GCG THE GEOLOGICAL CURATOR

VOLUME 4 No. 8 Issue 2 for 1986

EXCAVATION OF DINOSAUR BARYONYX WALKERI
BY BM(NH) TEAM, JUNE 1984

GEOLOGICAL CURATORS' GROUP

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

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

1987 COMMITTEE

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COVER. Members of the team from the British Museum (Natural History) responsible for excavating the new carnivorous dinosaur Baryonyx walkeri, on site at Ockley Brickworks in Surrey, June 1983 (see 'Notes and News'). From left to right: Cyril Walker, Frank Howie, Ron Croucher, Phil Palmer, Peter Whybrow and Angela Milner

THE GEOLOGICAL CURATOR

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GEOLOGICAL CURATORS' GROUP

June 1987

EDITORIAL

At last! After almost a year, the Geological Curator returns to its traditional format - 'with all your old favourites', as the saying goes, like 'Lost and Found', 'Notes and News' (under new management), 'Book Reviews', and CING. I trust that any feelings of deprivation resulting from the hijacking of Vol.4, No.7 by the proceedings of 'The Conservation of Geological Material' conference were offset by the invaluable nature of its contents. Nevertheless, one unavoidable consequence of its publication as a normal issue of the journal is that those more topical elements of our regular features lose impact through their delayed appearance; another is that the lag between submission and publication of an article in the Geological Curator has lengthened unacceptably. Both consequences are plain to see herein, with 'Notes and News' containing the odd piece of yesterday's news, not previously covered in these pages, and one submission date from 1985. Such is life ....

Members who attended the Brighton GCG Meeting on 'Specimen documentation and data standards', organised by John Cooper (Booth Museum) in June 1985, heard two particularly thought provoking talks from David Price (Sedgwick Museum, Cambridge) and Andrew Roberts (MDA). Out of the general discussion which followed these and other contributions grew a proposal that GCG should seek to establish a two year research project, based at MDA, to erect a standardised terminology for the recording of geological specimen data. The funding of such an ambitious project is no easy matter and, despite the considerable efforts of our preceding Chairman, Phil Doughty, grant-aid has not yet been forthcoming. However, Mick Stanley is as determined as his predecessor to see this work go ahead, and he intends to take full advantage of the new funding opportunities opened up by the Group's recent adoption of charitable status. In such circumstances the two papers published herein remain as relevant today as they were two years ago.

Through an oversight on my part I neglected to obtain the necessary permission from Horsham Museum Society to reproduce a short piece by Sylvia Standing from their Bulletin (No.36 , September 1985), which appeared in the Geological Curator, Vol.4, No.5, p.300, under the title 'One way to dig a dinosaur'. I apologise to the Society for this breach of their copyright. Sylvia Standing has fleshed out the story of her discovery and brought us up to date in her letter which appears on p.503.

Peter R. Crowther
Editor, Geological Curators' Group
15 May 1987

Two cheers for the Geologists Association! First they have produced a 2nd edition of their wondrous little booklet, the G.A. Directory. It has been compiled by Christopher Green (Royal Holloway and Bedford New College) and arose originally from the need to respond to fairly numerous and very diverse enquiries received by the G.A. office. It covers all manner of topics, none of them in great depth and inevitably in a work of this size with many omissions. Nevertheless it is an excellent starting point for answering all manner of common questions (Where can I buy a clinometer? Who sells second hand geology books?) and - here's the best news - the G.A. are happy to supply muesums with up to 10 free copies, on a first come first served basis.

Secondly, the recently established G.A. Fund is contributing a substantial grant in 1987-1988 to support the work of AMSSEE's Travelling Geology Curator, with a promise of continuing financial aid for a further three years. The scope and formal objectives of the G.A. Fund are set out in the Directory; they include 'To provide support for geological conservation. Such support shall be available to organisations undertaking purchase of geological sites for purposes of conservation; to organisations undertaking the clearance, maintenance and recording of sites; and to museums responsible for the curation of geological material.' The contact address for enquiries is The Secretary, Geologists' Association, Burlington House, Piccadilly, London W1V 9AG

GCG Committee (in the form of a 'gang of three' - Chris Collins, David Price and Hugh Torrens) is in the process of refining its collective wisdom into a published statement of policy on the care of geological specimens. The document will be publicly launched at our Mason Conference on 'The geological heritage' at the Annual Meeting of the British Association for the Advancement of Science in Belfast this August (see p.485) and copies will be distributed to all members with the next issue of the Geological Curator.

Finally, a plea for help. The utility of the Geological Curator is hampered by the lack of an index (except for vol.1, compiled by Brian Page and Hugh Torrens). Anyone interested in helping to remedy this, please turn to the end of this issue, p.537.

Geological Curator, Vol.4, No.8, 1987 (for 1986), pp.477-480

TOWARDS A COMMON STRATEGY FOR GEOLOGICAL DOCUMENTATION: THE M.D.A. VIEW

BY D. ANDREW ROBERTS

INTRODUCTION

This paper was presented to the Brighton GCG meeting, 7 June 1985; it reviews the background to the development of a cooperative approach to geology documentation, the position in mid-1985, and potential future developments.

BACKGROUND TO THE WORK OF THE MDA AND GCG

At the same time as the GCG inaugural meeting (17 May 1974), documentation work by the voluntary Information Retrieval Group of the Museums Association (IRGMA) and a research project at the Sedgwick Museum was increasing. The aims of this work included establishing uniform standards for museum documentation, designing recording cards and investigating the potential of computers, using the Sedgwick Museum as a test bed. The newly-expanded research team included Richard Light and myself, with my responsibilities including liaison with outside bodies.

