number 1, a double column page style was adopted. This further increased the professional look of the journal. In November 1981 the Label Register, organised by Ron Cleevley was initiated. It was to produce nearly a dozen Collection Label Sheets which were printed on loose A4 pages in a variety of colours. These remain valuable research documents. Although not strictly a GCG publication Philip Doughty's influential *State and Status Report*, the information of which was gathered in his rôle as the Group's Recorder, was published in 1981. The following year Howard Brunton reported in the *Curator* on the proposed *Guidelines* which saw the light of day in 1985. By 1982 rising production costs resulted in slimmer *Curators* of 40 or so pages. The usual mix of papers on collections, collectors, and methods continued to be published, and two supplements also appeared.

Peter Crowther (1985-1994)

Peter Crowther's tenure was marked by considerable changes to the look and feel of *The Geological Curator*. His first issue Volume 4 Number 2 of April 1985 had a glossy cover which featured new artwork designed by Alan Birdsall of Leicester (Figure 4). The typeface was increased in size, and the internal paper titles and author captions were standardised. The initial pages of papers also bore a header which identified the journal, and gave the date and pagination of the paper – this clearly faciliated recognition of the source of offprints or photocopied duplicates (Figure 5).



The Geological Curator, Vol.4, No.3, 1985 (for 1984), pp.133-163
COLLECTIONS, COLLECTORS AND MUSEUMS OF NOTE. NO.48

THE BEASLEY COLLECTION OF PHOTOGRAPHS AND DRAWINGS OF FOSSIL FOOTPRINTS AND BONES, AND OF FOSSIL AND RECENT SEDIMENTARY STRUCTURES

BY WILLIAM A.S. SARJEANT

The Beasley Collection was assembled by an amateur geologist, Mr Henry C. Beasley of Liverpool, between about 1895 and 1914: it is now owned by the Liverpool Geological Society and held in the Library of the Geology Department, University of Liverpool. The Collection consists of some 370 photographs and drawings, the majority of which are of fossil vertebrate footprints (tracks and single prints), together with a few of Triassic vertebrate fossils and invertebrate tracks, and a number of sedimentary structures, Triassic and recent. The photographs are most often mounted on cards, numbered and annotated by Beasley himself; additional annotations were made many years later by Dr J.C. Harper of the University of Liverpool and Dr W.A. Cummins of the University of Nottingham. The majority of the earlier (and some of the later) photographs were taken for Beasley by friends or by curators of the collections which contained the specimens. In general, these are of high quality. Later Beasley acquired his own camera, but unfortunately his own photographs are generally of an inferior standard. In a number of instances, the name of the photographer is given only in abbreviated form (and remains unrecognized) or not at all. The collection also includes some mounted drawings of footprints made by Beasley from published photographs and figures.

The collection was borrowed by me early in 1970. Only narrowly did it escape destruction in the fire which devastated the upper floor of the new Geology building of the University of Nottingham in late March of that year, the boxes containing the photographs being charred and the photographs suffering some discoloration. Preparation of a list was embarked upon, as a prelude to deciding which photographs would be used in a historical article I was then preparing on the study of fossil footprints in the British Isles (Sarjeant 1974). So great was the interest of the collection, however, that I decided to prepare and circulate a restricted number of copies of that list. To increase its usefulness, supplementary information was added to Beasley's notes concerning the places of lodgement of specimens, whenever known, and the names currently applied to the footprint ichnotaxa. Since some numbers were duplicated and some vacant, whilst some photographs and drawings lacked numbers, I undertook a limited renumbering of the cards and photographs for the sake of coherence. Only 100 copies of the list (Sarjeant 1971) were produced, half of these being sent to the Liverpool Geological Society. The work

Fig.1. Portrait of Henry Charles Beasley (1836-1919).

has been long out of print and inaccessible; moreover, it contains some minor errors (here corrected). For these reasons, its republication in a more readily accessible form seems desirable.

In the revised list that follows, Beasley's comments are contained within inverted commas when directly quoted, though it should be noted that his comments have in some cases been reordered and that punctuation has sometimes been inserted, to clarify his meaning. Indirect quotations (summarised or amended) are not enclosed in quotation marks. His spelling 'Moreton' of the surname of George Highfield Morton (1826-1900) is retained, although incorrect. Beasley's system of letter designations of footprint types is explained in Sarjeant (1974, pp.301-309), the present equivalent ichnogeneric and ichnospecific names being specified there and herein.

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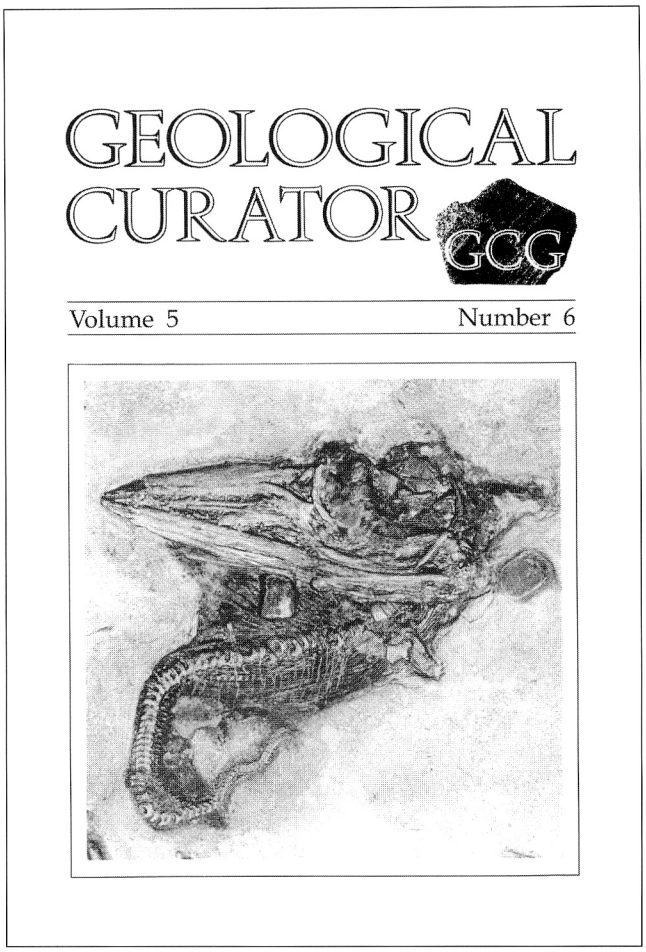
Figure 5. Inside page of *The Geological Curator*, Volume 4, Number 3, July 1985 showing 2 column layout.



GEOLOGICAL CURATOR

GCG

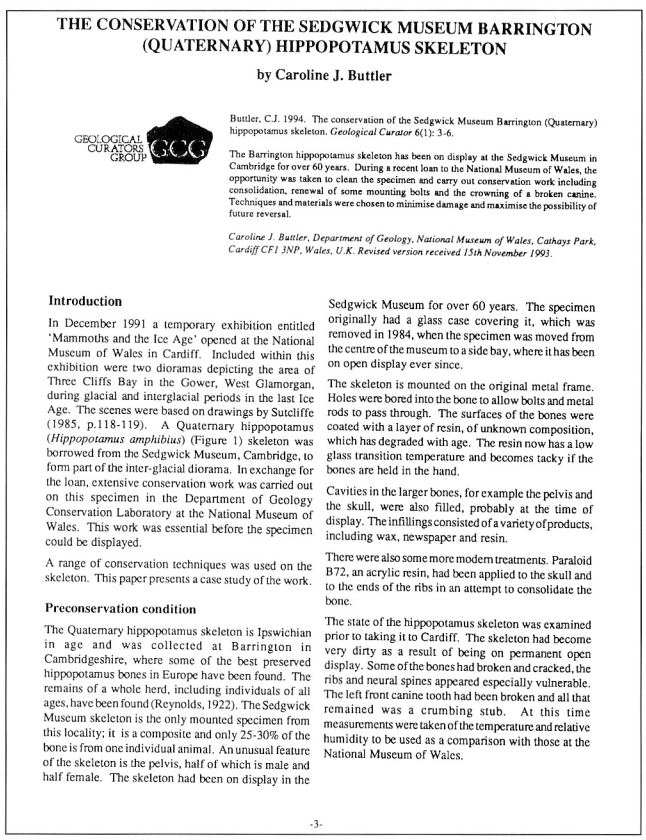
Volume 5 Number 6

Figure 6. Cover of *The Geological Curator*, Volume 5, Number 6, August 1991 showing new style.

The practice of including copies of newspaper clippings, drawings and cartoons decreased. In October 1985 the *Thumbs Up* campaign was launched in the *The Geological Curator*, and in February 1987 the whole of Volume 4 Number 7 was devoted to a GCG conference on the Conservation of Geological Material. Further alterations to the cover came in Volume 5 Number 6 when the present logo and typeface were adopted (Figure 6), and the internal typeface was altered too. Peter Crowther was responsible for 17 parts of *The Geological Curator*. He, perhaps, did more than anyone to transform it from a fine looking journal into a professional looking journal. While introducing some thematic sets much of the scope of the content of the papers remained much as they always had been.

Patrick Wyse Jackson (1994 - date)

The completion of Volume 5 coincided with Peter's retirement as Editor, and he was replaced by the present editor. The frequency of publication of the journal was reduced to two issues a year. While externally the journal remained unaltered, inside abstracts were published on the lead page of papers and the Group's logo was placed alongside (Figure



THE CONSERVATION OF THE SEDGWICK MUSEUM BARRINGTON (QUATERNARY) HIPPOPOTAMUS SKELETON

by Caroline J. Buttler

GEOLOGICAL CURATORS GROUP GCG

Buttler, C.J. 1994. The conservation of the Sedgwick Museum Barrington (Quaternary) hippopotamus skeleton. *Geological Curator* 6(1): 3-6.

The Barrington hippopotamus skeleton has been on display at the Sedgwick Museum in Cambridge for over 60 years. During a recent loan to the National Museum of Wales, the opportunity was taken to clean the specimen and carry out conservation work including consolidation, renewal of some mounting bolts and the crowning of a broken canine. Techniques and materials were chosen to minimise damage and maximise the possibility of future reversal.

Caroline J. Buttler, Department of Geology, National Museum of Wales, Cathays Park, Cardiff CF1 3NP, Wales, U.K. Revised version received 15th November 1993.

Introduction

In December 1991 a temporary exhibition entitled 'Mammoths and the Ice Age' opened at the National Museum of Wales in Cardiff. Included within this exhibition were two dioramas depicting the area of Three Cliffs Bay in the Gower, West Glamorgan, during glacial and interglacial periods in the last Ice Age. The scenes were based on drawings by Sutcliffe (1985, p.118-119). A Quaternary hippopotamus (*Hippopotamus amphibius*) (Figure 1) skeleton was borrowed from the Sedgwick Museum, Cambridge, to form part of the inter-glacial diorama. In exchange for the loan, extensive conservation work was carried out on this specimen in the Department of Geology Conservation Laboratory at the National Museum of Wales. This work was essential before the specimen could be displayed.

A range of conservation techniques was used on the skeleton. This paper presents a case study of the work.

Preconservation condition

The Quaternary hippopotamus skeleton is Ipswichian in age and was collected at Barrington in Cambridgeshire, where some of the best preserved hippopotamus bones in Europe have been found. The remains of a whole herd, including individuals of all ages, have been found (Reynolds, 1922). The Sedgwick Museum skeleton is the only mounted specimen from this locality; it is a composite and only 25-30% of the bone is from one individual animal. An unusual feature of the skeleton is the pelvis, half of which is male and half female. The skeleton had been on display in the Sedgwick Museum for over 60 years. The specimen originally had a glass case covering it, which was removed in 1984, when the specimen was moved from the centre of the museum to a side bay, where it has been on open display ever since.

The skeleton is mounted on the original metal frame. Holes were bored into the bone to allow bolts and metal rods to pass through. The surfaces of the bones were coated with a layer of resin, of unknown composition, which has degraded with age. The resin now has a low glass transition temperature and becomes tacky if the bones are held in the hand.

Cavities in the larger bones, for example the pelvis and the skull, were also filled, probably at the time of display. The infillings consisted of a variety of products, including wax, newspaper and resin.

There were also some more modern treatments. Paraloid B72, an acrylic resin, had been applied to the skull and to the ends of the ribs in an attempt to consolidate the bone.

The state of the hippopotamus skeleton was examined prior to taking it to Cardiff. The skeleton had become very dirty as a result of being on permanent open display. Some of the bones had broken and cracked, the ribs and neural spines appeared especially vulnerable. The left front canine tooth had been broken and all that remained was a crumbing stub. At this time measurements were taken of the temperature and relative humidity to be used as a comparison with those at the National Museum of Wales.

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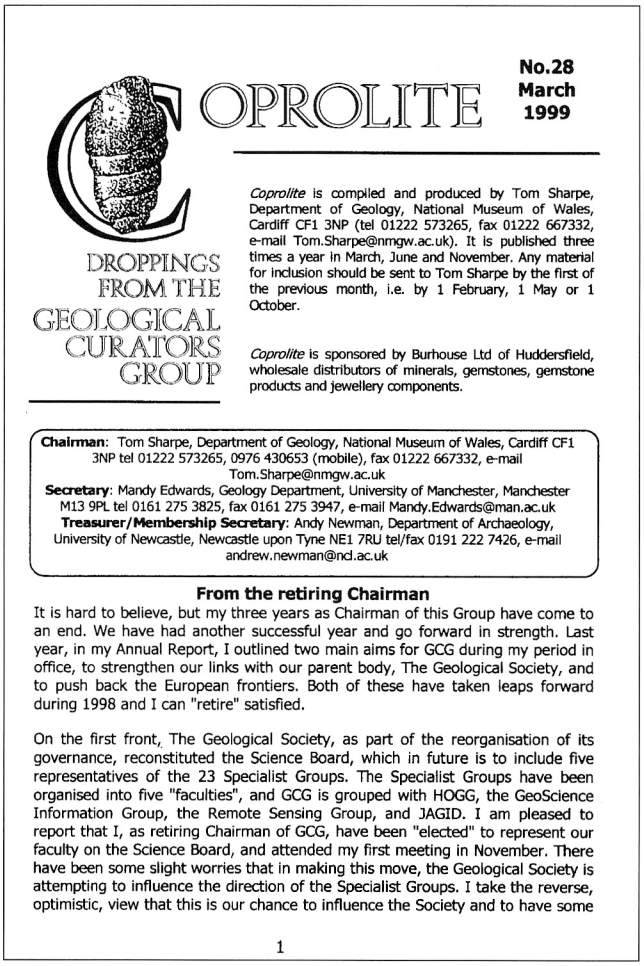
Figure 7. Inside page of *The Geological Curator*, Volume 6, Number 1, April 1994 showing new page layout.



No.28
March
1999

COPROLITE

DROPPINGS FROM THE GEOLOGICAL CURATORS GROUP

Coprolite is compiled and produced by Tom Sharpe, Department of Geology, National Museum of Wales, Cardiff CF1 3NP (tel 01222 573265, fax 01222 667332, e-mail Tom.Sharpe@nmgw.ac.uk). It is published three times a year in March, June and November. Any material for inclusion should be sent to Tom Sharpe by the first of the previous month, i.e. by 1 February, 1 May or 1 October.

Coprolite is sponsored by Burhouse Ltd of Huddersfield, wholesale distributors of minerals, gemstones, gemstone products and jewellery components.

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From the retiring Chairman

It is hard to believe, but my three years as Chairman of this Group have come to an end. We have had another successful year and go forward in strength. Last year, in my Annual Report, I outlined two main aims for GCG during my period in office, to strengthen our links with our parent body, The Geological Society, and to push back the European frontiers. Both of these have taken leaps forward during 1998 and I can "retire" satisfied.

On the first front, The Geological Society, as part of the reorganisation of its governance, reconstituted the Science Board, which in future is to include five representatives of the 23 Specialist Groups. The Specialist Groups have been organised into five "faculties", and GCG is grouped with HOGG, the GeoScience Information Group, the Remote Sensing Group, and JAGID. I am pleased to report that I, as retiring Chairman of GCG, have been "elected" to represent our faculty on the Science Board, and attended my first meeting in November. There have been some slight worries that in making this move, the Geological Society is attempting to influence the direction of the Specialist Groups. I take the reverse, optimistic, view that this is our chance to influence the Society and to have some

1

Figure 8. Front page of *Coprolite*, Number 28, March 1998, showing its distinctive logo.

7). This was done in the hope that abstracting services might publish the abstracts and thus advertise the journal contents further, and so that offprints might be more professional looking. A new layout for notes, differing from regular papers was introduced, and a new column *Fact File* was established.

Coprolite (Figure 8) was first published in February 1990 as an interim measure when publication of the *Curator* was delayed. Under the constant editorship of Tom Sharpe 32 issues have been produced at a rate of three per year. *Coprolite* continues to serves as an essential organ for rapid diffusion of information, notes and news from the Group, and rather than being a temporary publication is now a permanent fixture. Its publication has allowed the *Curator* to evolve further away from a newsletter format to that of a journal in an academic sense. However, academic the journal may now appear to be, it is not the intention that its contents should be highbrow; I personally always enjoy browsing through back issues, many of which seem to contain far more contributions than in recent offerings. Latter-day authors and museum curators seem more reluctant than their counterparts of twenty years ago to submit short notes of just one or two pages in length. Can we really have less time for writing today? I sadly suspect that the prevailing view is that short contributions would be of little interest - nothing could be further from the truth. I would like to see more short notes, Fact Files, and other valuable contributions.

Conclusion

In total 3113 pages have been published in the *Newsletter of the Geological Curators' Group* and its successor *The Geological Curator*. That equates to nearly 125 pages a year - not bad for an organisation run on a voluntary basis, and often on a shoestring. Much of the content of these pages has been crucial in affording curators the confidence, information and expertise to care for geological collections best, as well as aiding the process of professionalisation amongst geological curators. I suspect that one major reason the Geological Curators' Group is as strong as it is worldwide is that it continues to offer a low membership subscription fee, but more importantly it built up a loyal membership based on its decision to publish a newsletter/journal soon after it was established, which kept members in touch with the frontier of geological curation and museology. In order to further the growth and scope of the Geological Curators' Group it should continue to produce quality publications that readers both enjoy and find instructive.

REFLECTIONS ON 25 YEARS OF CURATION

by J.A. Cooper

Cooper, J.A. 2000. Reflections on 25 years of curation. *The Geological Curator* 7(3): 101-107.

The Geological Curators' Group is right to celebrate its achievements after 25 years, but can we afford to be complacent? The Group's early and continuing reputation arose from its willingness to address issues. A personal and perhaps provocative account of 25 years in the profession considers if any questions remain and some suggestions based on solid curatorial experience are proffered.

John A. Cooper, Keeper of the Booth Museum & Keeper of Geology, Booth Museum of Natural History, 194 Dyke Road Brighton BN1 5AA, U.K. *Received 12th July 1999; revised version received 11th February 2000.*

Introduction

I am both happy and distressed to help celebrate the Geological Curators' Group's silver anniversary. Happy, because it signifies the success of a specialist group which has not only stood the test of time, but also lived up to all the hopes and aspirations of its founding fathers and mothers. Distressed, because this very year also sees my own 25th anniversary in our profession and while I can take a relaxed attitude to the passage of time for a Group for which I can see 'no prospect of an end', I am now taking a different view of my own existence, for which an end seems rather nearer!

I was fortunate to enter Leicestershire Museums as a lowly Earth Sciences Technician in September of 1974, joining the duo of Mike Jones and John Martin. It is remarkable to note that the vacancy I filled (temporarily, for 3 months - which turned into 7 years!) had been advertised earlier without success. I already had some experience of the New Walk Museum, having spent some time there in 1972-3 when Andy Mathieson was still in post, during my post-graduate year in the Leicester Museum Studies Department. Previously, I had the pleasure of being a Leicester University undergraduate, where I came under the influence of 'Prof' Peter Sylvester-Bradley, and many of his eminent staff, not least the two Brighton medallists Bob King and Roy Clements, all three of whom were instrumental in my entering the museum world, and all three of whom I heartily thank. On graduation from the Geology Department, I was fortunate to be introduced to Hugh Torrens, who was looking for someone suitable to do a spot of work at Northampton Museum, where there was a geological collection of considerable merit needing attention. Little did I know what this summer job was to lead to (Cooper 1974) but I am pleased to report that my relationships with both Northampton and Hugh remain excellent, with only the latter now showing any signs of wear and tear.

With this background, and arriving in New Walk only months after the formation of the Group, (I was teaching on VSO in Nigeria at the time) it is hardly surprising that I was thrust into its affairs. First, with issues concerning the National Scheme for Site Documentation (Cooper 1978, Jones and Cooper 1975, 1976) and later as Treasurer, despite my protestations about an innate inability to look after my own finances, let alone anyone else's. With support from Mike Jones and my one-time geography teacher, then Director Patrick Boylan, I progressed to Assistant Keeper, and in 1979/80 spent a happy 6 months as a Visiting Scholar in the Vertebrate Fossils Section of the Carnegie Museum of Natural History, Pittsburgh. In 1981, I successfully applied for the job of Keeper of Geology at the Booth Museum of Natural History in Brighton, which post I still hold, though now I am also the Keeper of the Museum itself. Once in Brighton I immersed myself in the *Guidelines* which appeared in 1985 (Brunton, Besterman and Cooper 1985) before taking on the Chairmanship of the Group in 1990, after which period in office, I have rather taken a step away from the Group, concentrating on all things Brightonian. It is perhaps since then that I have occasionally reflected on the achievements of the Group, and hope that some of these reflections will be of some interest at this juncture.

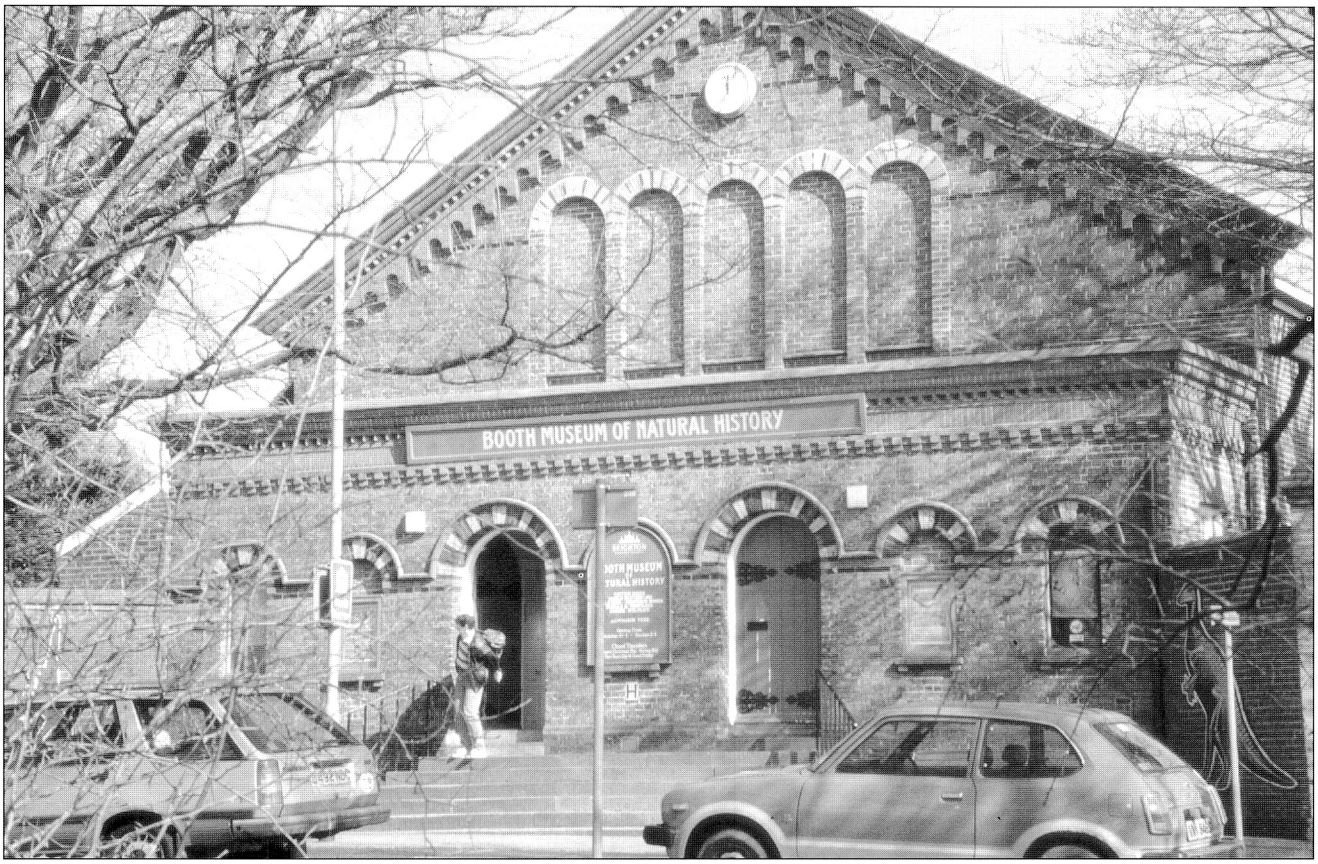

Figure 1. The Booth Museum of Natural History, Brighton

I am not however going to join the party and simply present a catalogue of the Group's success. Such self-congratulations are not misplaced at an anniversary meeting, but cannot be endlessly repeated and others will chart this success. I have unashamedly presented a brief account of my own career, not because of my own 25 year anniversary, but because I feel that it is necessary to present my qualifications for reflection, and to avow my continuing love of the specimen and its curation as the basis of my geological work. What follows therefore are thoughts from a simple geological curator with some problems and observations which I think should be tackled not just locally, but by the Group.

It seems to me that the Group's success has been marked by its ability to ask questions - fundamental questions not only of interest to museum geologists, but to the whole museum profession. Mostly, the questions were simple:

"Who?" (geological collectors);
"Why?" (geological collections and publications);
"When?" (history of geology);
"Where?" (geological sites, RIGS);
"How?" (*Guidelines* etc);
and "What?" (*State & Status*; specimen conservation).

Sterling work has resulted from asking such questions. If the Group is to continue in its mould-breaking activities of the past 25 years, it needs to keep on asking questions - but what are they now? I have some suggestions.

The collections of the Booth Museum

The Booth Museum (Figure 1) began life as the private Museum of Edward Booth (1840-1890), a Victorian ornithologist whose ambition was to produce a collection of every species of bird known to occur in the British Isles, personally shot and subsequently mounted in cases reconstructing their environment. He was the first to provide such reconstructions, all previous collections presented serried rows of birds on perches, and his methods were much copied. His Museum of British Birds opened in 1874, and was bequeathed to Brighton Corporation on his death in 1890. Meanwhile, the Town Museum, inaugurated by Richard Owen in 1860, began to amass natural history collections. On local government reorganisation in 1974, all of these collections were moved to the Booth Museum, which now boasts the 13th largest collection in the country, and 3rd largest in the care of a local authority (UK Systematics Forum 1998). The collections were accorded Designated status by the Museums & Galleries Commission on 24th June 1997.

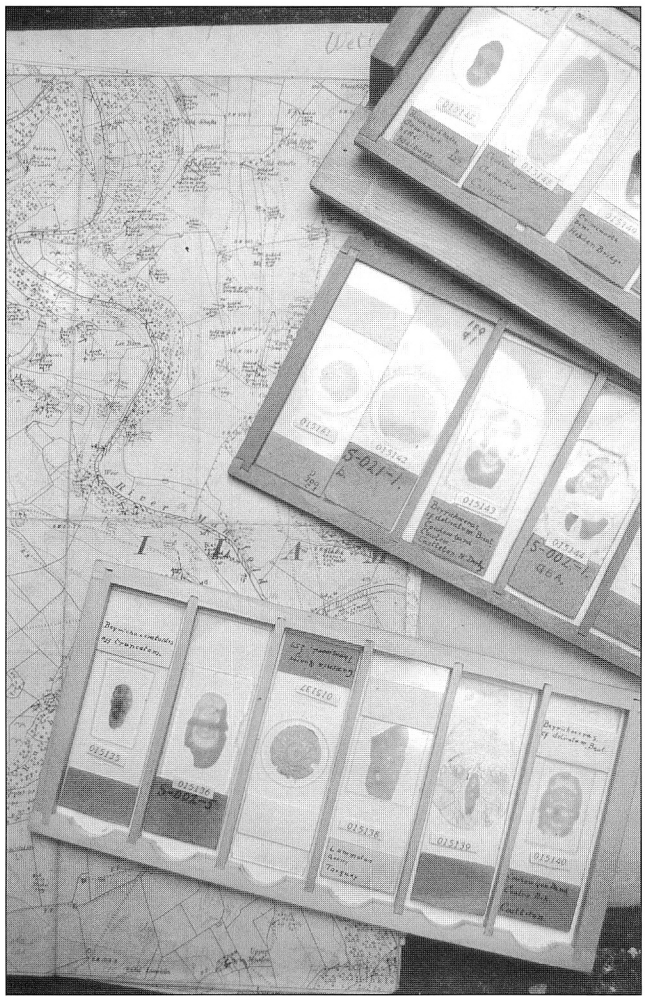

Figure 2. Part of G.B. Alexander's collection of Carboniferous fossils. Illustrated are just a few of the several hundred thin sections of corals and goniatites, together with one of his field slips.

The geological collections are rich, particularly in Chalk fossils (especially vertebrates), Lower Cretaceous fossils (especially vertebrates, insects and plants) and Quaternary mammals. Significant collectors are represented by Henry Willett (1823-1905), George Bax Holmes (1803-1887) (Cooper 1992, 1993 and 1995), Philip Rufford (1852-1902) (missed by Cleevely 1983), Charles Potter (1826-1898) and Ed Jarzembowski (1951 -) amongst many others. A draft catalogue of type, figured and cited specimens contains over 350 entries, and many of these specimens were published as long ago as 1850 (Dixon 1850). A fuller account of the Museum and its geological collections can be found in the *Directory of British Geological Museums* (Nudds 1994).

The Booth Museum is full. We have chronic problems of storage in terms of quantity, quality and environment. For the first time, we have acquired an external store in which we intend to store our considerable collections of birds' eggs to release much needed space for other biological collections. As for geological storage, I have developed all of the available space there is, not only to improve the storage of long-held collections, but also to make room for new acquisitions. Perhaps most significant of recent acquisitions are the collections of fossil insects, principally from the Wealden of the Lower Cretaceous, which have been amassed since the arrival of Ed Jarzembowski at the Booth Museum in 1987, and have continued to arrive in their thousands since, despite Ed leaving in 1994. Many are still unsorted, unidentified and uncurated, simply because there is no adequate storage space available. Their importance is evidenced by the string of French, Russian, Polish and British workers who have used and published them. More pressure on space will arise as other collections come my way - I know of several local collections of considerable merit, that are likely to enter the Museum through bequest. These collections meet the core values of our Acquisition Policy. Plans have been developed to tackle all of the Booth's storage and other problems, and the outcome of bids for funding is awaited. It is against the background of these problems that the following issues have arisen.

Repatriation

One of the more recently acquired collections at the Booth Museum is that of George Baker Alexander (1907-1980). Alexander, a graduate of St. John's College, Cambridge, began research on Carboniferous Limestone biostratigraphy whilst based at the University of Leeds in 1930-1932 and Imperial College 1933-1934 (Rose and Cooper 1997). He disappeared before the work was completed, having served in the Royal Engineers in Gibralter, before eventually emerging in Brighton where he died in 1980. His collection was donated to the Booth Museum shortly before my arrival in 1981, and indeed I transferred the last of the material from his workshop, and in subsequent years saw that it was all catalogued. His collection is substantial, consisting of over 1100 specimens, mostly from Staffordshire, West Yorkshire and Derbyshire, and including mainly corals, together with goniatites and brachiopods. Most of the specimens are well localised, many being cross-referenced to 6-inch Ordnance Survey map field slips which are also in the collection. Additionally, there are over 350 thin sections, mostly corals, together with several card indexes to both the collections and his research. In all, the Alexander collection takes up about 20 storage drawers (Figure 2).

What am I doing with this collection in Sussex where it is clearly stratigraphically challenged? Should we have accepted this material in the first place? Our current collecting policy certainly allows the acquisition since Alexander had been a Brighton

Figure 3. White Watson's cabinet of 96 samples of Derbyshire rocks and minerals.

resident for many years. But of course his collection had nothing do with his Brighton residency, and evidentially he had not worked on the collection for decades - all his documentation is pre-Brighton. The collection is of high quality and would be a valuable addition to a museum in the north or midlands of England, where likely researchers are more likely to encounter it. De-accessioning and transferral of this collection does pose some problems though they are not insurmountable, but I wonder how readily fellow curators would welcome the concept, despite its common sense. How would I feel however, if the collection was donated not in 1980 but 1880 and contained many types. Would I be so keen to give it up?

Another example touches on this historical aspect. I was delighted to discover in the Brighton collections a small cabinet of White Watson specimens (Figure 3), still, I believe, unique, and soon set about a little research and duly prepared a publication (Cooper 1984). Originally bought by Sir Cecil Bishopp of Buxton in 1796, the cabinet found its way to Sussex through the family and descendants living in Sussex, and subsequently donated to Brighton Museum in 1935, along with many other objects. Soon afterwards, the redisplay of Buxton Museum led to me lending this cabinet to Derbyshire Museums Service for 10 years in 1985. I enquired of my then Director if a permanent transfer of the cabinet to Buxton might not be a good idea, considering its irrelevance to Brighton, but got a fairly stiff reply to the contrary, indicating that "... I do not think it is in our interests as an institution to make this move". Well, maybe, but I am also conscious of other, wider interests, and whether such repatriations could be considered as worthy of us all.