The GCG demonstrated an interest in documentation from the outset. Soon after its formation, it decided to convene a meeting on 'museum accessioning procedures, specimen documentation and classification', with the aim of forming a working party to produce a minimum code of practice for accessioning geological material. Brenda Capstick (Secretary of the Museums Association) drew IRGMA's attention to the meeting, as a result of which I was invited to attend. Speakers at that first geology documentation meeting on 13 December 1974 included Alan Smout (Brighton), myself (IRGMA), Peter Embrey (BMNH) and Michael Bassett (National Museum of Wales). Although it did agree to form a documentation working party with two subgroups to examine mineralogy/petrology and palaeontology, the actual formation of the working party was deferred due to lack of time (Anon 1975a).

Meanwhile, IRGMA was on the point of testing draft record cards; a design for geology had been drawn up by a working party including John Cutbill (Sedgwick Museum), Peter Friend (Sedgwick Museum), Bob King (Leicester University), Ian Penn (Institute of Geological Sciences), David Williams (BMNH) and myself (IRGMA).

Soon after the December meeting, IRGMA invited the GCG to cooperate in a two-day workshop on geological cataloguing, which was subsequently held at Cambridge on 20-21 March 1975 (Anon 1975b). It was attended by twenty-five delegates, and concentrated on a discussion of the design and use of draft geology and mineral record cards. There was little consideration of the accompanying brief instructions or the implications of the need for strict terminology control, and there was no reference at all to the role of the cards as just one component of an overall documentation system, including collections management.

These draft specimen record cards were then tested and revised during 1975, finally being published in January 1976. The current versions supplied by the MDA are identical to the 1976 print: well over 300,000 have now been distributed to perhaps 100 museums, including 15,000 in the last year.

In September 1975 a further meeting was held in Sheffield, organised by the GCG in cooperation with the Nature Conservancy Council (NCC) and IRGMA, to examine the problem of site documentation. Speakers included representatives of the NCC, Mick Stanley (then at Derby City Museum), Mike Jones (Leicester) and myself. The second day consisted of a discussion and revision of a draft MDA geology locality record card. The plan to establish a National Scheme for Geological Site Documentation was also implemented, with Mike Jones and John Cooper being instrumental in establishing a list of recording centres. Details of the scheme were given in a GCG special publication (August 1976), including examples of record cards and computer catalogues and indexes. The agreed field and site record cards and instructions were then issued in June 1977.

The Museum Documentation Association (MDA) was formed in 1977 to provide national coordination for the development of documentation, maintaining an overall documentation system including data standards, record cards, procedural guidelines, etc. By 1985, the MDA had built up to a unit with ten staff (compared with four in 1977), supported by subscriptions from members, income from services and specific research grants. Advisory support now includes visits, seminars, liaison between museums, maintaining systems and developing new publications. Services include a wide and diversified range of publications; a computer bureau, now responsible for over 250,000 records from over twenty museums (with geology projects including processing palaeontology, mineral and rock records for the Ulster Museum, Belfast; Tyne and Wear County Museum Service; Hunterian Museum, Glasgow; Wiltshire Library and Museum Service; Kent County Museum Service; and the Royal Scottish Museum, Edinburgh); and the support of computer packages such as GOS, an object application of which is used by the bureau, and a locality application of which has been

designed in cooperation with Derbyshire Museum Service for processing the county site records, including those for geology sites.

The original specimen and locality cards referred to earlier are still available; the original instructions underwent a revision in 1980; procedural guidelines for all types of collection have been developed since then (e.g. Museum Documentation Association 1981).

Reference should also be made to the Geological Record Centre handbook which was published by the MDA on behalf of the GCG (Cooper et al. 1980),

The instructions designed to accompany each record card were intended as a starting point, with users being encouraged to develop their own detailed applications as a specific set of so-called internal conventions. The Hunterian Museum and Tyne and Wear County Museum Service were brave enough to publish the results of these internal discussions as they affected geology recording (McInnes 1978; Pettigrew and Holden 1978). The latter have since been updated.

Interest in common documentation standards was rekindled in June 1980 when the GCG convened a further meeting at the IGS in Leeds. Specific contributions covered problems in documenting palaeontological, mineralogical and petrological material, collection research work and site documentation (Roberts 1980). Although the meeting concentrated on a series of individual presentations, there was considerable concern about the lack of uniform terminologies and a corresponding willingness to accept proposals for standardisation.

Partly in response to this meeting, the MDA and GCG then called individual sessions on mineralogical terminology (November 1980 at BMNH) and the use of the geology record card (June 1981 at BMNH) (Roberts 1981a, b). The mineral meeting included a useful discussion of the relevant data categories and terminology, based on a paper prepared by Philip Doughty. The geology meeting tended to concentrate more on users' experience in applying the MDA geology card. Both meetings resulted in significant proposals to improve the record cards and a stress on the importance of more specific agreed recording conventions.

It was assumed that the MDA would then take a lead in revising the cards and developing new, more detailed instructions, but in practice other urgent projects intervened and there was no opportunity to make progress. It is possible that the lack of activity was fortuitous, since there has been a considerable change in attitude towards documentation in the intervening years. The MDA is certainly much more aware of the importance of an overall approach, with a catalogue record being just one of the components of a full documentation system, covering the collections management and curation of enquiries, acquisitions and loans from the time a specimen first comes into the museum through all aspects of its subsequent processing. The broadening of remit is illustrated by manuals such as Practical Museum Documentation (MDA 1981) and the major new report commissioned by the OAL, Planning the documentation of museum collections (Roberts 1985). It is also shown by the design of recording forms for controlling incoming specimens, the transfer of ownership and any loans of specimens out of the museum.

There has also been a growth in the use of computer systems, with a number of museums now processing records through the MDA bureau, or - like Brighton, Leicester and the Sedgwick, Hancock and Manchester University museums - adopting local facilities. The availability of effective microcomputers is likely to accelerate the trend towards the computerisation of at least some aspects of the museum's documentation procedures.

One area which the MDA bureau has concentrated on is the development of systems and expertise able to take data from different museums using different types of computer with different programs, and to read and then massage this data into a uniform style. We aim to be able to take data from a wide range of individual systems, insert it into the data structure we have developed, and from this produce cooperative catalogues and indexes. The problem in such a cooperative exercise comes when you look at the data itself and compare the syntax and terminology control conventions which museums have already adopted. The rationalisation of these differences would require significant effort and intellectual intervention, but it would still be possible.