Repatriation is a difficult issue, and one which immediately raises hackles, with thoughts of the Elgin Marbles being the thick end of the wedge. I wonder though if the GCG might not tackle the question and offer some guidance, once more taking the lead for the profession as a whole. I am not in favour of some sort of wholesale redistribution of collections and would not demand the return of all things Sussex to Brighton, but given the problem of storage space, and that repatriation of elements of the collections would favour more appropriate and important collections, some limited transfers would seem to offer mutual benefits.

Rationalisation

I distinguish for the purposes of this paper, between collections which are of merit and which are candidates for repatriation as above, and here, collections which are not of particular merit and

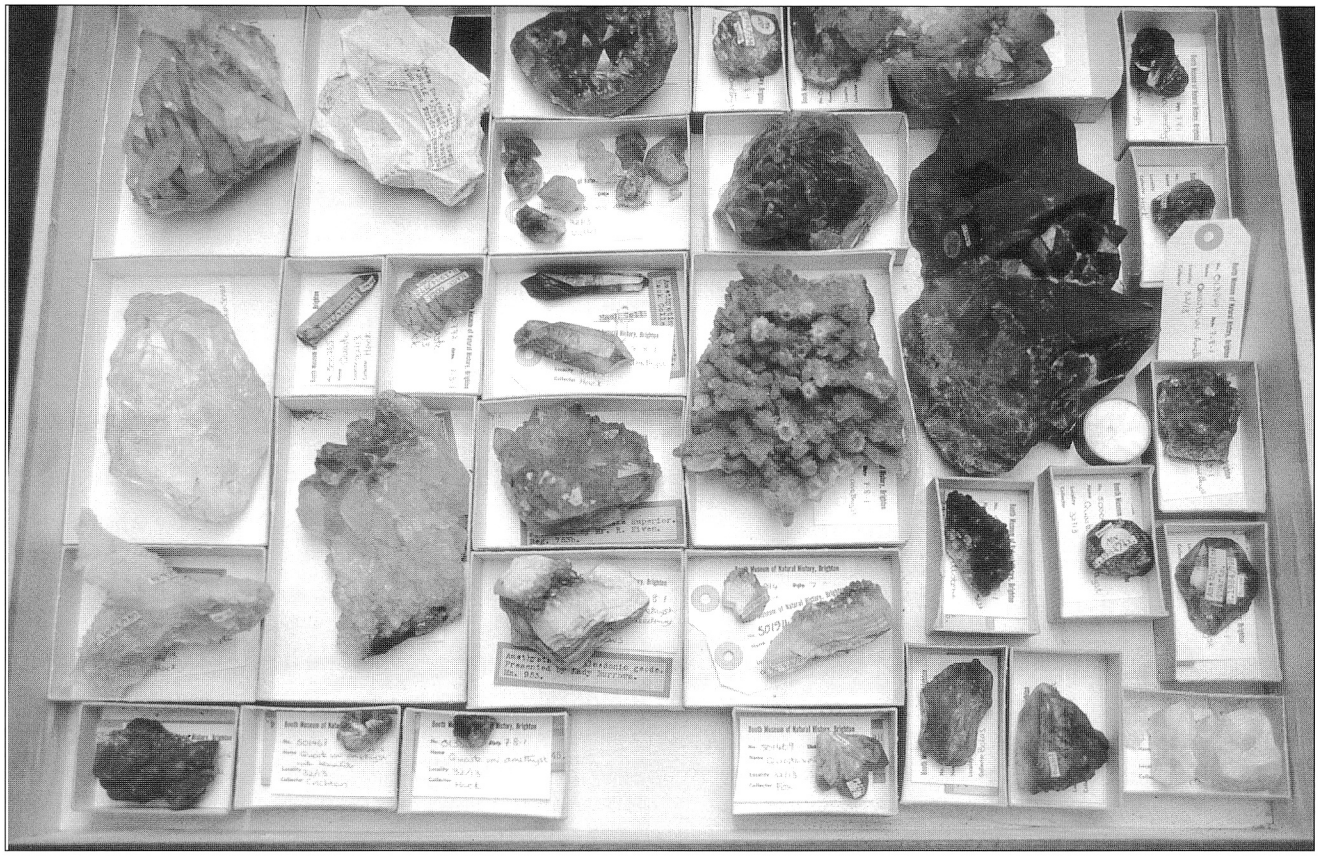

Figure 4. A typical drawer from the Booth Museum's collection of minerals..

which are also candidates for removal from storage, as part of a "rationalisation" of collections. Within this group I am identifying two elements: non-local material and minerals.

1. Non-local material

Sussex, the usual patch which I regard as the first base of origin for Brighton's collections (and acknowledging the significant collections of Hastings and Bexhill Museums in particular) encompasses just a little of the topmost Purbecks, a full succession of the Cretaceous, some Tertiary beds and Quaternary deposits. A prime consideration by which I judge potential for acquisition is whether specimens originate from these horizons and whether they are from Sussex or at least within the Weald. What price then for all of my other collections from different stratigraphic divisions and from other parts of the country. These include 63 drawers of Palaeozoics (excluding the Alexander collection, described above) and 84 drawers of Jurassics. The specimens contained in these collections are all documented. They were acquired to be "representative" of British geology. They have been examined by competent specialists and found not to contain significant material. (I heartily recommend that travel expenses are made available to specialists to examine collections - curators cannot be masters of all they survey, and external advice is always persuasive.) The donors of many of the specimens are local to Brighton, but do not form part of what can be regarded as cohesive collections. A good number of the specimens were presented by the Trustees of the British Museum (Natural History).

2. Minerals

The Booth Museum contains about 2000 mineral specimens stored in around 67 drawers (Figure 4). Sussex itself is as close to a mineral desert as one can find, with probably less than 20 species occurring, some of those pretty indeterminable except through sophisticated techniques. Clearly, the rest of the collection is non-local, and indeed international, like many other provincial collections. I have had this collection assessed informally by a local and knowledgeable collector and I am told that there are many fine specimens and that others are from exceptional localities. Minerals of course, though often lacking in anything like adequate locality documentation, can be recognised by specialists as coming from particular sources, many of which may have disappeared. The collection may therefore be thought of as at least 'interesting'. However, during my whole 25 years as a geological curator I can recall only 2 academic enquiries being made of mineral collections and sadly, the answer to both was 'no'.

There was one recent enquiry made of the few meteorites I also care for.

The collections of both non-local fossils and minerals clearly satisfy some needs. They have been a source of material for teaching at all levels from primary through to adult education; they have been used for display and demonstration; the minerals in particular have been used by colleagues to display the primary sources of gemstones, amber, pigments and metals etc. But neither the fossils nor minerals can be claimed to be of significant academic or historical interest, and I could probably retain only a fraction of the total for display and teaching purposes. Is it possible to justify the space these collections take up in these terms alone? Should I use the usual reasoning for keeping these collections, which effectively suggests that I cannot possibly know all about these collections and that there is a chance that there is vital material of historic interest present but unrecognised. I will be the first to acknowledge that serious mistakes have been made in the past, but 25 years of Group activity could mean that the curators of collections should by now have shrewd ideas about what is worth keeping and what perhaps, is not. Some 'foreign' elements of these collections are certainly of great value, particularly mammals from cave deposits, amongst which are collections from Wookey Hole, Kent's Cavern, and Ffynnon Beuno, though all of these were acquired by significant local people, complement good Sussex mammal localities and therefore perhaps truly belong in Brighton.

De-accessioning, transfer or disposal may not be an answer. If the collections are properly documented and indexed, is there a better case for packing second-rate collections into crates and storing them in bulk?

My argument is not that such collections shouldn't be kept by any museum - if space is available there is no problem - or, that mineral collections are valueless. I simply raise the question of rationalisation as an option when needs arise, needs which perhaps have a higher priority for resolving, than in other institutions and that I look to the GCG for debate, consideration and guidance on these issues.

Vertebrates -v- invertebrates

Over the years I have noticed a pattern taking shape for the academic users of the collections in my care. To illustrate this, I prepared a list of every palaeontologist who has consulted the fossil collections in Brighton, and noted their interest. The results summarise as follows:

Fish:	7 workers
Dinosaurs:	2 workers
Other reptiles:	9 workers
Mammals:	8 workers
Insects:	9 workers
Plants:	2 workers
Decapods:	2 workers
Trace fossils:	1 worker
Molluscs:	3 workers
Echinoderms:	1 worker

The figures above total 26 for vertebrates and 18 for invertebrates. The invertebrate total is swollen rather by the numbers of Russians and their colleagues in other countries who have examined material taken to them. There is a degree of subjectivity about these figures - I do not have a fool-proof list of workers who have visited Brighton, and some visitors consult dozens of specimens, whereas others come to examine one. Some consultations are by visit, others by post or loan. Nevertheless, my first observation is that there is a weighty bias to the vertebrates. Clearly they form the backbone of my collections. Certainly if you discount the newly arrived fossil insects, the contrast is even clearer. Is this pattern repeated elsewhere? Is there a case for treating my vertebrate collections differently to the rest, on the basis that they will be the most consulted? My second observation is that those sections of the collections which are consulted - vertebrate or invertebrate - come from my core collections - local to the Sussex region, especially from the Chalk and lower Cretaceous, local collectors etc. No-one wants to see my Jurassics or my Palaeozoics, perhaps confirming my earlier views of the value of these collections.

Conclusions

I hope that my observations based on collections in Brighton are not atypical. If they are, then any problems are clearly my own. If I am right and they could apply to any of the collections cared for by members of the Group, then it seems inescapable to me that guidelines to value assessments of collections could be an area where the GCG should take a lead. Following such assessments, it seems to me that strategies for action could follow, and that such strategies could include repatriation and rationalisation, as well as various forms of collection management. I want to advocate again the value of having visiting specialists assess the scientific and historic value of collections, and that perhaps the GCG could help this process, either by identifying central funds to help pay travel expenses, or by identifying those specialists who would be prepared

to help. Specifications for such assessments would be required and could also be drafted by the Group.

The GCG acquired an early reputation for being a 'ginger group', typified by enthusiasm and activity. I hope that this reputation will not diminish, as we tick off the various issues that originally fired the Group 25 years ago, and that the Group will continue to evolve and find new issues to debate and consider in its usual fearless manner.

References

BRUNTON, C.H.C, BESTERMAN, T. and COOPER, J.A., 1985. Guidelines for the curation of Geological Material. *Geological Society Miscellaneous Paper* **17**.

CLEEVELY R.J. 1983. *World Palaeontological Collections.* British Museum (Natural History) London

COOPER, J.A. 1974. Geological collections and collectors of note: Northampton Central Museum. *Newsletter of the Geological Curators' Group* **1**(2), 40-45.

COOPER, J.A. 1978. Progress with the National Scheme for Geological Site Documentation. *NCC Geology Information Circular* **14**, 9-12.

COOPER, J.A. 1984. Geological collections and collectors of note: White Watson (1760-1835) in the Booth Museum, Brighton. *The Geological Curator* **4**(1), 17-18.

COOPER, J.A. 1992. The life and work of George Bax Holmes (1803-1887) of Horsham, Sussex: a Quaker vertebrate fossil collector. *Archives of Natural History* **19**(3), 379-400.

COOPER, J.A. 1993. George Bax Holmes (1803-1887) and his relationship with Gideon Mantell and Richard Owen. *Modern Geology* **18**, 183-208. [Reprinted in SARJEANT, W.A.S. (ed.) 1995. *Vertebrate Fossils and the Evolution of Scientific Concepts.* Gordon and Breach,181-206.]

DIXON, F. 1850. *The geology and fossils of the Tertiary and Cretaceous Formations of Sussex.* London.

JONES, M.D. and COOPER, J.A. 1975. A National Scheme for the Documentation of Geological Sites. *Newsletter of the Geological Curators' Group* **1**(5), 225-230.

JONES, M.D. and COOPER, J.A. 1976. Proposals for a National Scheme for Geological Site Documentation. *Geological Curators' Group Special Publication* **1**, 6-17

NUDDS, J.R. 1994. Directory of British Geological Museums. *Geological Society Miscellaneous Paper* **18**, pp. viii+141.

ROSE, E.P.F. and COOPER, J.A.1997. G.B. Alexander's studies on the Jurassic of Gibraltar and the Carboniferous of England: the end of a mystery? *The Geological Curator* **6**(7), 247-257.

UK SYSTEMATICS FORUM. 1998. *The web of life: A strategy for Systematic Biology in the United Kingdom.* The UK Systematics Forum.

LOST & FOUND

Enquiries and information, please to Patrick Wyse Jackson (Department of Geology, Trinity College, Dublin 2, Ireland; e-mail: wysjcknp@tcd.ie). Include full personal and institutional names and addresses, full biographical details of publications mentioned, and credits for any illustrations submitted.

The index to 'Lost and Found' Volumes 1-4 was published in *The Geological Curator* 5(2), 79-85. The index for Volume 5 was published in *The Geological Curator* 6(4), 175-177.

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 *The Geological Curator.*

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

253. George Victor Du Noyer.

Petra Coffey, Glendarragh Hill, Newtownmountkennedy, Co. Wicklow, Ireland (manuscoffey@eircom.net) writes:

In September 1856 Sir Roderick Murchison requested the Irish geologist George Victor Du Noyer, an employee of the Geological Survey of Ireland, to send him a photograph of himself. Du Noyer replied that he "certainly shall have it taken when I go to Dublin this winter and hand it to you." [Letter in the archive of the Geological Society of London: M/D31/1].

There are at present two known photographs of Du Noyer: one in the Royal Society of Antiquaries of Ireland, and another, a group photograph of employees of the Geological Survey of Ireland published in R.Ll. Praeger's *Some Irish Naturalists.* Dundalgan Press: Dundalk, 1950. Any help tracing the photograph taken for Murchison would be greatly appreciated. It is not in the Murchison archive in the Royal Geographical Society. I would also like to hear of any addition information about Du Noyer and his activities that readers might have.

CONSERVATION OF IMPORTANT GEOLOGICAL SITES

by R.B. Rickards

Rickards, R.B. 2000. Conservation of Important Geological Sites. *The Geological Curator* 7(3): 109-110.

It is argued that several important Ordovician and Silurian sites in the Lake District, variously designated as special sites, such as SSSIs, have been put at risk by the very procedures ostensibly designed to protect them. It is advised that these particular sites should be quickly unfenced, allowing access to sheep and cattle, and access and collecting by geologists or the public should be unrestricted. A site-specific approach is argued for management of important geological sites.

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Introduction

The recent paper by Oldroyd (1999) raised important issues about some geological sites in the Lake District, associated with John Marr *et al.*, where attempted conservation and decline seems causally related. Although the matter was raised somewhat tentatively by Oldroyd, he being at pains to point out that he had not worked extensively in the Lake District, I would like in this paper to record my most serious reservations about the value of some so-called conservation efforts. I shall use the same or similar sites to those used by Oldroyd. I hope my observations might result in a more site-specific approach being adopted by the relevant authorities, rather than the application of what seem to be rather rigid rules.

Ashgill Quarry

I have visited this quarry on many occasions, mapped the region in which the quarry lies, and have collected fossils in sequence, quite easily, on many occasions. I find it difficult to reconcile my own experiences with that of David Oldroyd, when he writes "The area has been picked over by geologists and fossil hunters for generations, and there is little of palaeontological interest to be found." Marr did indeed identify the Ordovician-Silurian transition based upon fossil changes, and it is just as easy to demonstrate the boundary on lithological grounds. Ashgill Quarry is an SSSI and David Oldroyd remarked that "...I could not do any palaeontological work at Ashgill [he means could not **physically** collect] - and **should** not, as it is a Site of special Scientific Interest." Why on earth not? It is as easy to collect fossils there as it is difficult to damage the site itself. Oldroyd (1999 p.19) also points out that the base of the Silurian is defined in southern Scotland, not at Ashgill Quarry and "So one would now chiefly go to Ashgill for historical or educational reasons, rather than in the course of stratigraphic research." This is to misunderstand the necessity for on-going stratigraphical (and palaeontological) research: time and techniques change the demands upon a section and no section is ever dead and finished. The Ashgill section is, in any case, a **confirmatory** section for the Ordovician-Silurian boundary. Locally, it displays well the contract between the Ashgill Shales (**not** Ashgillian, for the Ashgill is a **Series** of the Ordovician, not a Stage) and the Skelgill Beds. If being designated an SSSI results in access being denied to *bona fide* workers then the conservation measure has failed. Maps of this site can be seen in Oldroyd (1999, Figure 4).