COOPERATIVE PALAEO-CATALOGUE AND INDEXES

As an exercise, we took around fifty records from six of the current palaeontology projects dealt with by the bureau and produced a set of catalogues/indexes. The projects were from:

Ulster Museum, Belfast (BELUM)
Kent County Museum Service (KENTM)
Royal Scottish Museum (RSM)
Trowbridge Museum (Wiltshire Museum Service) (TRWBM)
Tyne and Wear County Museum Service (general and Old Collection) (TWCMS)

The average size of the records in these individual projects ranged from 173 to 445 data characters:

173 Kent
310 Ulster Museum
340 Tyne and Wear (general)
363 Royal Scottish Museum
384 Trowbridge Museum
445 Tyne and Wear (Old Collection)

Despite differences in recording style and strategy in the catalogue records from the individual projects (see Table 1), a set of cumulative indexes were produced successfully.

Table 1 Recording conventions

Simple name		
BELUM	fossil	
KENTM	'group name'	
RSM	no entry	
TRWBM	fossil & 'group name'	
TWCMS	fossil & 'group name'	
Classified name		
BELUM	full name	A & B & C
KENTM	genus species	A B
RSM	full name	A & B & C
TRWBM	local classification (full name recorded in another field)	
TWCMS	full name	ABC
Place name		
BELUM	place & town & county & province & country	
KENTM	place & county	
RSM	site & place & town & country & province	
TRWBM	place & county	
TWCMS	place & town & county	
Stratigraphy (age)		
BELUM	general to specific	
KENTM	general	
RSM	specific to general	
TRWBM	general	
TWCMS	general to specific	

CURRENT POSITION

Published cooperative documentation facilities now available include the MDA cards, instructions and procedural manuals referred to earlier, and the new GCG Guidelines (Brunton et al. 1985). From the drafts I have seen of the documentation part of the Guidelines, they clearly represent an important contribution to the professional literature, which should be an essential reference for every geology curator (and for the far larger number of non-geology curators having to care for geology collections). Without detracting from the effort put in by other individuals, John Cooper deserves particular credit for the work he has devoted to the documentation section.

The procedural recommendations in the Guidelines appear to be compatible with the MDA recommendations in Practical Museum Documentation, giving advice on entry, acquisition and individual specimen documentation. There is also extensive information on the strategy to adopt when building up a specimen record, including details on further sources of information, which goes a long way beyond the basic details in the MDA instruction books.

Some curators may view the documentation Guidelines as an alternative approach or competitor system to that of the MDA. As I have just indicated, in reality there is a close underlying commonality, and I strongly welcome the new publication. My only regret is that there has not been closer collaboration with the MDA by the developers of the report. With minor extension of the text, partly in the form of an appendix, it might have been possible to see the Guidelines as superceding the MDA card instruction books.

FUTURE DEVELOPMENTS

Although representing an important step forward, I feel the guidelines are only part of the answer to a common documentation strategy for geology curators and collections. We have prepared ideas for a research project to continue the development, and would be interested in the views and advice of GCG members. The project would cover three areas of interest:

1, to investigate the geology specimen and site documentation procedures currently used by museums;
2, to develop and publish detailed agreed conventions concerning specimen and site documentation procedures, and to identify how individual museums can change from their existing approach to the new position;
3, to examine the role of cooperative catalogues and indexes of geology specimens and sites, and investigate the feasibility of developing such products.

The plan would be for a research assistant to be based at the MDA for perhaps two years, able to draw upon our expertise and library and computer system resources, and work with GCG members throughout the country.

In the case of the procedural work, I would envisage the project looking in detail at aspects such as:

data standards for specimens and sites;
terminology rules and lists including
- conventions for naming specimens at the simple name level
- recommended strategies for applying taxonomic rules
- stratigraphy rules and term lists
- place name rules and gazetteers

Sources would include existing museum conventions, published taxonomies and gazetteers, and the manuals that have been built up by the international bibliographic systems.

I must stress that we will only pursue this plan if there is an agreement with the GCG that it was appropriate and necessary, and with the full involvement of GCG members. If there is this feeling, then the MDA will approach the GCG Committee to discuss how best to proceed and how to generate funds.

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FORTHCOMING MEETINGS

Wed. 26 August 1987
GCG Mason Conference at British Association for the Advancement of Science
Annual Meeting
The Geological Heritage
Ulster Museum, Belfast

Geology and Irish Society - Prof. Gordon Davies
Hawking history: the use and abuse of geology's past - Hugh Torrens
The rocky horror show: a betrayed heritage - Philip Doughty
Cliffs, cuttings and holes in the ground: geological site conservation in Northern Ireland - Joseph Furphy
A bewildering choice: British building stones - J.H. McD. Whitaker
The geological townscape - Eric Robinson
'Carved in bright stone' - Michael Stanley

Contact: John Wilson, Department of Geology, Ulster Museum, Botanic Gardens, Belfast BT9 5AB.

Thu.-Fri. 1-2 October 1987
GCG/Geological Society/Palaeontological Association
The use and conservation of palaeontological sites
Geological Society, London

A meeting to address the problems of palaeontological site conservation and the solutions applied to them by a variety of individuals, governmental and non-governmental organisations. Speakers will include:

Michael J. Benton (Queen's University, Belfast)
Tristram P. Besterman (Plymouth City Museum)
George P. Black (George Black Associates)
Christopher J. Cleal (Newbury, Berkshire)
John C.W. Cope (University College, Swansea)
Angela C. Milner (British Museum, Natural History)
Eric Robinson (University College, London)
W.D. Ian Rolfe (Royal Museum of Scotland)
Maggie Rowlands (Cleobury Mortimer, Shropshire)
Michael A. Taylor (Leicestershire Museums Service)
William A. Wimbledon (Nature Conservancy Council)
Stan Wood (Mr Wood's Fossils)

Contact: Peter R. Crowther, City of Bristol Museum and Art Gallery, Queen's Road, Bristol BS8 1RL (tel. 0272 299771).

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DOCUMENTATION AFTER 'THE GUIDELINES'

BY DAVID PRICE

I would ask those reading what follows to bear in mind that it was never composed as a formal piece of writing. Being prevented at short notice from attending the 7 June 1985 GCG meeting at Brighton, I hastily produced my promised talk as an audio tape recording from very skeletal notes. What resulted was no doubt a rather idiosyncratic and rhetorical performance but one in which I made a number of points that I considered to be important - even though they might be regarded by some as contentious. In these circumstances and because I was not present to answer questions, explain, defend or qualify my assertions, I have considered it more honest, rather that writing a toned-down and formalised version, simply to produce a record of what I said.

Chairman, ladies and gentlemen ....

Like most of you I have not been concerned in any way with the preparation of the Guidelines for the curation of geological materials [Brunton et al. 1985]. Like most of you I have simply been waiting on the side-line, looking forward eagerly to their appearance. I felt very privileged, therefore, to be allowed a preview of part of the Guidelines - the 'Documentation and Information Retrieval' sections. And on the basis of these sections at least I can quite definitely say that the Guidelines are warmly to be welcomed. To be welcomed as exactly what the title 'Guidelines' implies - not vague generalities, nor inflexibile, doctrinaire instructions. What we have is a statement of the generally accepted principles and ideals of museum documentation and a criticial discussion, with recommendations, of particular practices in the light of these. What emerges are a number of what can be called 'good practices'.

The way that the Guidelines are laid-out, point by point in enumerated sections, effectively compels any curator reading them to appraise his own system point by point and ask 'how do my practices measure up to the ones - the 'good practices' - recommended here? How do I cope with acquisition documentation, with specimen marking, with labels, with specimen movements and loans?', and so on. Again what emerges, by extrapolation, from the various recommended 'good practices', is some idea of what constitutes a good overall system - not the good system, not the 'ideal' system - there is an acceptance at many points in the Guidelines that there is more than one way to skin a cat - but a system that effectively achieves the aims of good documentation.

It is perhaps rather foolish - and certainly less than adequate - to try to encapsulate those aims in a brief statement but ... let us say that in a good documentation system we aim to capture and record as much accurate and reliable information as possible in such a way that it is securely linked to its specimen or specimens and yet able to be readily updated and able to be easily retrieved under a variety of headings. Any curator reading the Guidelines is bound to consider how his own system does these things and whether it could do them better. Yes, whether it could do them better - because the main concern of the Guidelines is with quality of documentation. If the standard of documentation is high, then the implication is that the actual method of documentation doesn't matter too much. Well, that's a sensible and pragmatic approach. It acknowledges the variety of current practices and addresses itself in spite of this variety to all geological curators. And I don't see how, if the Guidelines are widely read, they can fail to help improve standards.

And the achievement of a high standard of documentation in each individual museum is important; is very necessary to what the GCG is about. Necessary but not, I would argue, sufficient: not sufficient because as curators we have aims which extend beyond our own individual museums.

Let me go back to that statement I tried to make about good documentation. I said that the aim is to capture and record full, accurate and reliable information, to link it securely to the specimens it relates to and yet to do so in a such a way that it is able to be readily updated and readily retrieved under a variety of headings. Within a museum that might be sufficient but I left out one very important factor - I should have ended 'able to be readily retrieved under a variety of headings and made widely available to potential users'. We are the custodians, with our museum catalogues, of massive amounts of geological data, and we have the obligation to make that data as widely available as possible; to publish and distribute comprehensive catalogues - I don't just mean type and figured catalogues (they are a start but barely scratch the surface) - and not just catalogues but the wide variety of indexes necessary to make them fully usable.

We cannot do this by traditional means, that much we have surely proved. Our failure to do so is one causal factor in the terrible neglect of our geological collections documented in the State and Status Report [Doughty 1981]. The need to do so forces us to take advantage of the rapidity and effectiveness of computer-based data handling. The method does matter.

What has this to do with standardization? All right, we will have to resort to computer technology to produce catalogues and indexes but, as long as we can produce these and as long as they are intelligible, does it matter if we all do it in rather different ways?

Let us consider the practicalities again. At the Sedgwick Museum we have around half a million specimens catalogued. Even reduced to microfiche this catalogue and just one index - a taxonomic index - occupy almost 250 fiche. With a comprehensive set of indexes - locality, chronostratigraphic, lithostratigraphic, bibliographic, collector/donor index and so on - we would probably be talking about 1000 fiche. Multiply this onto a national scale for all our geological collections and you start to make something like the Encyclopedia Britannica look small! And now consider a user's difficulties if, as well as the sheer volume of this sort of documentation, he has to deal with documentation that is fragmented into separate catalogues and sets of indexes for each museum - and remember there are over 280 museums with geological collections, over 50 with more than 10,000 specimens.

I don't think it is realistic to consider solving our long-term information needs through hard-copy documentation at all - given its cost and ephemeral nature. I think the only realistic way is to build computer data-bases that can be directly and comprehensively interrogated. But whichever way we go we cannot fragment our documentation between all the different institutions involved; we need a 'Union Catalogue' or what I would prefer to call a 'National Database'. To build it we need to standardise not only terminology (and I think that might not turn out to be a very serious problem given what can be done with global editing and automatic indexing of any single term under a variety of synonyms), we need to standardise the details of our actual data structures. We need a common format and common structuring conventions - at least for each of the major areas of our subject.

You know, some people will try to tell you that once you have machine-readable catalogues your troubles are over. You can manipulate the data how you want; massage it into any given structure. Needless to say, it isn't really anything like that easy. Oh you can usually deal with simple records in that way, or take the data in a simple linear structure and map it onto a more complex hierarchical structure without too much trouble; but given two different complex hierarchical structures, mapping data between them, purely automatically, can be very difficult indeed.