Stockdale Beck and Browgill

It is in terms of these sections that Oldroyd (1999 p.19) asks probing questions about the conservation measures adopted by the authorities. He was informed that the lower site (Stockdale) "...was an SSSI and one could not visit it..." As he rightly says the site is now totally overgrown. My point is that in being so it is totally useless to anybody, and the people setting up the SSSI in the first place have to carry the blame. He was told that "...man used to come up from London with a truck and had taken loads of fossils away for sale; but eventually the authorities had put a stop to such goings on. Students had taken away

loads of fossils too." I'll tell you why this story is apocryphal. I have seen many people try to collect fossils from here and fail completely. It was, and indeed **is** rich in fossils, but you have to know exactly what you are doing. Nor have I ever seen a Stockdale fossil for sale, anywhere.

Let me put this very clearly so that there can be no danger of my being misunderstood: Stockdale is so physically secure, and is so rich in fossils, that one could move in a JCB or explosive charges and do no damage whatsoever to the on-going value of the section. The overgrown nature of the site is, as David Oldroyd says, a direct result of fencing off the site. The fences should be moved forthwith and the site opened up to sheep and to hammers. The fact that farmers cannot understand why geological sections need to be regularly studied and collected is no good reason for closing them or restricting access unless the farmer's (or owner's) property, livelihood, or enjoyment of the site is interfered with. There is a very good case for setting up a dialogue so that farmers could understand exactly why it is that sites have to be studied on a regular basis. In terms of Stockdale Beck and Browgill there is no good **scientific** reason for restricting either access or collecting. My own experiences of visiting Stockdale are rather different from David Oldroyd's. On my visits the tenant farmer had no problem at all with visiting geologists, but he did object to the fencing which restricted his access and usage. Stockdale is reported to have been fenced off "...with the help of a geologist from Cambridge..." I want to make it absolutely clear that I had nothing whatever to do with this. It is probably apocryphal too.

Browgill itself is not fenced in (too high up the hillside probably). Here again I am puzzled by Oldroyd's remarks (p. 21) "...although there were not many fossils to be found (just a few indeterminate graptolites)..." This site is **rich** in fossils, quite often well-preserved. A map of these sections can be seen in Hutt (1974, Figure 6).

Skelgill (Lower Bridge section) near Ambleside.

In modern times this section has also been fenced off and is difficult of access for rock-tappers, and impossible for sheep and cattle. The result is that a section which has been excellent for over a century, at least since Marr and Nicholson's (1888) classic study, is now close to useless. The fences should be removed immediately and grazing animals allowed in. The track which runs down the cliff face, to the bridge itself, would then quickly clear of fallen debris which blocks it, and the scrubby undergrowth would gradually be removed, returning the site to the reasonably open woodland gorge that once it was.

Again, I'd like to be clarity itself on the issue of damage: the site is virtually indestructible and **cannot be denuded of fossils** however much one hammered or dug. As with Stockdale Beck the dip and disposition of the beds is such that as long as cattle are allowed to graze, exposures will always be there and be accessible. Furthermore, the gorge section allows numerous studies to be made of the Llandovery sequence, because the section is a strike section, as is clearly shown by Marr and Nicholson (1888) and Hutt (1974, Figure 4).

Conclusions

Obviously I am aware that fencing of some sites and declaration as SSSI's **can** be beneficial. But that is not always the case and each section should be examined on its merits and proper advice taken. The sections discussed in this paper have been damaged by so-called conservation practices. I am aware of another SSSI where the farmers have taken umbrage such that they have pulled up the signs and ditched them in the river. Naturally, I'm not to going to say where this is because yet again, the site is quite indestructible. And the farmers have changed from being amusedly helpful to being just a little bit anti geologists and the SSSI system, simply because they have been unnecessarily inconvenienced.

Sites are not only at risk from rock-tappers, whether amateur, professional or businessmen. They are also at risk from major engineering, hydro or road works projects. But fencing inappropriately is irrelevant as a protection in these cases. It seems to me that when SSSIs are declared, or any other similar protection mechanism proposed, the site **must** be assessed to determine whether restriction of access by fencing or other means will cause improvement or deterioration. I get the impression sometimes that slapping on a restriction order is just an easy (paper) option.

References

HUTT, J.E. 1974. The Llandovery Graptolites of the English Lake District. Part I. *Palaeontographical Society Monographs* **128**, 1-56.

MARR, J.F. and NICHOLSON, H.A. 1888. The Stockdale Shales. *Quarterly Journal of the Geological Society of London* **44**, 654-732.

OLDROYD, D. 1999. Evidence that disappears: John Marr *et al.* and Lakeland Geological Sites. *The Geological Curator* **7**(1), 17-25.

CATALOGUE OF THE TYPE, FIGURED AND CITED FOSSILS IN THE NOTTINGHAM NATURAL HISTORY MUSEUM, WOLLATON HALL, NOTTINGHAM, U.K.

by Neil S. Turner

Turner, N.S. 2000. A Catalogue of the Type, Figured and Cited Fossils in the Nottingham Natural History Museum, Wollaton Hall, Nottingham, U.K. *The Geological Curator* 7(3): 111-121.

Nottingham Corporation's first museum was established in 1867 at Exchange Buildings, Nottingham. The geology collections were transferred to the Nottingham University College Natural Sciences Museum, which opened in 1881, and placed under the care of the Professor of Natural History. Since 1926 the geology collections have been located at Wollaton Hall. Type, figured and cited specimens in the Nottingham Natural History Museum, Wollaton Hall, are listed. Strengths lie in Nottinghamshire and Derbyshire Pleistocene mammals, Lower Jurassic marine reptiles, Triassic footprints and Coal Measures plants and Wenlock Limestone invertebrates from the Dudley area, West Midlands.

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Introduction

There has been a natural history museum in Nottingham since 1867 and since then the fossil collections have grown so that there are now approximately 40,000 fossils, 4,000 minerals and 3,500 rocks. The fossil collections are nearly all British and the particular strengths lie in local Pleistocene mammals from Nottinghamshire and Derbyshire, Lower Jurassic marine reptiles, Triassic footprints and Coal Measures plants and Wenlock Limestone fossils from the Dudley area, West Midlands.

A brief history of the Nottingham Natural History Museum's geology collections is followed by a listing of the type, figured and cited fossils present in the Museum.

The first Museum (1867–1881)

Nottingham Corporation's first museum appears to have been established in 1867 at Exchange Buildings, Nottingham, but it was not opened to the public until 16th April 1872, at 25 Wheeler Gate, Nottingham. It originally consisted of "a collection of natural history, botanical, geological, and other specimens, mineralogy, antiquities, and general curiosities, made by the Naturalists' Society, the Committee of the Mechanics Institution, and the trustees of the late Mr George Walker." In 1869 the minerals were arranged by Mr F.W. Rudler, Curator of the Museum of Practical Geology, Jermyn Street, London who also advised on acquiring a batch of minerals (Carr 1928).

In 1870, Robert Etheridge Jr., Chief Palaeontologist at the Geological Survey (Figure 1) "thoroughly named and systematically arranged" the fossil collection (Carr 1928). Etheridge was given a grant for this and the museum also purchased a fossil and rock collection from him (Free Library and Museum Committee minutes 1870) although there is little now in the collections today that we can definitely say came from him. No catalogue is known for his collection and it has probably been merged with the museum's other collections without labelling them with the collector name first.

In 1872, the public were admitted free for 3 days a week and it proved very popular: the daily average attendance was 736 (Carr 1928). The museum continued to be popular and in 1876, the opening hours were extended to 5 days a week (Carr 1928).

Nottingham University College Natural Sciences Museum (1881–1926)

Between 1877 and 1880 more material was acquired with a view to their display in the new Nottingham University College buildings then being built on Shakespeare Street, Nottingham. The collections were transferred and arranged in the new building and the new museum was opened to the public in 1881. Again it was a great success with daily visitor

Figure 1. Robert Etheridge (1819–1903), Chief Palaeontologist at the Geological Survey.

Figure 2. Professor John Frederick Blake (1839–1906). Curator at Nottingham University College Natural Sciences Museum from 1880–1888.

figures of around 1200 (Carr 1928). With the removal of the collections to the University College, the Museum was placed under the charge of the Professor of Natural History.

The first Professor was the Rev. John Frederick Blake (Figure 2) from 1880 to 1888. Blake gave up his ministry to devote himself to science and was a enthusiastic geologist. He studied under Professor Sedgwick from 1859–1862 whilst he was at Cambridge (Anon. 1906). He left Nottingham in 1888 because of a dispute with the Museum Committee about his salary; nevertheless he had an important effect on the early arrangement of the museum and several important geology collections were acquired in the 1880s under his curatorship.

Blake's successor was Professor John Wesley Carr (Figure 3). Under his direction the museum continued to acquire a large amount of geological material. He himself collected from various classic fossil localities on the south coast and in eastern England, particularly in Lincolnshire and Cambridgeshire. He spent some time arranging the collections then on display on the first floor of the University College building.

After the First World War, the number of students at University College increased and there was a big demand for laboratory space so it was decided to move a large part of the natural sciences collections, including the geology collections, to the Carlton Road library, Nottingham. The collections were largely inaccessible at this stage.

Wollaton Hall (1926–present)

In 1926, Nottingham Corporation purchased Wollaton Hall and the natural sciences collections, which included the geology collections, were moved there shortly afterwards (Figure 4). Since 1926 the geology collections have remained at Wollaton Hall and have been the responsibility of curators employed by Nottingham Corporation (now Nottingham City Council). In the 1990s a database comprising a complete inventory of all Nottingham Museums' collections was created using Access 97. Work is now ongoing to study all the museum's Annual Reports and to compile a catalogue of all natural history acquisitions since 1867.

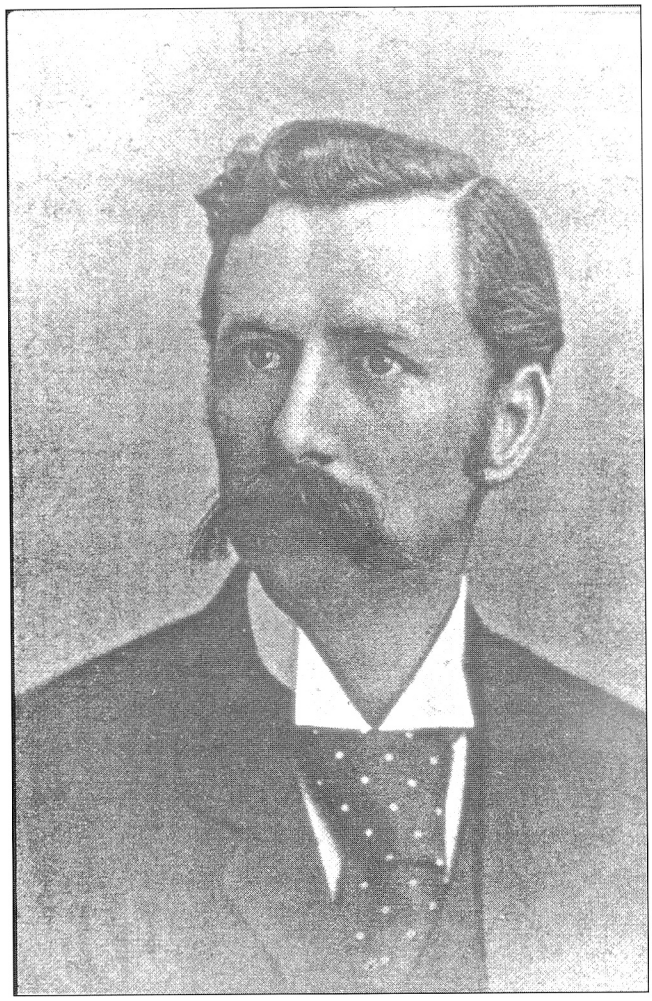

Figure 3. Professor John Wesley Carr (1862–1939). Curator at Nottingham University College Natural Sciences Museum and Nottingham Natural History Museum, Wollaton Hall from 1888–1931.

Table 1. Dates of significant events and geological acquisitions in the Nottingham Natural History Museum.

1867	Nottingham Corporation's first museum established.
1870	Samuel Carrington (1798–1870) collection (Lower Carboniferous fossils).
1870	R. Etheridge collection.
1872	Museum opens to public.
1875	Rev. J. Magens Mello collection (Pleistocene mammals).
1876	Museum opening hours extended to 5 days/week.
1870s	E.J. Hollier collection (Wenlock Limestone, Silurian, fossils).
1881	Nottingham University College Natural Sciences Museum opens.
1883	Edward Wilson fish collection (Triassic).
1884	W. Stafford plesiosaur (Lower Jurassic).
1884	Collection of Red Crag fossils purchased from Edward Charlesworth.
1908	Minerals purchased from F. Holmes, Leicester.
1908–1910	Mineral collections redisplayed.
1910	George Davy collection (mainly South American minerals and rocks).
1926	Museum moved to Wollaton Hall.
1926	F. Gillman collection (mainly European minerals, rocks and rock thin-sections).
1960s–1970s	Minerals purchased.
1980	Present mineral gallery opens.
1990	Present fossil gallery opens.
1990s	Basic information about all the geology collections has been computerised and database created.

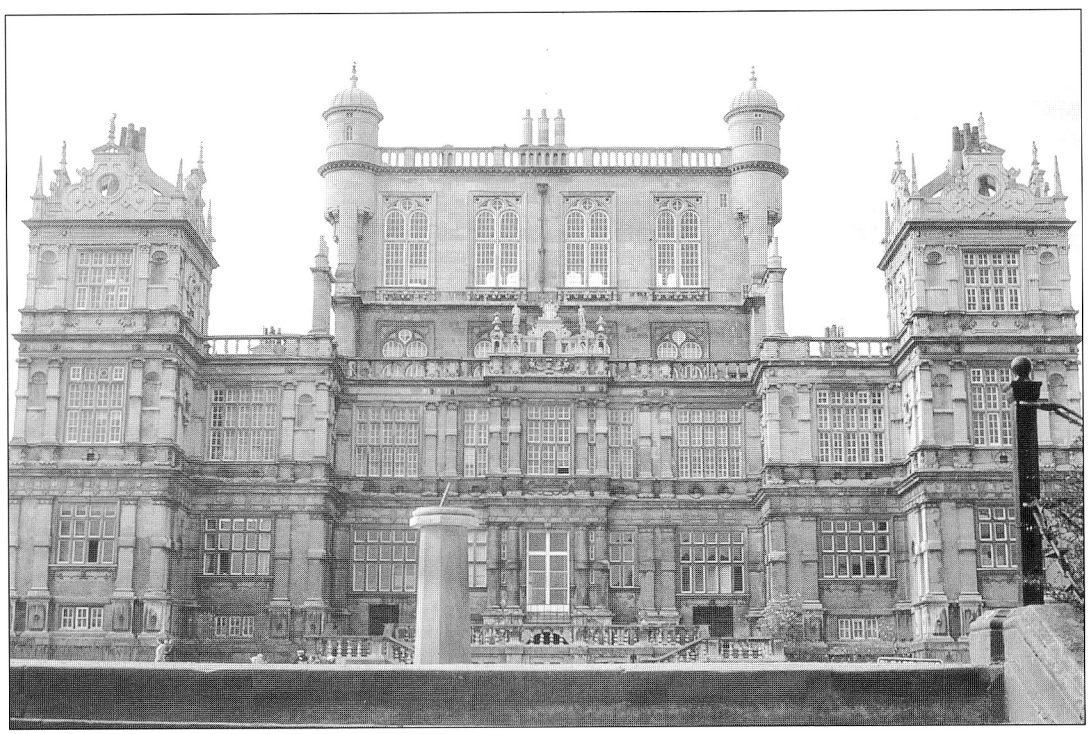

Figure 4. Wollaton Hall. An Elizabethan mansion built in 1588 for the Willoughby family. Since 1926 it has housed the Nottingham Natural History Museum's geology collections.

Type, Figured and Cited Specimens

Coelenterata

Montlivaltia guettardi Blainville
1987.G.106.70
Lower Lias, Lower Jurassic.
Bottesford, Leicestershire.
Collected by Rev. T.C.B. Chamberlin, FGS
Figured: Duncan 1867–68, pp. 51–52, pl. 12, figs.10–14.

MOLLUSCA

Bivalvia

Carbonicola ovalis (Martin)
1992.G.56
Pennystone Ironstone, White Flats Ironstone or Blue Flats Ironstone Beds, Coal Measures, Upper Carboniferous.
Coalbrookdale, Shropshire.
Figured: Hind 1894, pl. 4, fig. 19, p. 56.

Carbonicola ovalis (Martin)
1992.G.57
Coal Measures, Upper Carboniferous.
Butterley, Leicestershire.
Figured: Hind 1894, pl. 4, fig. 22, p. 56

ARTHROPODA

Ostracoda

Cythere retirugata Jones *var. rugulata* Jones
1992.G.59.1
Lower Purbeck, Upper Jurassic.
Hartwell, near Aylesbury, Buckinghamshire.
Collected by Prof. T. Rupert Jones.
Topotype: Jones 1885, vol. 41, p. 350, pl. 9, figs. 17–20.