For instance, in spite of their common ancestry, we are very far from sure that we could automatically map data from complex records in the MDA's Museum Data Standard to our Sedgwick Museum Data Standard. It would certainly require a very complex set of operations. If we are talking about merging the Sedgwick data with complex data from the files - The Museum Data Standard files - of several different museums, each with their own internal conventions on data structuring, then it would require several different sets of complex operations. In the end it becomes so impractical in terms of time and effort as to be effectively impossible.

I don't say that lightly. Martin Porter and I have had more than one long, hard look at the whole question of mapping complex records from one format to another. And each time we have been daunted by particular practical difficulties. Even within one museum, mapping data from early Sedgwick machine-readable records to newer ones with different - but not very different - formats, we have often had to resort to some human processing.

With different museums using the same format there may be comparable problems. Just a look at the filled-in cards given as examples with the MDA's [1980] Geology specimen card instructions should be enough to convince anyone that different institutions use particular fields in the MDA format, and interpret the concepts behind them, in very different ways. That is fine, of course, as an internal convention within a single database - but try to merge that database with another museum's database or try to interrogate it with another museum's information retrieval system, and you are in trouble .....

The easiest way to avoid such trouble is to restrict your attention to your own museum, to your own database - or perhaps to your own bound registers and card-indexes. That, in fact, is largely what is happening. There is really little in the Guidelines to discourage it. If we carry on in this vein we won't be able to interrogate each other's databases; we won't be able to merge them; we won't be able to produce anything like a 'Union Catalogue'.

I think for our own good we have to try the more troublesome approach. I hope that is what we are about today. I hope that where the Guidelines will help to improve standards of documentation we can start doing something which will improve the consistency of the data-structuring within that documentation.

How in detail to go about that, I must admit I don't know. I can appreciate that many museums have put a great deal of time and effort into building-up their databases and will be very loath to put yet more time and effort into changing them now. In fact I can probably appreciate that far better than most people. In building up our computer-based system at the Sedgwick Museum we have already invested many thousands of man-hours of work. There is no way we can realistically contemplate any radical change in that database now ...

Perhaps a sensible first step would be simply to try to find out just how much geological museum catalogue data there is throughout the country already in machine-readable form, and in what form it is; and on that basis try then to decide which database (if any) can, practically, be altered. That is all I can - remotely - suggest.

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OLD LABELS ARE OLD HAT!?

BY RON J. CLEEVELY

With the resurrection of the Information Series in this issue of Geol. Curator, it is probably worth examining the original object of providing such reference sheets, as outlined in my introductory article (Cleevely 1981). Judging from the lack of any real response, this would seem to have been mistaken, or at the least illusory. Various opinions as to the value and significance of specimen labels were given as a basis for introducing the series and several of these have been repeated by Brunton et al. (1985).

Having been unable to accommodate illustrations of collectors' labels in my initial revision of Sherborn's (1940) Where is the ** Collection? (Cleevely 1983), I had hoped to provide a series of reference sheets that might be of assistance in identifying material. The intention was to feature 'examples of the distinctive and characteristic labels used by collectors, dealers and curators of the past'. It was also felt that others should be asked to contribute rather than simply featuring labels found in BM(NH) collections. However, for various reasons, largely the practical ones of producing suitable examples for the reference sheets, the idea has never caught on. The quality of reproduction very probably limits the value of the examples of handwritten labels, and very few museums can expect to have specimens from the more well-known collections - even by mischance! Consequently, the labels featured to date are probably considered to be irrelevant to the needs of the general curator.

It may be that the most valuable references that can be provided are examples of the labels used by various dealers over the years, e.g. Louis Saemann adopted different designs to accompany the specimens he sold. Alternatively, if each of the museums holding fossil or mineral collections was asked in turn to provide examples of the labels used by six collectors represented in its holdings, it might be possible to achieve the original objective of producing a worthwhile and extensive reference series. Perhaps your views on these and other ideas can be given to the members of GCG Committee, or else sent to me?

As a probable 'swan song' I intend to adopt a thematic approach for the next issues in the series and produce examples of labels in the BM(NH) belonging to collectors of Chalk fossils.

A list of the collectors dealt with in the series to date is given below, together with another of those featured in my introduction (Cleevely 1981).

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Fig.1. An assortment of Collection and Dealer labels.

A, printed label of dealer N. Boubée, Paris. B, one of the labels used by J. Ward (see Information Series, No.9; Geol. Curator, 4, 38). C, an adhesive ticket label. D, decorative distinctive dealer ticket label thought to be that of the Swiss dealers Greber, Wendler & Co. (similarly titled later examples exist in the BMNH). E, printed specimen label used by United States Geological Survey for their duplicate material. F, hand-written pillbox-top label from J.F. Walker collection (see Information Series, No.1). G, a cut-down printed locality label used by the dealer Louis Saemann, c.1867. H, all purpose label used by the dealer B. Sturtz, Bonn, c.1867. I, printed specimen label used by the earlier Vienna Museum accompanying material acquired by the BMNH in 1867, J, an example of the various labels used by C.O. Groom, who adopted several grandiose titles (see Cleevely 1983, p.138; and Newsl. Biol. Curators Grp, 2, p.465). K, an early label of the well-known international German geological dealers (see Der Präparator, 30, pp.221-226). L, printed label used by the Belgium collector/dealer A.S. Piret (see Cleevely 1983, p.233). M, hand-written label from collection of H.A. Nicholson (see Information Series, No.4).

GCG INFORMATION SERIES: COLLECTOR/DEALER LABELS

No.		Vol. Pt.		Compiler
1. J.F. WALKER	25/11/1839 - 23/05/1907	3 (2/3)	Nov. 1981	RJC
2. William BEAN	1787 - 1866	3 (2/3)	Nov. 1981	RJC
3. A.V. KLIPSTEIN	07/06/1801 - 15/04/1895	3 (2/3)	Nov. 1981	RJC
4. H.A. NICHOLSON	1844 - 1899	3 (4)	June 1982	RJC
5. Jules MARCOU	20/04/1824 - 17/04/1898	3 (4)	June 1982	RJC
6. Joseph WRIGHT	07/01/1834 - 07/04/1898	3 (5)	1982	RJC
7. Thomas DAVIDSON	17/05/1817 - 14/10/1885	3 (5)	1982	RJC
8. J.E. PORTLOCK	1794 - 1864	3 (6)	1982	SJT
9. John WARD	11/08/1837 - 30/11/1906	4 (1)	1984	MG
10. Frederick BARKE	30/11/1842 - 03/12/1938	4 (1)	1984	MG
11. J.T. WATTISON	23/06/1884 - 12/01/1974	4 (1)	1984	MG
12. Rev. Dr. John ANDERSON	1796 - 16/03/1864	4 (8)	June 1987	DMB
13. R.H. TRAQUAIR	30/07/1840 - 22/11/1912	4 (8)	June 1987	RJC

LABELS featured by Cleevely (1981)

PRINTED LABELS of

Hans SCHLESCH (1891 - 1962)
B. STURTZ (1845 - 1928) (Dealer)
K.K. Mineralien Kabinett (1806 - 1851)
Thomas Gabriel BAYFIELD (1817 - 1893)
J.E. ASTIER
Adolphe S. PIRET (Dealer)
N. BOUBEE (Dealer)

HANDWRITTEN LABELS of

Alphonse MICHALET
G.C. CRICK (1856 - 1917)
L.F. SPATH (1882 - 1957)
S.S. BUCKMAN (1860 - 1929)
G.W. LAMPLUGH (1859 - 1926)
WHEELTON HIND (1860 - 1920)
Graf von Georg MUNSTER (1776 - 1844)
Anton SCHRAMMEN (Dealer)

WHERE ARE WHAT B.G.S. SPECIMENS?

BY C. HOWARD C. BRUNTON

Following Bernard Owens's article 'Fossils on the move' (1986. Geol. Curator, 4, 290-291), and stimulated by some enquiries, it may be helpful to indicate the present whereabouts of the collections for which the British Geological Survey were responsible until the transfer of the Geological Museum from NERC to the Trustees of the British Museum (Natural History) on 1 April 1985. What follows is information from Bernard Owens and Hugh Ivemy-Cook of BGS, Keyworth and colleagues in the BM(NH), including the Geological Museum.

Briefly, although the GM building with its curatorial and education staff were transferred to the BM(NH), most of the material (including the library) remains with the BGS and has gone to Keyworth. Most material on exhibition remains under BGS control and will go to Keyworth as exhibits are revised. Some rock and mineral collections have come to the BM(NH), as well as some overseas palaeontological material.

PALAEONTOLOGICAL COLLECTIONS

All collections that were in the Geological Survey Museum, Exhibition Road, London, are now at the BGS site at Keyworth, Nottingham NG12 5GG. All material from the third floor gallery of the GSM, together with Carboniferous and Permian fossils from Leeds, are together in the new accommodation at Keyworth, and by Easter 1987 it is hoped that they will be unpacked. However, at least until Easter people wishing to see material should provide adequate warning to allow time for looking out of specimens.

The extensive UK surface exposure collections, plus micropalaeontological and palynological collections are now all housed at Keyworth. Materials relevant to Scotland and the Continental Shelf Hydrocarbon Borehole project are stored at Edinburgh.

Lists of fossils on display in the Geological Museum (its current title) are kept at both Keyworth and the BM(NH), Palaeontology Department (requests for information to the Keeper), and will be emended as specimens are returned to Keyworth.

All enquiries about BGS fossils should be addressed to the Curator, or Manager, Biostratigraphy Research Group, British Geological Survey, Keyworth. Enquiries concerning borehole material should be addressed to the Manager, National Geoscience Data Centre, Keyworth. All outstanding loans should be returned to Keyworth. Borrowers now need to obtain a waiver from BGS which must be signed by the head of their department stating that the loan is for bona fide academic research. Without the waiver a charge will be made for looking out material.

Persons wanting to refer to BGS material in publications are requested to seek advice from BGS prior to publication. There are many ways by which specimens should be cited, but on all occasions the BGS address should be provided at an appropriate place in the text, and specimens quoted as, for example, BGS GSM 123456; BGS Zt 2411 etc.

A small amount of foreign palaeontological material has been passed to the BM(NH) which was stored in the GM by members of staff for whom it had research importance. Requests for information concerning any of the fossil collections at the BM(NH) should be addressed to the Keeper of Palaeontology or to the head of the section involved. A long established loan procedure exists and normally loans are only made to persons in established institutions.

MINERALS AND ROCKS

Mineral specimens of the Mineral Inventory, Ludlam, Nevill and Lindsey collections, both displayed and stored, have passed to the Department of Mineralogy, BM(NH). Requests for material or information from these collections should be addressed to the Keeper of Mineralogy, BM(NH), for consideration. Some specimens on display form part of the collections retained by BGS, so enquiries should first be made to the Curator, Geological Museum, although ultimate permission to treat any material rests with BGS, Keyworth.

Rocks from the Regional Bay gallery have all gone to Keyworth, or if Scottish, to Edinburgh. The collection of Economic specimens has been retained at the GM, under BM(NH) control, so requests for material and information should be addressed to the Curator of the GM. The former Geological Society collections of British petrological specimens has passed to the Petrology section of the Mineralogy Department of the BM(NH) and requests should be made to the Keeper of Mineralogy. This means that both the British and foreign material, which went to the BM(NH) in 1911, is now reunited and curated together.