Trilobita

Calymene blumenbachii Brongniart, 1817
1987.G.68.14
Much Wenlock Limestone Formation, Homerian Stage, Wenlock Series, Silurian.
Dudley, West Midlands.
Collected by E.J. Hollier.
Figured: Salter 1864–83, pl. 8, fig. 15 and p. 94 (Listed in a review of the Salter monograph: Morris 1988, pp. 43–44 and p. 248).
Siveter 1996, fig. 2g.

Calymene blumenbachii Brongniart, 1817
1992.G.85.1
Cephalon and partial thorax
[Much Wenlock Limestone Formation, Homerian Stage, Wenlock Series, Silurian.]
[Dudley, West Midlands.]
[Collected by E.J. Hollier]
Figured: Siveter 1996, pp. 257–285, figs. 2f, 2h–2j.

Calymene blumenbachii Brongniart, 1817
1987.G.68.216
Much Wenlock Limestone Formation, Homerian Stage, Wenlock Series, Silurian.
Dudley, West Midlands.
Collected by E.J. Hollier.

Originally described by Woodward (1868) as a *Calymene blumenbachii* with eyes on the end of stalks. Woodward gave it the new name *Calymene ceratopthalma*. However, following a debate, Woodward (1869) quickly described alternative options for how the fossil could have come to be formed. In this century, Morris (1988) cited it again and it was discussed and figured by Siveter (1996). He described how it is actually two trilobites with 'the cephalic border of a second specimen which has overturned and slotted into the eye sockets of a fairly complete specimen'. Otherwise these specimens are typical *Calymene blumenbachii* (Figure 5).

Syntypes of *Calymene ceratopthalma*: Woodward 1868, pp. 489–493, pl. 21.
Woodward 1869, pp. 43–44.
Morris 1988, p. 44.
Siveter 1996, p. 260, fig. 3d.

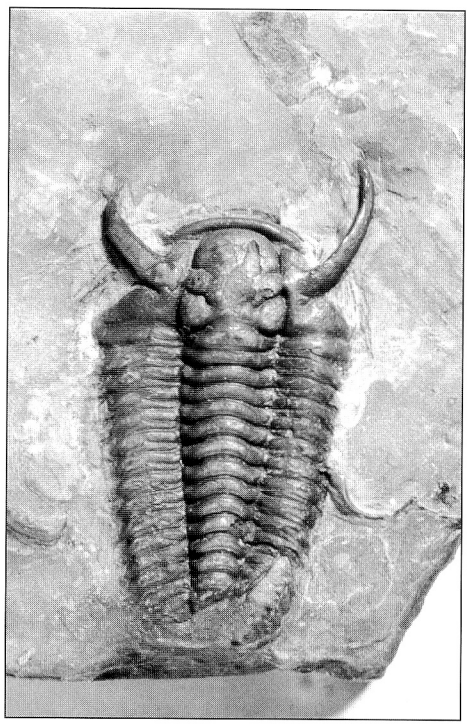

Figure 5. The cephalic border of a *Calymene blumenbachii* Brongniart, overturned and slotted into the eye sockets of another, almost complete, individual of *Calymene blumenbachii*. From Dudley, West Midlands. Length of trilobite: 42 mm.

Dalmanites grindrodianus (Salter, 1864)
1987.G.68.217
Wenlock Shale, Wenlock Series, Silurian.
Malvern, Worcestershire.
Collected by E.J. Hollier.
Figured and possibly a syntype: Salter 1864–83, pl. 3, fig. 23 and p. 57.
Morris 1988, p. 69 and p. 243.

Ktenoura retrospinosa ? Lane,1971
1987.G.68.219
Much Wenlock Limestone Formation, Homerian Stage, Wenlock Series, Silurian.
Dudley, West Midlands.
Probably collected by E.J. Hollier.
Figured: Salter 1864–83, pl. 6, fig. 16 pp. 63–67.
Lane 1971, pl. 1, fig. 7 and pp. 31–34.
Morris 1988, p. 122 and p. 246.

Cheirurus centralis Salter,1853
1987.G.68.218
Much Wenlock Limestone Formation, Homerian Stage, Wenlock Series, Silurian.
Dudley, West Midlands.
Paralectotype and figured: Salter 1864–83, pl. 6, fig. 18 and pp. 63–67.
Lane 1971, pl. 1, fig. 8 and pp. 11–15.
Morris 1988, p. 51 and p. 246.

Crustacea

Ceratiocaris sp. (Tail-fin)
1987.G.68.215
Wenlock Shale, Wenlock Series, Silurian.
Dudley, West Midlands.
Collected by E.J. Hollier.
Figured: Woodward 1866, pp. 203–205, pl. 23, fig. 8.

Calcichordata

Placocystites forbesianus De Koninck, 1869
1992.G.55.2
[Much Wenlock Limestone Formation, Homerian Stage, Wenlock Series, Silurian.]
[Dudley, West Midlands.]
[Collected by E.J. Hollier.]
Figured: Jefferies and Lewis 1978, pl. 4, fig. 70. (Referred to as N2).

Placocystites forbesianus De Koninck, 1869
1992.G.55.8a–8e
Much Wenlock Limestone Formation, Homerian Stage, Wenlock Series, Silurian.
Dudley, West Midlands.
[Collected by E.J. Hollier.]
Figured: Jefferies and Lewis 1978, pl. 1, fig. 46 and pl. 2, figs. 57–60 (Referred to as N8).

Placocystites forbesianus De Koninck, 1869
1992.G.55.9a–9d
Much Wenlock Limestone Formation, Homerian Stage, Wenlock Series, Silurian.
Dudley, West Midlands.
[Collected by E.J.Hollier.]
Figured: Jefferies and Lewis1978, pl. 2, fig. 49. (Referred to as N9).

Placocystites forbesianus De Koninck, 1869
1992.G.55.11
[Much Wenlock Limestone Formation, Silurian.]
[Dudley, West Midlands.]
[Collected by E.J.Hollier.]
Figured: Jefferies and Lewis 1978, pl. 2, fig. 51. (Referred to as N11).

VERTEBRATA

Pisces

Semionotus cf. metcalfei Swinnerton (A slab of fishes)
P.L.1.2.1971 (V.F.146)
Sandstone in the Sneinton Formation (Keuper Waterstones), Mercia Mudstone Group, Triassic.
Woodthorpe, Nottingham.
Collected and described by H.H. Swinnerton 1925, p. 87.
Figured: Swinnerton 1960, p. 128, pl.13a.

Semionotus sp. and *Elonichthys* sp. (Partially complete fishes)
1992.G.52.1–.8
Sandstone of the Sneinton Formation (Keuper Waterstones), Mercia Mudstone Group, Triassic.
Colwick Wood, Nottingham.
Collected and described by E. Wilson,1881, p. 637.
Figured: Newton 1887, pp. 539–540, pl. 22, figs. 8–9.

Dalatias barnstonensis Sykes, 1971 (Teeth)
1987.G.106.97.1–.66
Beds of the Rhaetian Stage, Upper Triassic.
Lea Railway Cutting, Gainsborough, Lincolnshire.
Collected by Rev. T.C.B. Chamberlin, FGS.
Cited: Sykes 1974, pp. 41, 44 and 49–51.

Reptilia

Plesiosaurus sp. (A left tibia)
34.1978
Lower Lias beds, Lower Jurassic.
Staunton Quarry Nature Reserve, South Nottinghamshire.
Collected by N. Lewis.
Figured: Marquiss 1987, p. 18, left figure.

?Elasmosaurian plesiosaur (A small partial skeleton)
1987.G.60
Lower Lias, Lower Jurassic.
The area around Cropwell Bishop, south Nottinghamshire.
Collected by W. Stafford in 1884. A possible early elasmosaurian plesiosaur.
Figured: Forrest 1998, pp. 135–143, pl. 1 and figs. 1–6.

Mammalia

Mammuthus primigenius Blumenbach (Scapula and molar tooth)
14(a)–14(b).1969
River Trent terrace deposits, Coddington, near Newark, Nottinghamshire.
Collected by G.H. Dewar.
Cited: Lister and Brandon 1991, pp. 139–140.

Felis lynx Linnaeus (Skull) (Figure 6)
1988.G.1a–.1b
Flandrian.
Yew Tree Cave, Pleasley Vale, Nottinghamshire-Derbyshire boundary.
Collected by Dr W.H. Ransom in 1866.
Cited: Ransom 1866, p. 66.
Figured: Dawkins and Sandford 1866–72, pp. 172–176, figs. 1–7.

The next 21 specimens (specimens 22–29 and 31–43) were collected by the Rev. J.M. Mello (1836–1914) from the Quaternary deposits in the caves at Creswell Crags, on the boundary between Nottinghamshire and Derbyshire and were figured by Mello (1891, all on a plate inserted between pages 78 and 79).

Crocuta crocuta Erxleben (Left half of upper jaw)
1988.G.74.1
Figured: Mello 1891 (Specimen no. 16).
Cited: Mello 1876, p. 244.

Crocuta crocuta Erxleben (Deciduous molar tooth)
1988.G.74.25
Figured: Mello 1891 (Specimen no. 21).

Vulpes vulpes (Linnaeus) (Part of a right lower jaw)
1988.G.74.24
Figured: Mello 1891 (Specimen no. 28).

Ursus sp. (Canine tooth)
1988.G.74.11
Figured: Mello 1891 (Specimen no. 18).

Ursus sp. (Cheek tooth)
1988.G.74.22
Figured: Mello 1891 (Specimen no. 27).

Ursus sp. (Canine tooth)
1988.G.74.23
Figured: Mello 1891 (Specimen no. 24).

Ursus sp. (Cheek tooth)
1988.G.74.27
Figured: Mello 1891 (Specimen no. 25).

Ursus sp. (Cheek tooth)
1988.G.74.28
Figured: Mello 1891 (Specimen no. 26).

Equus sp. (Molar tooth)
1988.G.74.6
Figured: Mello 1891 (Specimen no. 39).

Coelodonta antiquitatis (Blumenbach) (Two molar teeth)
1988.G.74.8 and 1988.G.74.9
Figured: Mello 1891 (Specimen nos. 45 and 460.

Coelodonta antiquitatis Blumenbach (Molar tooth)
1988.G.74.30
Figured: Mello 1891 (Specimen no. 41).

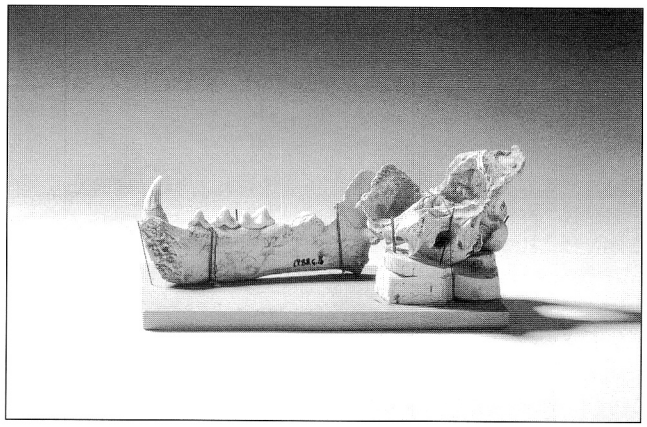

Figure 6. The lower jaw and part of the skull of a lynx, *Felis lynx* Linnaeus from Yew Tree Cave, Pleasley, Nottinghamshire. Length of jaw: 105 mm.

Sus scrofa Linnaeus (Part of a lower jaw)
1988.G.74.21
Figured: Mello 1891 (Specimen no. 49).

Rangifer tarandus Linnaeus (A reindeer metapodial, probably a metacarpal)
1988.G.74.7
Figured: Mello 1891 (Specimen no. 31).

Megaloceros giganteus (Blumenbach) (Molar tooth)
1988.G.74.12
Figured: Mello 1891 (Specimen no. 30).

Bison priscus Bojanus (Molar tooth)
1988.G.74.13
Figured: Mello 1891 (Specimen no. 34).

Bos longifrons? (Cheek tooth)
1988.G.74.26
Figured: Mello 1891 (Specimen no. 33).

Bovid (Incisor tooth)
1988.G.74.29
Figured: Mello 1891 (Specimen no. 35).

Ovis sp. (Part of a lower jaw)
1988.G.74.10
Figured: Mello 1891 (Specimen no. 36).

Species indeterminate (A fragment of ivory at one time thought to have been worked by man into a point but now thought to be a naturally-shaped fragment)
1988.G.74.31
Figured: Mello 1876, p. 250, fig. 1.

Species indeterminate (Tooth fragment)
1988.G.74.32
Cited: Mello 1876, pp. 250 and 254.

A collection of about 140 mammal bones
1989.G.141.1–.140
Steetley Quarry Cave, near Worksop, Nottinghamshire. (SK560810).
Briefly described by Jenkinson 1984, p. 77. Since then,

they have been extensively reexamined by Dr R. Jacobi.

FOOTPRINTS

Dimetropus (Chelichnus) hicklingi Nopcsa, 1923 emend. Sarjeant, 1966 (Reptilian footprint trackway)
P.L.1.11.1971 (P.C.3128)
Mansfield Red Sandstone - a sandy intercalation within the Cadeby Formation, (Lower Magnesian Limestone), Upper Permian.
Rock Valley Quarry, Mansfield, Nottinghamshire.
Collected by J. Shipman.

The first reptilian footprint trackway to be discovered in the Permian of the Midlands, it was originally figured by Hickling (1906). Nopcsa (1923) gave the trackway the name *Chelichnus hicklingi* but it was only first properly described and figured by Sarjeant (1966) who designated it the holotype of *Chelichnus hicklingi*. Figured in Haubold, (1971), the history of the trackway was described by Sarjeant (1974). Haubold (1984) reassigned the trackway to *Dimetropus (Chelichnus) hicklingi*. The history of the trackway was referred to again by Sarjeant (1996).

Holotype of *Chelichnus hicklingi* Nopcsa, 1923 emend. Sarjeant, 1966: Sarjeant 1966, pp. 367–373, pl. 24.
Hickling 1906, pp. 125–131, text figs. 1–2.
Haubold 1971, pp. 36–37, Abb.22(1) and 22(5)).
Sarjeant 1974, pp. 332–333, fig. 25.
Haubold 1984, p. 113.
Sarjeant 1996, p. 22.

Ichnogenus indet. (Reptile trackway)
P.L.1.2.1971 (P.C.3307)
Sneinton Formation (Keuper Waterstones), Middle Triassic.
Dale Abbey, Stanton-by-Dale, Derbyshire.
Collected by H.H. Swinnerton.

King (1997) considers *Deuterotetrapous* to be an invalid ichnotaxon and reassigned the specimen to ichnogenus indet. However, he notes a similarity with *Dicynodontipus* isp.

Holotype of *Deuterotetrapous plancus* Sarjeant, 1967: Sarjeant 1967, pp. 335–337, pl. 15, text figs. 2B and 4A .
Figured: Haubold, 1971, pp. 95–96, Abb. 59(4).
King 1997, Chapter 7.

Chirotherium isp.
P.L.1.1.1971(PC.3315)
Sneinton Formation (Keuper Waterstones), Lower-Middle Anisian, Middle Triassic.
Temporary exposure in the Mapperley Park area of Nottingham (King and Benton 1996).
Collected by H.H. Swinnerton.

Originally described as the holotype of a new ichnogenus and species *Swinnertonichnus mapperleyensis* (Sarjeant, 1967). The footprint was thought by Sarjeant to have been made by a small theropod dinosaur. Also figured in Haubold (1971). King and Benton (1996) reidentified this specimen as part of a *Chirotherium* right pes. *Chirotherium* is one of four recognised ichnogenera within the ichnofamily Chirotheriidae Abel 1935. Footprints in this group are generally thought to have been produced by a group of Triassic reptiles called rauisuchians. The rauisuchians were a diverse group known from the fossilized remains of 20 or more Middle and Late Triassic species. Sarjeant (1996) reidentified the specimen as 'probably a crocodilian imprint, to be placed alongside *Tarsodactylus* in the Morphofamily Batrachopodidae Lull, 1904.'

Holotype of *Swinnertonichnus mapperleyensis*: Sarjeant 1967, pp. 333–335, pl. 14, text–fig. 3.
Haubold 1971, pp. 68–69, Abb. 42(14).
King and Benton 1996, pp. 219–221, fig. 5C, 5D.
Sarjeant 1996, pp. 26–28, fig. 2; pl. II, no. 1.

Chirotherium isp.
P.L.1.8.1971 (P.C.3437)
Sneinton Formation (Keuper Waterstones), Lower-Middle Anisian, Middle Triassic.
Temporary exposure in the Mapperley Park area of Nottingham (King and Benton 1996).
Collected by H.H. Swinnerton.

Originally labelled as *Swinnertonichnus mapperleyensis*, but not described by Sarjeant (1967). King and Benton (1996), reinterpreted this specimen as a *Chirotherium* left pes.

Figured: King and Benton 1996, pp. 221–222, fig. 6C.