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COLLECTIONS, COLLECTORS AND MUSEUMS OF NOTE, No.51

THE FOSSIL COLLECTION OF C.B. SALTER FROM CLIFF QUARRY, COMPTON MARTIN, MENDIP HILLS

BY MURRAY MITCHELL

BIOGRAPHICAL INTRODUCTION

Clifford Barnett Salter was born in Bristol in 1910, the only child of Henry and Dora Salter. He was educated at Bristol Grammar School where his interest in natural sciences was quickly recognised. In 1926 he was offered the opportunity of further education, but his father, who was chief accountant in a subsidiary firm of the Imperial Tobacco Company, arranged for him to be a trainee there, with security of employment for life - all important during that time of deep depression. Cliff's interests in the countryside never waned and years later, after he had changed his job, a move to Compton Martin enabled him to follow many country pursuits. Not far from the village lay Cliff Quarry, a small quarry in the Carboniferous Limestone which had produced stone for housebuilding and road making; working had ceased in 1956 and it was when exploring this quarry that Cliff made the discovery that enabled him to amass a valuable collection of fossils. His untimely death in 1971 prevented him from making further discoveries in this field of geology where amateurs have always made (and continue to make) such valuable contributions (Figs.1-3).

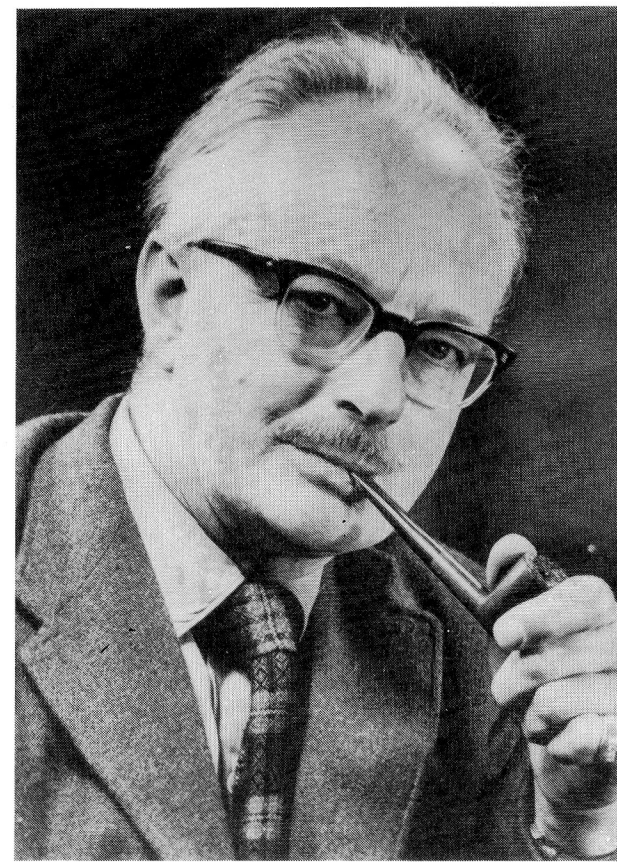

Fig.1 Cliff Salter (1910-1971). Photograph taken in 1968.

HISTORY OF THE COLLECTION

Cliff Salter made a notable contribution to geology by amassing a very large collection of fossils from the Carboniferous Limestone at Cliff Quarry (NGR ST541568), Compton Martin, in the Mendip Hills, Somerset. The fossils from this quarry have been known for a long time (e.g. Sibly 1906, p.351), but Cliff Salter's meticulous work resulted in one of the largest collections of Carboniferous Limestone fossils ever made from a single locality.

Cliff's interest in geology and fossil collecting was aroused by finds of ammonites and other fossils from the Jurassic rocks of Dundry Hill, south of Bristol, and it was a happy chance that turned his attention to the fossils from Cliff Quarry. He and his wife Esmé had bought a seventeenth century cottage (The Long House) in the village of Compton Martin as a weekend retreat; as a break from the toils of conversion work, they would take their dogs for walks in the Mendip Hills which form the high ground south of the village. It was not long before Cliff's eagle eye noticed that the limestone of Cliff Quarry was richly fossiliferous. His interest was fired by this discovery and, on looking more closely, he found a bed of limestone in a state of weathering that enabled even the smallest and most delicate fossils to be extracted from the rock.

Boxes of this weathered limestone were gathered up and carted back to Bristol. The dining room of the Salters' house at 25 Cotham Road was converted into a workshop and laboratory, and for a number of years Cliff devoted every spare moment to breaking down the limestone blocks and cleaning and developing the fossils that he found. The sight of Cliff, hunched over his microscope very early every morning in the large front window of his house, roused the interest and curiosity of passers by; some were driven to enquire about Cliff's labours, but most never appreciated what it was that drove him to such toil and effort. While this work was in progress, the Salters' domestic help used to grumble at the dust Cliff created when he was 'scratching at his offals'! He sorted the fossils into different species and stored them with great care so that he was able to keep a check on the wide range of forms that he collected. He developed his own techniques, modifying instruments such as dental tools, for extracting the fossils - many of them very small - from the rock, and used his considerable engineering skill to

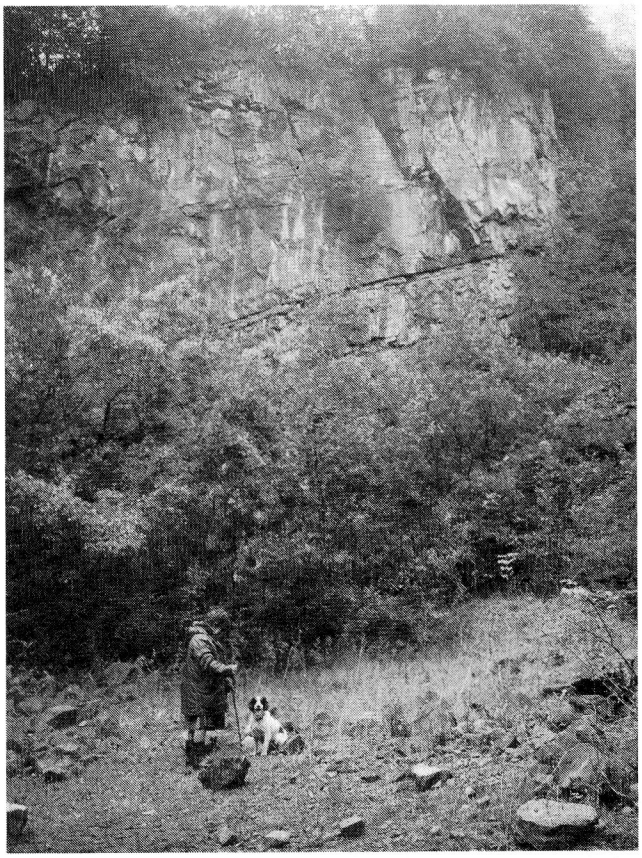

Fig.2 Cliff Quarry, Compton Martin.