Chirotherium isp.
P.L.1.3..1971 (P.C.4238)
Sneinton Formation (Keuper Waterstones), Lower-Middle Anisian, Middle Triassic.
Temporary exposure in the Mapperley Park area of Nottingham (King and Benton 1996).
Collected by H.H. Swinnerton.

Originally described as the holotype of a new ichnospecies ?*Otozoum swinnertoni* (Sarjeant, 1970) the footprint was thought, by Sarjeant, to have been made by a prosauropod. Also cited in Haubold (1971). King and Benton (1996) reidentified it as the natural cast of a *Chirotherium* right pes. Sarjeant (1996) reidentified it as *Paratetrasauropus swinnertoni* (Sarjeant, 1970).

Holotype of ?*Otozoum swinnertoni*: Sarjeant 1970, pp. 270–274, pl. 20, text-figs. 1, 2B.
Haubold 1971, p. 85.
King and Benton 1996, p. 219, fig. 5A, 5B.
Sarjeant 1996, p. 29, pl. I, no. 1; fig. 5 .

Chirotheroid manus
P.L.1.6.1971 (P.C.3317)
Sneinton Formation (Keuper Waterstones), Lower-Middle Anisian, Middle Triassic.
Temporary exposure in the Mapperley Park area of Nottingham (King and Benton 1996).
Collected by H.H. Swinnerton.

Originally described as *Brachychirotherium coburgense*/ Aumann, 1957 (Sarjeant 1967) it was thought to be a footprint made by a thecodontian. Also figured by Haubold(1971). King (1997) reinterpreted it as the natural cast of a large chirotheroid left manus, probably a *Chirotherium* such as C. barthii Kaup 1835b (Beasley's A2 form). Sarjeant(1996) reidentified it as a chirotherioid right manus and gave it the name *Synaptichnium diabloense*/Peabody, 1948.

Figured: Sarjeant 1967, pl. 16, text-figs. 2E, 4C.
Haubold 1971, pp. 56–57, Abb. 35(7).
Sarjeant 1996, pp. 28–29, fig. 4.
King 1997, p. 149 and fig. 21a.

Chirotherium isp.
P.L.1.10.1971 (P.C.3440)
Sneinton Formation (Keuper Waterstones), Lower-Middle Anisian, Middle Triassic.
Temporary exposure in the Mapperley Park area of Nottingham (King and Benton 1996).
Collected by H.H. Swinnerton.

Originally described and figured but only named 'B' (Swinnerton, 1912). Identified as 'chirotheroid' and figured again (Swinnerton, 1960). King and Benton, (1996) identified it as the natural cast of two incompletely preserved *Chirotherium* pes prints, one overprinting the other.

Figured: Swinnerton 1912, p. 67 and pl. 4, fig. 4.
Swinnerton 1960, pl.12b, fig. 2.
King and Benton 1996, p. 221, fig. 6A.

Rhynchosauroides isp.
P.L.1.5.1971 (P.C.3365)
Sneinton Formation (Keuper Waterstones), Lower-Middle Anisian, Middle Triassic.
Temporary exposure in the Mapperley Park area of Nottingham (King and Benton 1996).
Collected by H.H. Swinnerton.

A number of footprints scattered across a slab and described and figured by Sarjeant (1967), as prints made by small amphibians and given the names *Microsauripus aff. acutipes*/ Moodie, 1929 and *Varanopus aff. curvidactylus*/ Moodie, 1929. King and Benton (1996) identified them as the ichnotaxon *Rhynchosauroides.*

Figured: Sarjeant 1967, pp. 330–332, pl. 13, text-figs. 1A, 1B, 2C, 2D.
King 1997, pp. 190–192, fig. 9c.
King and Benton 1996, p. 218.

Ichnotaxon indeterminate.
P.L.1.4.1971 (P.C.3316)
Sneinton Formation (Keuper Waterstones), Lower-Middle Anisian, Middle Triassic.
Temporary exposure in the Mapperley Park area of Nottingham (King and Benton 1996).
Collected by H.H. Swinnerton.

Originally described as the footprint of a small bipedal (theropod) dinosaur and named *Coelurosaurichnus* sp. by Sarjeant (1967). Also figured in Haubold (1971). King and Benton (1996) interpreted the specimen as possibly part of a chirotheroid print, or possibly even an inorganic sedimentary structure. Consequently it was referred to as ichnotaxon indet. It was reidentified by Sarjeant (1996) as 'the footprint of a bipedal thecodont (pseudosuchian) and not of a dinosaur' and given the name '*Chirotherium maquinense* Peabody, 1948.

Figured: Sarjeant 1967, pl.16, text-figs. 2A, 4B.
Haubold 1971, p. 69, Abb.42 (7).
King and Benton 1996, pp. 222–223, fig. 7.
Sarjeant 1996, p. 28, pl. II, no. 2; fig. 3.

A mammal-like reptile footprint.
1988.G.79
Cadeby Formation, Upper Permian.
Gregory Quarry, Mansfield, Nottinghamshire.
Referred to: Turner 1993, p. 67.

PLANTAE

Lycopsids

Caudatocarpus monospora (Chaloner, 1954) (Lycopod cone)
1989.G.3.2a–.2b
Roof of the Top Hard Coal Seam, Westphalian B, Upper Carboniferous.
Pleasley, Derbyshire.

Part of a lycopod cone, containing spores that indicate a level of organization half way between a megaspore-bearing plant (like *Lepidostrobus* or *Selaginella*) and primitive seed-bearing plants such as a cycad. The specimen was probably the one cited by Horwood (1907) as *Lepidostrobus ophiurus* Brongniart. Chaloner made it the holotype of the species *Lepidostrobus monospora* (Chaloner,1954). Recently, the spore has been made the holotype of *Caudatosporites verrucosus* (Dijkstra) by Hemsley and Bartram (1991).The *in situ* spore was figured again by Hemsley, (1993).

Holotype: Chaloner 1954, pp. 86–91, figs. 6–10.
Hemsley and Bartram 1991, pp. 331–340, pls. I–IV.
Hemsley 1993, pp. 146–147, pl. 1, fig. 8.

Lepidodendron lycopodiodes Sternberg (Part of a stem 'bark')
1989.G.3.5
Middle Coal Measures, Upper Carboniferous.
Clay Cross, Derbyshire.
Figured: Horwood 1907, p. 45, pl. B, fig. 3. (Referred to as H.N.D./4).

Lepidodendron ophiurus (Brongniart) (Leafy shoot)
1989.G.3.9
Roof of the Top Hard Coal Seam, Westphalian B, Upper Carboniferous.
Pleasley Colliery, Derbyshire.
Collected by W.S. Gresley

Figured: Horwood 1907, p. 45, pl. B, fig. 2. (Referred to as G.N.D./35).

Calamites

Annularia radiata Brongniart (Several leaf whorls)
1989.G.3.1a–.1b
Roof of the Top Hard Coal Seam, Westphalian B, Upper Carboniferous.
Pleasley Colliery, Derbyshire.
Collected by W.S. Gresley.
Figured: Horwood 1907, p. 45, pl. B, fig. 1. (Referred to as G.N.D./24).

Sphenophylls

Sphenophyllum sp. (Leaf whorl)
2.1965
Coal Measures, Upper Carboniferous.
Cotgrave Colliery, Nottinghamshire.
Figured: Anon., City of Nottingham 1965, between pp. 24–25.

Pteridosperms

Carpolithes wildii Kidston (Seed)
Roof of the Top Hard Coal, Middle Coal Measures, Upper Carboniferous.
Pleasley Colliery, Derbyshire.
Figured: Horwood 1907, p. 46, pl. B, fig. 4. (Referred to as G.N.D./52).

Alethopteris lonchitica (Schlotheim) (Frond)
1989.G.3.6
Roof of the Top Hard Coal Seam, Westphalian B, Upper Carboniferous.
Pleasley Colliery, Derbyshire.
Collected by W.S. Gresley.
Figured: Horwood 1907, p. 43, pl. A, fig. 1. (Referred to as G.N.D./9).

Neuropteris heterophylla Brongniart (Frond)
1989.G.3.7.1
Tupton Main Seam, Middle Coal Measures, Upper Carboniferous.
Hardwicke Pit, Derbyshire.
Figured: Horwood 1907, p. 44, pl. A, fig. 2. (Referred to as H.N.D./1).

Neuropteris heterophylla Brongniart (Frond)
1989.G.3.7.2
Tupton Main Seam, Middle Coal Measures, Upper Carboniferous.
Hardwicke Pit, Derbyshire.
Figured: Horwood 1907, p. 44, pl. A, fig. 3. (Referred to as H.N.D./2).

Neuropteris obliqua forma *impar* (Weiss) Renier and Stockmans (The enlarged lower leaflets of the *N. obliqua* frond)
1989.G.3.8
Tupton Main Seam, Middle Coal Measures, Upper Carboniferous.
Hardwicke Pit, Derbyshire.
Figured: Horwood 1907, p. 44, pl. A, fig. 4. (Referred to as H.N.D./3).

Neuropteris sp. (Frond)
3.1965
Cotgrave Colliery, Notts.
Coal Measures, Upper Carboniferous
Figured: Anon., City of Nottingham 1965, between pp. 24–25.

The following 16 specimens are probably those cited but not figured by Horwood (1907, table on pp. 43–46). They are all from the roof of the Top Hard Coal Seam, Westphalian B, Upper Carboniferous of Pleasley Colliery, Derbyshire:

Sphenopteris obtusiloba Brongniart (FS8970), *Sphenopteris artimisiae-folioides* Crepin (FS8971), *Dactylotheca plumosa* (Artis) (FS8911), *Mariopteris muricata* (Schlotheim) (FS8701), *Odontopteris* sp. (FS8938), *Neuropteris heterophylla* Brongniart (FS8947), *Neuropteris tenuifolia* (Schlotheim) (FS8948), *Neuropteris gigantea* Sternberg (FS8946), *Calamocladus equisetiformis* (Schlotheim) (FS8532), *Annularia galiodes* (L. & H.) (FS8529), *Lepidodendron obovatum* Sternberg (FS8553), *Lepidostrobus variabilis* (L. & H.) (FS8846), *Lepidophyllum majus* Brongniart (FS8683), *Siggilaria* cf. *mammilaris* Brongniart (FS8858), *Stigmaria ficoides* (Sternberg) (FS8902), *Rhabdocarpus* sp. (FS8699).

Conifers

Ullmania bronni Goeppert (Two isolated conifer leaves)
1992.G.58.1–.2
Lower Permian Marl, Upper Permian.
Bentley Colliery No. 2 Shaft, near Doncaster, South Yorkshire.
Cited: Stoneley 1958, pp. 300 and 324.

Acknowledgments

I am grateful to the following: Mike King, Andrew King, Michael Cooper, Mike Benton, Chris Cleal, Roger Jacobi, Patrick Wyse Jackson, Cedric Shute, Alan Hemsley, Richard Forrest, Arthur Cruickshank, Derek Siveter and Steve Tunnicliff for helping me produce this paper.

References

ANON. 1906. Obituary Prof. J.F. Blake, MA., FGS. *Geological Magazine* **3**, 426–431.

ANON. 1965. *City of Nottingham Art Galleries and Museums Committee, Annual Report.*

CARR, J.W. 1928. *The Public Natural History Museum, 1872–1928.* City of Nottingham.

CHALONER, W.G. 1954. Notes on the spores of two British Carboniferous lycopods. *Annals and Magazine of Natural History*, Series 12, **7**, 81–91.

DAWKINS, W.B. and SANDFORD, W.A. 1866–1872. British Pleistocene Mammalia, **1**, Felidae. *Palaeontographical Society Monographs.*

DUNCAN, P.M. 1867–1868. A Monograph of the British Fossil Corals, Supplement. *Palaeontographical Society Monographs.*

FORREST, R. 1998. A possible early elasmosaurian from the Triassic/Jurassic boundary of Nottinghamshire. *Mercian Geologist* **14**(3), 135–143.

FREE LIBRARIES AND MUSEUMS COMMITTEE MINUTES 1870. Nottingham Corporation, Nottingham.

HAUBOLD, H. 1971. Ichnia Amphibiorum et Reptiliorum fossilium. Part 18. *In* Kuhn, O. (ed.). *Handbuch der Palaeoherpetologie/Encyclopedia of Paleoherpetology*. Fisher–Verlag, Stuttgart.

HAUBOLD, H. 1984. *Saurierfahrten*. Wittenberg Lutherstadt, Die Neue Brehm-Bucherei, A. Ziemsen Verlag, pp. 1–231.

HEMSLEY, A.R. 1993. A Review of Palaeozoic Seed-Megaspores. *Palaeontographica* Abt. B, **229**, 135–166.

HEMSLEY, A.R. and BARTRAM, K.M. 1991. *Caudatosporites* gen.nov.: A re-appraisal of an anomalous Carboniferous lycopod seed-megaspore with reference to exine ultrastructure. *Review of Palaeobotany and Palynology* **67**, 331–340.

HICKLING, G. 1906. Footprints from the Permian of Mansfield (Nottinghamshire). *Quarterly Journal of the Geological Society of London* **62**, 125–131.

HIND, W. 1894. *Carbonicola, Anthracomya,* and *Naiadites*, Part 1. *Palaeontographical Society Monographs.*

HORWOOD, A.R. 1907. A Contribution to the Palaeontology of the North Derbyshire and Nottinghamshire Coalfield, or the Southern Portion of the North Midland Coalfield. *55th Report and Transactions of the Nottingham Naturalists' Society* (for 1906–1907), 38–58.

JEFFERIES, R.P.S. and LEWIS, D.N. 1978. The English Silurian fossil *Placocystites forbesianus* and the ancestry of the vertebrates. *Philosophical Transactions of the Royal Society*, Series B, **282** (990), 205–323.

JENKINSON, R.D.S. and GILBERTSON, D.D. 1984. *In the shadow of extinction: a Quaternary archaeology and palaeoecology of the lake, fissures and smaller caves at Creswell Crags SSSI.* Nottinghamshire and Derbyshire county councils.

JONES, H.P. 1934. *Guide to the Public Natural History Museum, Wollaton Hall.* Cooke and Vowles, Nottingham.

JONES, T.R. 1885. On the Ostracoda of the Purbeck Formation with Notes on the Wealden Species, *Quarterly Journal of the Geological Society of London* **41**, 311–353.

KING, M.J. and BENTON, M.J. 1996. Dinosaurs in the Early and Mid Triassic? - The footprint evidence from Britain. *Palaeogeography, Palaeoclimatology, Palaeoecology* **122**, 213–225.

KING, M.J. 1997. Triassic vertebrate footprints of the British Isles. Unpublished Ph.D. thesis, University of Bristol.

LANE, P.D. 1971. British Cheiruridae (Trilobita). *Palaeontographical Society Monographs.*

LISTER, A.M. and BRANDON, A. 1991. A pre-Ipswichian cold stage mammalian fauna from the Balderton Sand and Gravel, Lincolnshire, England. *Journal of Quaternary Science* **6**(2), 139–157.

MARQUISS, R. (ed.) 1987. *The Nature of Nottinghamshire.* Barracuda Books Ltd.

MELLO, J.M. 1876. The bone-caves of Creswell Crags. 2nd Paper. *Quarterly Journal of the Geological Society of London* **32**, 240–244.

MELLO, J.M. 1891. *Handbook of the geology of Derbyshire.* 2nd edition. Bemrose and Sons, London.

MORRIS, S.F. 1988. A review of British Trilobites including a synoptic revision of Salter's Monograph. *Palaeontographical Society Monographs.*

NEWTON, E.T. 1887. On the remains of Fishes from the Keuper of Warwick and Nottingham, with notes on their mode of occurrence bt the Rev. P.B. Brodie, M.A., F.G.S. *Quarterly Journal of the Geological Society of London* **43**, 537–543.

RANSOM, W.H. 1866. On the Occurrence of *Felis lynx* as a British Fossil. *Report of the British Association for the Advancement of Science, Section C*, pp. 66.

SALTER, J.W. 1864–1883. A monograph of the British trilobites from the Cambrian, Silurian and Devonian formations. *Palaeontographical Society Monographs.*

SARJEANT, W.A.S. 1966. A restudy of some fossil footprints from the Permian of Mansfield (Notts.). *Mercian Geologist* **1**(4), 367–373.

SARJEANT, W.A.S. 1967. Fossil footprints from the Middle Triassic of Nottinghamshire and Derbyshire. *Mercian Geologist* **2**(3), 327–341.

SARJEANT, W.A.S. 1970. Fossil footprints from the Middle Triassic of Nottinghamshire and the Middle Jurassic of Yorkshire. *Mercian Geologist* **3**(3), 269–282.

SARJEANT, W.A.S. 1974. A history and bibliography of the study of fossil vertebrate footprints in the British Isles. *Palaeogeography, Palaeoclimatology, Palaeoecology* **16**, 265–378.

SARJEANT, W.A.S. 1996. A re-appraisal of some supposed dinosaur footprints from the Triassic of the English Midlands. *Mercian Geologist* **14**(1), 22–30.

SIVETER, D.J. 1996. Calymenid trilobites from the Wenlock Series (Silurian) of Britain. *Transactions of the Royal Society of Edinburgh: Earth Sciences* **86**, 257–285.

STONELEY, H. 1958. The Upper Permian Flora of England. *Bulletin of the British Museum (Natural History) geology* **3**(9), 295–337.

SWINNERTON, H.H. 1912. The Palmistry of the Rocks. *Transactions of the Nottingham Naturalists' Society* (for 1911–1912), 65–68.

SWINNERTON, H.H. 1925. *Woodthorpea wilsoni:* a new Catopterid Fish from the Keuper of Nottingham. *Quarterly Journal of the Geological Society of London* **81**, 87–99.

SWINNERTON, H.H. 1939. Obituary Prof. J.W. Carr. *Proceedings of the Geological Society of London*, cii–ciii.

SWINNERTON, H.H. 1960. *Fossils*. Collins New Naturalist Series.

SYKES, J.H., 1974. Teeth of *Dalatias barnstonensis* in the British Rhaetic. *Mercian Geologist* **5**(1), 39–48.

SYKES, J.H., 1974. On Elasmobranch Dermal Denticles from the Rhaetic Bone Bed at Barnstone, Nottinghamshire. *Mercian Geologist* **5**(1), 49–64.

TURNER, N., 1993. Report on the Geological Collections of the Natural History Museum, Wollaton Hall, Nottingham. *Mercian Geologist* **13**(2), 66–67.

WILSON, E., 1881. On a discovery of Fossil Fishes in New Red Sandstone of Nottingham. *Report of the British Association for the Advancement of Science, Transactions of Section C*, 637.

WOODWARD, H. 1866. On the Occurrence of *Ceratiocaris* in the Wenlock Formation (Upper Silurian) of England. *Geological Magazine* **4**, 203–205.

WOODWARD, H. 1868. On a newly-discovered long-eyed *Calymene* from the Wenlock Limestone, Dudley. *Geological Magazine* **5**, 489–493.

WOODWARD, H. 1869. On a newly-discovered long-eyed trilobite from Dudley. *Geological Magazine* **6**, 43–44.

BOOK REVIEWS

Palmer, Trevor, 1999. *Controversy, catastrophism and evolution: the ongoing debate.* Kluwer Academic for Plenum Publishers, 452 pp. Hardback. ISBN 0-306-45751-2. Price: NLG 173.00 / $85.00 / £55.25 [Also available at a reduced price for course adoption when ordering six copies or more; orders to: Kluwer Academic Publishers, Order Dept., P.O. Box 322, 3300 AH Dordrecht, The Netherlands or Kluwer Academic Publishers, Order Dept., P.O. Box 358, Accord Station, Hingham, MA 02018-0358, USA]

The goal of this book is to convince the reader that a major paradigm shift has occurred in evolutionary biology over the last three decades. The basic tenet is that catastrophism has regained its rightful role in evolutionary theory. The author does a fine job reviewing the 19th century replacement of creationist catastrophism with Hutton and Lyell's uniformitarianism. This set the stage for Darwin's theory of natural selection which is basically Lyell's geological uniformitarianism applied to the biological world. Uniformitarianism then dominated evolutionary biology until the end of the 20th century. The paradigm shift began with paleontologists in the 1970s with the seminal papers by Eldredge and Gould on punctuated equilibrium. It picked up steam in the 1980s with the discovery of the Cretaceous/Tertiary asteroid impact. Through the 1990s the role of catastrophic processes in the earth and life sciences has matured and become more widely accepted.

My main gripe with the book is that the author sets up a bit of a straw man argument. He portrays the neo-Darwinian Modern Synthesis as primarily a uniformitarian evolutionary process based on natural selection operating on variation created by genetic mutation. True, the Modern Synthesis predicts that microevolution will produce gradualistic, progressive evolutionary patterns, within the constraints of random genetic mutation and random evolutionary change. In contrast, macroevolutionary theory predicts more punctuated, random evolutionary patterns based on differential speciation and extinction rates. Notions of gradualistic microevolution are not dying out, or even wrong as the author practically states. In the new paradigm, neo-Darwinism has simply been relegated to the role of fine tuning the branches on the tree of life. Before the paradigm shift, differential reproductive success (i.e., whomever has the most babies wins) was considered as the most important process in evolution. This is still important in the short term, but in the big picture, what is most important is differential speciation success (i.e., whichever lineage gives rise to the most new and diverse species wins). When the environment changes catastrophically (e.g., asteroid impact), being well adapted to your environment is not a guarantee that a species will survive the mass extinction. An individual's clade is more likely to survive if it has given rise to a wide range of ecologically diverse descendent species, one of which may fortuitously survive the event.

On a more editorial note, the book is incredibly well referenced with almost 100 pages of references. The figures are black and white and generally of poor quality. Some aspects of the book are a bit outdated. For example, the Phanerozoic time scale uses a date for the beginning of the Cambrian boundary that is more than 45 million years too old. The global K/T iridium anomaly distribution is based on 1983 data, which is too bad as it excludes the last 17 years of newer data.

Even though this book has its flaws, it is a very thorough review of the importance of catastrophism in evolutionary processes. Controversy will be of interest to biologists and geologists alike who are involved in evolutionary theory and/or the philosophy of science.

Marcus M. Key, Jr., Department of Geology, Dickinson College, Carlisle, Pennsylvania 17013, U.S.A. 10th April 2000.

The following review appeared in *The Geological Curator* 7(2) but failed to include an address for orders. This information and the original review is given below

George, W.H. 1998. *John Gibson (1778-1840), manufacturing chemist and collector of Pleistocene fossils from Kirkdale Cave, Yorkshire and Ilford, Essex.* William H. George Publications, 20pp. Paperback. ISBN 0953409201. Price: £1-00 + 40p p&p. [Available from W.H. George, 11 Sterry Road, Barking, Essex IG11 9SJ, U.K.]

This modest pamphlet has all the appearance of a journal off-print, which it is not – it is published by the author himself. This causes me a little concern because such things are likely to get lost or simply not found in the record of the history of geology. That would really be unfortunate as here we are given an insight into a name associated with one of the most significant geological events of the early nineteenth century. John Gibson was the discoverer of the bones at Kirkdale Cave, an event which through William Buckland sparked an international sensation. It put both Buckland and Yorkshire on the geological map. George gives a brief but useful up-to-date account of the discovery and its meaning. But this isn't the main value of the booklet. Here we are also given a plethora of dates, relationships and other small facts drawn from extensive primary research which makes this an essential publication for historians of Essex or Yorkshire geology. Here we have details of the family (including a family tree), relationships to his various partners in chemical manufacturing, particularly Luke Howard, 'The Father of British Meteorology'. In addition to Kirkdale, Gibson also investigated the Pleistocene at Ilford. His collected materials were widely distributed particularly in London. Modest but scholarly it will be a delightful find for anyone wishing to put a little more detail to a name or demonstrate that geologist actors in the history of science are not one dimensional characters.

Simon Knell, University of Leicester, Leicester, U.K. 12th July 1999.

Woods, M. 1999. *Fossil Focus: Crinoids and Fossil Focus: Echinoids.* Earthwise, British Geological Survey. ISBN 0-85272-330-X and ISBN 0-85272-318-0. Price: £1.95 each.

Following the familiar format, of A3 laminated card folded twice, are two more pamphlets, on crinoids and echinoids, in the *Fossil Focus* series published by BGS. Like the earlier examples they are liberally illustrated with colour photographs, diagrams and reconstructed scenes of the fossils in life, interspersed with small blocks of text dealing with particular aspects of the group. Such a format should appeal to amateurs and to those just developing an interest in fossils and, as such, are an ideal educational tool. However, I feel that their value is slightly marred by minor errors and inconsistencies, and by a failure, in some instances to maximise the information content of the figures. For instance, a description of echinoid teeth lies just below a figure of *Tylocidaris* in which the teeth and jaws are very clearly visible, yet nowhere is this indicated to the reader. Similarly, reference to stemless fossil crinoids might usefully refer to *Uintacrinus* or *Marsupites*, examples of both of which

are figured elsewhere on the page. Simple cross references like this would help the reader build up a clearer picture of the actual appearance of the fossils. A more significant missed opportunity lies in the geological column and map which occupy a large part of one fold yet contain little pertinent information. Contrast this with the analogous section on the Foraminifera pamphlet (Wilkinson 1997), where the actual stratigraphic column itself occupies only a narrow strip but is tied in to colour-coded text-blocks which summarise major events in foraminiferal evolution and include images of the forams involved.

A more niggley point concerns the frequent misidentification of taxa illustrated on the two pamphlets; for instance it should be *Pentacrinites fossilis* not *P. briareus*, and *Acrosalenia hemicidaroides* rather than *Hemicidaris* to highlight just two examples. Moreover, crinoid arms are mistakenly referred to throughout as brachials, whereas in fact brachials are the individual plates within the arms. I, for one, would have been quite happy to check through earlier drafts to ensure that mistakes like these do not creep in, and I'm sure that I speak for others working on various fossil groups; nobody likes to see their own particular group misrepresented in what, potentially, is such a high profile publication as this. These leaflets are a nice idea and, being so cheap, will probably prove popular with those starting out in palaeontology. Perhaps a second edition can iron out the flaws in these.

Mike Simms, Department of Geology, Ulster Museum, Botanic Gardens, Belfast BT9 5AB. 18th July 2000.

GEOLOGICAL CURATORS' GROUP

25th Annual General Meeting

2nd December 1998 at The Natural History Museum, Wollaton Hall, Nottingham.

1. Apologies for absence

Received from Kate Andrew, John Cooper, Tiffany Foster, Steve Howe, Patrick Wyse Jackson, Bob King, Andrew Newman, John Norton, Rosemary Roden, and Sue Turner.

2. Minutes of the 24rd Annual General Meeting 1997

The minutes were approved as a true record of the meeting and signed by the Chairman. Proposed by Ken James and seconded by Steve Laurie.

3. Matters arising

Tom Sharpe agreed to look into possible future use of the old GCG display panels.

4. Chairman's Report from John Nudds

It is hard to believe, but my three years as Chairman of this Group has come to an end. We have had another successful year and go forward in strength. Last year, in my Annual Report, I outlined two main aims for GCG during my period in office, to strengthen our links with our parent body, The Geological Society, and to push back the European frontiers. Both of these have taken leaps forward during 1998 and I can "retire" satisfied.

On the first front, The Geological Society, as part of the reorganisation of its governance, reconstituted the Science Board, which in future is to include five representatives of the 23 Specialist Groups. The Specialist Groups have been organised into five "faculties", and GCG is grouped with HOGG, the GeoScience Information Group, the Remote Sensing Group, and JAGID. I am pleased to report that I, as retiring Chairman of GCG, have been "elected" to represent our faculty on the Science Board, and attended my first meeting in November. There have been some slight worries that in making this move, the Geological Society is attempting to influence the direction of the Specialist Groups. I take the reverse, optimistic view, that this is our chance to influence the Society and to have some real input into its meetings, publications, medallists and lecture series. The five representatives on the Science Board will also sit on the Specialist Groups Committee along with the Group Chairmen, and so from next March GCG will have two representatives on this important committee. I am gratified to learn that several of you have joined The Geological Society since my plea last year and hope that more and more will follow, especially when the fee structure is revised in 2000.

On the European front our visit to Brussels last year was followed up in October/November by a hugely successful visit to Holland. Nine members attended and those of you who didn't will never know what you missed! For four days we had a wonderful mix of stunning museums (Naturalis in Leiden, the Natuurhistorisch Museum in Maastricht and the Teyler Museum in Haarlem), superb field geology (type Maastrichtian and *Mosasaurus* type locality), plus some excellent social bonding (that's the PC term for what GCG used to call "drinking"). Our final evening in Amsterdam will go down in GCG history, and for all of this our Group owes a huge debt of gratitude to Steve McLean who once again masterminded the whole visit. We are also indebted to Ros Gourgey of KLM UK Airlines for her assistance with the flights and acting as our Dutch "Courier", and to Cor W~nkler-Prins and John Jagt, for giving us so much of their time in Leiden and Maastricht respectively. In GCG tradition both have been enroled as members of the group for a two-year period. Our European contacts are growing and we are beginning to see benefits both ways. My lengthy report of the meeting will appear in the next issue of *Coprolite*.

If length of report is directly proportional to the success of the meeting, then Cindy's 6 pages (in *Coprolite* 26) on the Tourism in geological landscapes meeting, held jointly with the Geoconservation Commission, in Belfast in April, testify that this was another GCG milestone. Unfortunately this was the one GCG meeting of my Chairmanship which I was unable to attend, due to a variety of other commitments, but from all accounts the 100+ delegates enjoyed first class speakers, useful discussion, and the usual Irish hospitality. I thank Phil Doughty, Ken James and others involved in this meeting for another huge success. Phil (as Chairman of the Geoconservation Commission) and John Thackray (as Chairman of HOGG) also deserve thanks for their organisation of the joint September meeting Has the past a future? attended by approximately 40 delegates. Sadly, however, our scheduled meeting to the Camborne School of Mines had to be cancelled due to lack of numbers, the second time that this has happened to our June meeting. Next year we will avoid that time of year, and hope to reorganise the Cornish Extravaganza in September. Thanks to Lesley Atkinson for putting together a mouth-watering agenda.

Once again support for museums and collections under threat occupied much of Committee's time this year and we have been involved in cases at Buckinghamshire County Museum, Queen's University (Belfast), the Barrack Street Museum (Dundee) and Derby City Museum, amongst others. A new policy decision to approach the MGC and the Area Museum Councils in such cases, seemed to have a positive effect. GCG has aiso contributed from its vast databanks to various collection surveys being run by the MGC, SEMS, MDA and others.

I am indebted to all members of the Committee for their

help in these and many other matters which have occupied our time this year and over the three years of my chairmanship. I must mention our secretaries Mandy Edwards and John Crossling, and also Alistair Bowden and Tiffany Foster, who willingly stepped in when John had to resign during the year; Andy Newman, for keeping our accounts in order at the same time as satisfying the Geological Society auditors; Patrick Wyse Jackson and Tom Sharpe, our editors, for another year of unbroken output of journal and newsletter; Glenys Wass, our Recorder, who has initiated her update of the Doughty Report, a mammoth task in itself; and finally, once again to Steve McLean, our Programme Secretary, who has organised all of this year's outstanding meetings and visits.

Finally I thank you, the members, for your support and kindness during my tenure; I know that you will give my successor the same support, and I leave you with the knowledge that as the Group prepares to celebrate its Silver Jubilee, it will be in very capable hands.

The report was read and approved on the "general aye".

The Chairman added that as John Thackray was recovering from an operation in hospital, he proposed to send a card on behalf of GCG; this met with positive approval.

5. Secretary's Report from Mandy Edwards

The committee have met three times in 1998. In January and September at Burlington House and at Manchester in May.

There have been several changes to the Committee Members in 1998 and Committee in 1999 will welcome 2 new officers and 3 members.

John Crossling our long-serving minutes secretary has resigned and we wish him good fortune with his new post. Alistair Bowden finishes two years as a useful and enthusiastic member of the Committee.

John Nudds, our chairman comes to the end of his three years in the chair. John has managed to speed up committee meetings, as well as communicating successfully on the Group's behalf with the Geological Society at yet more meetings. He has also added a European flavour to the group by encouraging the Programme Secretary to organise 2 European meetings, both of which he has attended. John has had a very productive time as Chairman and I hope he will continue to support and advise Committee.

Committee members have been involved with publicising the Groups aims.We have been represented at the Geological Society by supplying a stand at Careers Day, contributing to the new Annual Report and by sending representatives to other Committees, notably John Nudds on the Science Board and Tony Morgan on the Geoconservation Commission.

GCG have close links with several other museum groups. These include the Biological Curators Group, who launched their successful Collections at Risk Packs for museums in 1998. We also receive the minutes from the Natural Sciences Conservation Group. These are kept by the Secretary and can be consulted by members if they wish.

Thumbs Up leaflets are still in good demand and have yet again been used by the BBC, this time in support of their "On the Rocks" programme.

Good communications with GCG members and with other professional groups and the public are important to the Committee and have taken up a lot of our time this year. We are trying to improve the ways we do communicate with our members, as well as encouraging more people to join GCG. Committee have started to look at computerising the membership records and we hope the benefits of this will be realised in 1999.

The report was read and approved on the "general aye".

6. Treasurer's Report from Andrew Newman

Financial Report

The accounts for the period 27/11/97-2/12/98 are attached. The Geological Curators Group has financial assets of £12532.10. It is important to thank C.J.C. Burhouse for their sponsorship of *Coprolite*. Subscription income has been reasonable over the year, however if anyone has yet to pay for 1998, please do so as soon as possible. As can be seen from the above the Group has a deficit for the year of £880.61. However, if the exceptional items are removed, such as the display boards, the sponsorship for the Manchester conference and the payment of an invoice for *Coprolite* which was due in the year 96/97 a small surplus would have been possible. It has been decided not to increase the membership fees for the coming year.

Membership Report

The totals for the Group now are

UK personal	295
UK institutions	91
Overseas personal	52
Overseas institutions	46
Total	484

This represents a loss of 33 subscriptions during the year. The Committee will consider this at the January meeting.

The report was read and approved on the "general aye".

7. Programme Secretary' Report from Steve McLean

Another successful year draws to a close ending a fully packed series of seminars, training events and study visits. The following is a summary of GCG's meetings throughout the 1997/98 session.

27th November 1997: GCG Seminar and AGM: New developments in Earth Science Exhibitions.

A one day seminar focusing on new development in earth science displays and exhibitions at the Natural History Museum in London. A real chance to see what is happening in the presentation of one of the national collections.

NHM staff who contributed to the meeting included Robin Cocks, Brian Rosen, Katie Edwards, Dave Smith, Bob Symes, Dierdre Janson-Smith, Andy Fleet and Alan Timms. There was also a contribution from Dirk Houtgraaf (National Natural History Museum, Leiden) who described work on the new galleries at that institution. (Incidentally it was Dirk who suggested that GCG visit Leiden).

Sincere thanks are due to Cally Hall and Andrew Clark for organising the entire programme (and so making sure that I had to do very little!!).

23-26th April 1998: GCG, Geological Society Geoconservation Commission, Geological Survey of Northern Ireland, Environment and Heritage Service of the Department of the Environment, Northern Ireland: Conference on Geotourism.

This highly successful conference has been reported in *Coprolite* 26 and was certainly one of the biggest events of the year, with a huge range of speakers from all over the country. It was excellent to see such a forward thinking approach to how we can all tap into the geotourism market and it is a subject that, like it or not, will become more and more a fundamental part of the work of museums.

If anyone has ever tried to organise a conference he or she will appreciate the enormous amount of work involved. This conference was entirely due to the sterling efforts of staff at the Ulster Museum and my grateful thanks are given to Ken James, Phil Doughty, Pete Crowther, Michelle Keenan and all their colleagues as well as all the contributors to the conference.

June 1998. GCG Seminar and Field Trip: Camborne School of Mines, Redruth, Cornwall.

Unfortunately this meeting was cancelled due to a lack of attendance. Coincidentally (or I suspect not) this is the same slot in the programme that had to be cancelled last year. Despite the fact that the Mary Anning Conference is in June next Year, it seems unlikely that GCG will hold meetings in June in the future. I will try to reschedule the programme to avoid this month. Nevertheless, we are going to try this trip again next year - but at a different time. Please do try to come along if you can.

Thanks are due to Lesley Atkinson who put together a splendid programme and I look forward to trying it out next year!

24 September 1998: GCG/History of Geology Group/ Geoconservation Commission. Has the past a future?

A one day seminar focusing on the conservation of geological sites, collections and records - a wide ranging but extremely interesting and enjoyable mix of disciplines. Speakers were Chris Green, David Oldroyd, Colin Prosser, Phil Doughty, Steve McLean, John Martin, John Thackray and Michael Collie. For more information please see the report in *Coprolite* 27, and the published papers in *The Geological Curator* 7(1) [1999].

Thanks are due to John Thackray who organised the event and also arranged a splendid wine reception at the close of the meeting.

1 October 1998: GCG Training Course : New technologies for long-term storage of oxidising pyrite - a solution? Geological Conservation Unit, Sedgwick Museum, Cambridge.

Chris Collins provided the first of many training courses which I hope to schedule over the next few years. Chris reported that he had a fully booked session (of 8 people) and, although I have not had a report yet, I am sure the course was extremely valuable to those who attended. My sincere thanks to Chris for organising and running this event.

29 October - 2 November 1998: A European Adventure Part II. The Netherlands.

Without wishing to spoil the impact of the report which will be published in the next edition of coprolite, I only need to say that this meeting was a tremendous success. Despite the relatively small numbers (nine GCG members attended in all) the group managed to pack in visits to Naturalis, The National Museum of Natural History in Leiden, The Maasticht Museum of Natural History and Teyler's Museum in Haarlem as well as the ENCI quarry at Maastricht to view exposures at this famous Maastrichtian site where the original Mosasaur skull (now on display in Paris) was discovered. Needless to say we also managed to have some interesting social gatherings but I leave it to John Nudds in his report to elaborate!!
Sincere thanks are due to the many people who helped with the organisation of this trip. It is a long list but here they are: Dr Cor Winkler Prins (Naturalis, Leiden) was really my main contact and organised most of our visit to Leiden as well as liasing with Haarlem and Maastricht. I am very grateful for all his help. I should also not forget Cor's wife and son who helped drive the cars back to Leiden after we dropped them off in Amsterdam. I am also indebted to Dr Charles Arps (Naturalis, Leiden) for organising accommodation and transport. Thanks also to Jan Krikken, Associate Director of Collections and Research for introducing us to Naturalis.

Many thanks to John Jagt (Cretaceous biostratigrapher and echinoid specialist from Natuurhistorisch Museum Maastricht) who took us around the ENCI quarry and showed us his wonderful museum (as well as donating a beautiful echinoid specimen to everyone in our party) and to Mr Geert Driessen (Maastricht Tourist Board) for

providing us with various goodies and champagne in Maastricht and for making us feel so welcome.

We are also very grateful to John de Vos and Joop van Veen who were our excellent guides at Teyler's Museum. And last, but certainly not least, Ros Gourgey (KLM UK). Ros provided a great deal of help in organising the flights to Amsterdam etc. as well as arranging a restaurant and a wonderful reception in Maastricht and of course being our Dutch guide for the trip. Ros has now joined GCG so I hope we will see more of her in the future.

The Future

The 1998/99 session promises to be filled with equally interesting and exciting meetings. We have a lot in store including GCG's 25th Anniverary (and dinner) at Leicester, and the Mary Anning Conference celebrating her 200th anniversary. We also have a training session organised at the National Museum of Wales and we will be trying again at Camborne where I hope we will be more successful with what promises to be an excellent meeting. A visit to Trinity College in Dublin for next year's AGM will round off the year's programme and don't forget what promises to be one of the highlights of the session: a trip to the Natural History Museum in Paris.

I am acutely aware that it is becoming more and more difficult for members to find the time and finances to travel to meetings and I am always very happy to hear of any suggestions that might help to make meetings more accessible to more of our membership. So if you have any suggestions about how they might be improved then don't hesitate to contact me.

The report was read and approved on the "general aye".

8. Journal Editor's Report from Patrick Wyse Jackson

Geological curators worldwide may be fretting a little bit at the moment - where is the autumn issue of *The Geological Curator*? Don't worry, it is with the printers and will be posted out before Christmas. Perhaps you should tuck it into your Christmas stocking for reading on the morning of December 25th!

With the publication of this impending issue Volume 6 is complete; made up of ten issues, it is 406 pages long. I have compiled an index for the volume which is included in the last issue and accounts for the delay in its publication date.

In total the two 1998 issues contain eight papers on topics as diverse as crystallographic models, casting dinosaur trackways, educational packages, and frudulent mineral finds. Also an obituary, a gallery review, a short note on museums in St Petersburg and the usual items including book reviews, have, or will shortly be, published.

I continue to enjoy the process of editing and putting together *The Geological Curator*, and looking back having tucked Volume 6 to bed, I am grateful to many people who have eased the burden that this journal imposes on my time and sanity. Matthew Parkes proof-read all the papers; Deirdre Dunne of the printers ColourBooks of Dublin smoothed various technical problems; the Committee of the GCG made soothing noises about my efforts, my wife Vanessa who hears about pyrite decay and Rochdale geological trails over dinner, and finally the authors of papers were generally easy to deal with, moderately quick with revisions, and largely stuck to producing texts in the Journal style. I thank you all. Happy Christmas!

As the journal editor was unable to attend the AGM, his report was not read out, however, it was approved on the "general aye".

9. Newletter Editor's Report from Tom Sharpe

A verbal report was given and approved on the "general aye".

10. Recorder's Report from Glenys Wass

The primary task of the year has been to try to amass current information about the geological collections in the UK. As no major survey has been taken since Phil Doughty's *State and Status* report in 1984, the committee felt it was high time to try to up date the information from this report.

This year has seen the first stage in this process by trying to bring together the many general reports and surveys completed on the geology collections throughout the country. Requests for reports have gone out both in *Coprolite* and the *Museums Journal*. All Area Museum Councils have also been contacted along with the MGC. The MGC will be forwarding all information held on the DOMIJS database from this years survey relating to geology collections to the GCG.

In addition, letters were sent to museums in the target areas of the Midlands and South West, asking for current information. I would like to thank all those who spared the time to respond and send information regarding their collections. From this initial approach we received a varied response which we hope to use as a base from which to develop a more detailed survey next year.

The report was read and approved on the "general aye".

11. Election of Officers and Committee for 1998

As no nominations were received, the committee suggested that Tom Sharpe becomes the next Chairman and that Tiffany Foster takes over as Minutes Secretary. This was proposed by Steve Thompson, seconded by Roy Clements, and carried unanimously.

Tom Sharpe said a few words and thanked John Nudds for his hard work over the past three years; there was a general round of applause from those present in support.

12. Nomination of Auditors

It was proposed that Peter Davis and Ken Sedman continue as auditors for a further year. This was approved on the "general aye".

13. Any other business

There was a question from the floor about vacant committee posts. The Secretary noted that a number of suggestions had been put forward during the day and that these would be discussed at the next committee meeting. The Chairman pointed out that nominations had to be received at least 21 days before the AGM. Roy Clements proposed that perhaps the rules ought to be relaxed to allow nominations for committee posts to be made on the actual day of the AGM. The new Chairman said that there were other constitutional questions that needed to be discussed by committee and that this issue would be taken into consideration at that time.

14. Date and venue of the next AGM

Friday 3rd December 1999 at Trinity College, Dublin.

Annual Accounts for the period 27th November 1997 to 2nd December 1998)

	1998	1997
Treasurers Account Income		
Subscriptions	3999.27	4267.55
Sale of backnumbers	138.00	182.00
Advertisements/Sponsorship	500.00	-
Meetings fees	572.00	1845.70
Misc income (interest & VAT)	568.39	503.04
Balance on 27/11/97	13412.71	12647.84
	19190.37	19446.13

	1998	1997
Treasurers Account Expenditure		
Geological Curator		
Printing	2166.03	2482.58
Coprolite		
Print and post	2688.00	1189.00
Meetings		
Committee	290.75	173.63
General	190.04	2054.21
Other expenditure		
Misc.	29.08	114.00
Bank Charge	20.00	20.00
Display	488.57	-
Trip	535.80	-
Ulster Museum	250.00	-
Balance on 3/12/98	13412.71	13412.71
	19446.13	19446.13

A.G. Brighton Funds held in Treasurers Account	
Balance on 27/11/97	1603.63
Income (1998)	56.83
Balance on 29/11/98	1660.46

1997/98 Total Surplus/Deficit		
Total Income	5777.66	6798.29
Total Expenditure	6658.27	6033.42
	(880.61)	764.87

[signed] A. Newman *GCG Treasurer*

[signed] P.S. Davis and K. Sedman *Auditors*

PRESENTATION OF THE A.G. BRIGHTON MEDAL TO DR ROY G. CLEMENTS

The Geological Curator 7(3): 131-132 [2000]

Address by John Nudds, Chairman of the GCG at the GCG AGM, 2nd December 1998.

According to the Rules for awarding the A.G. Brighton Medal it is the privilege of the Group Chairman in his or her last year of office to make such an award, and for me today it is not only a privilege, but also a real pleasure to make this award to Dr Roy Clements.

Roy, you will be very familiar with the wording of those Rules, which states that this award should "recognise actual achievement over a long period... Thus it will normally be given to a senior person". Again, in the Terms of Reference for this medal, it is stated that, "the medal shall be awarded...to those who have devoted a significant part of their working lives to the actual care of geological specimens...or who, through their example or by teaching...have inspired others to the better care of geological specimens". We are unanimous, Roy, in our belief that you have clearly satisfied all of these criteria during your distinguished career.

Your mentor, Bob King, himself a Brighton medallist, tells me that even as an undergraduate at Leicester he recognised your curatorial potential, all students being required to lodge a well-curated collection as part of their final examinations. Having completed your PhD at Hull (on Purbeck palaeoenvironments), Bob King was determined to bring you back to Leicester as his Deputy, to look after the palaeontology collections while he cared for the minerals and rocks. On Bob's retirement you took over as Principal Curator.

If there was a defining moment in your career (and I suspect there have been several) I suggest it was that day in Leicester 1974 when over coffee with Bob and Mike Jones (of Leicester Museums) you talked of the parlous state of geological collections in this country and resolved to do something positive about it. Thus were the seeds of GCG sown and at its inaugural meeting on 17th May 1974 you were elected as the Group's first Chairman and guided the group in its infancy through the first three formative years. In your Chairman's report in the very first Newsletter you expressed confidence that a "lively group would emerge" - with a membership today standing at just under 500, I think, Roy, that your confidence was well-founded. For all that GCG has achieved since those days we have to thank you and the other founder members for your foresight and ground-breaking hard work.

But your example and your teaching have inspired many others in yet another realm, and that is in your involvement with the Museums Studies course at the University of Leicester. Although not involved directly at the beginning, it was, of course, no coincidence that the first UK Museum Studies Course with a geological component should have been set up at the University of Leicester. Rather, it was a response by Ray Singleton, then Director of the Course, to the high standards in collection care, being practised in the Department of Geology by yourself and Bob. Again, on Bob's retirement, you took over the teaching on this course, and it must be a source of great pride and pleasure to you, Roy, to see your former students now established in prominent positions in our profession.

Your students at Leicester talk of you with admiration, fondly remembering field trips and first year mapping in Skye and Arran, and your small room in the Leicester Department filled with the pleasant aroma of pipe tobacco ! They describe you as being dedicated and meticulous, always looking for perfection and as a driving force in the curatorial training of all BSc students. They talk of high standards, of your constant encouragement and of your wise council. We also know you, Roy, as a man always willing to speak his

mind for the key values of curation and never to duck the real issues.

This reminds me of our first meeting, which you may not remember Roy, in 1990 at the GCG AGM in York. I had not long been back in England when I was persuaded to join GCG committee to keep the group informed of the then UFC plans to fund five University Collection Centres in the wake of the Oxburgh Review. You questioned me fiercely over the rights and wrongs of the policy and I responded with an equal determination ! I think we both soon realised, however, that we had the same passion for collections at heart and I would like to think that ever since we have developed a strong rapport.

Roy, it gives me the utmost pleasure to make this presentation. You join an elite band of medallists, but you have thoroughly deserved to do so, and as I said in my letter to you in October, you have given vast services to the subject of geology in museums through your teaching, your example and your inspiration to younger members of the profession and also through your huge contribution to GCG itself.

Dr Roy Clements, I present you with the A.G. Brighton medal of the Geological Curators' Group.

THE GEOLOGICAL CURATOR

Publication scheme

Two issues of *The Geological Curator* are published for each year (usually in the Spring and the Autumn); a complete volume consists of ten issues (covering five years) and an index.

Notes to authors

Articles should be submitted as hard copy in the journal style typed on good quality paper (A4 size) double spaced, with wide margins, and if possible on disk (preferably formatted for a Macintosh in Microsoft Word 5 or 6 or MacWriteII, although other disk types will be accepted - please quote system type and wordprocessing package used). Three copies should be sent to the Editor, Patrick N. Wyse Jackson, Department of Geology, Trinity College, Dublin 2, Ireland (tel 01 6081477; fax 01 6711199; e-mail: wysjcknp@tcd.ie). Line drawings should be prepared in black ink at the 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 titles should be citedin full. Authors will normally receive proofs of text for correction. Fifty reprints are supplied at cost. Major articles are refereed. Copyright is retained by authors.

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1. Do not 'upper case' headings. **Keep <u>all</u> headings in upper and lower case.**
2. **Use italics** rather than underline for latin names and expressions, journal names and book titles. **Use bold** for volume numbers in references.
3. Line spacing. Your hard copy should be double spaced. If possible, **single space** your copy on disk. Use a **single (hard) carriage return** at the end of each paragraph.
4. Single space-bar between words, **double space-bar between sentences.**
5. **Do not attempt** to format your article into columns. Use a minimum of tabs and indents.

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).

FACT FILE contains basic information for the use of curators. All items relating to this column should be sent to the Editor (address above)

NOTES comprising short pieces of less than two pages are particularly welcome. 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 (of 500 words maximum) 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. Contact Ron Cleevely, Department of Palaeontology, The Natural History Museum, Cromwell Road, London SW7 5BD.

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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 the Treasurer (address above).