refurbish an ancient monocular microscope, converting it into a binocular so that he could clean the delicately ornamented fossils with patience and care. Esmé Salter was working in the Geology Department of Bristol University at the time, and Cliff and Esmé showed the specimens to Louise and Desmond Donovan, who realised the importance of the collection but were unable to give much assistance with identification.

When Cliff turned to the Palaeontological Department of the Geological Survey (then at the Geological Museum in South Kensington, London) for help, the full significance of the collection was immediately realised. Eventually, in 1962, the Survey was extremely fortunate to receive this unique collection into its care.

IMPORTANCE OF THE COLLECTION

The C.B. Salter Collection is important in several ways. The numerical size of the collection, and the great variety of species present, makes it one of the most important collections from any Carboniferous Limestone locality, and certainly the most valuable from the Mendips. Although many of the fossils are small, the fine detail of the ornament of the shells is beautifully preserved and there are a number of rare forms, some of which are the first records from the Mendip area.

The details of the Carboniferous Limestone section exposed in Cliff Quarry were given by Green and Welch (1965, p.27) who listed some

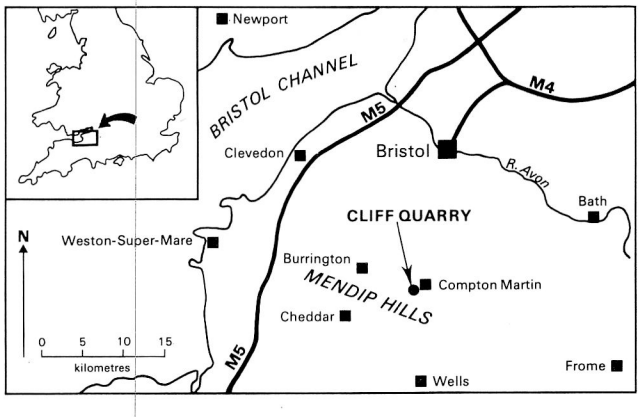

Fig.3 Location of Cliff Quarry, Compton Martin.

of the stratigraphically significant corals collected there. The quarry sequence lies in the Hotwells Limestone near the top of the Carboniferous Limestone and corresponds in age with rocks exposed at Round Point in the classic Avon Gorge section at Bristol (Vaughan 1905, p.199). This horizon is one of the most widespread and fossiliferous of the late Brigantian Stage of the British Dinantian; its distribution was briefly discussed by Kellaway (1967, p.64) and George et al. (1976, p.17, fig.4), but it has never previously yielded such a remarkably diverse assemblage of fossils.

Cliff Quarry must represent a special ecological habitat of the warm, shallow sea in which the Mendip Carboniferous Limestone was laid down. It was perhaps a sheltered area with rich coral thickets, where there was little or no storm or current disturbance of the water, so that the smallest and most fragile shells could be preserved as fossils.

Cliff Salter's great interest in the Compton Martin fossils waned only when he had nearly exhausted the supply of weathered material (although a limited quantity of this precious rock has been preserved for future study). The C.B. Salter collection, now housed at the headquarters of the British Geological Survey at Keyworth, Nottinghamshire, will remain a lasting memorial to the many peaceful but exacting hours that Cliff spent preparing his specimens. It is an outstanding contribution to British Geology.

CONTENTS OF THE COLLECTION

The C.B. Salter Collection contains a wide range of invertebrate taxa, but only some of the important groups have so far been properly studied and described, and it is not yet possible to compile an exhaustive list of taxa. The following list of initial identifications does, however, give some idea of the considerable range of fossils present.

Gastropods (Fig.4A and B) are the most important group in the Collection and formed the subject of a monographic study by Dr Roger L. Batten of the American Museum of Natural History in New York (see below). Other groups that have been described include the brachiopod Isogramma (Fig.4C) and

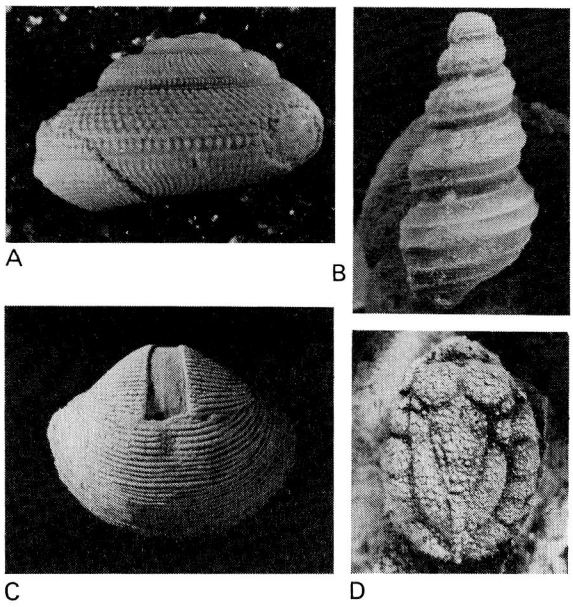

Fig.4 Fossils from the C.B. Salter Collection; Hotwells Limestone, Cliff Quarry, Compton Martin. A, Rhineoderma hotwellsensis Batten, BGS Zo 2396, holotype (Batten 1966, pl.2, fig.18), x7. B, Stegocoelia (Hypergonia) kirkbyi Donald, BGS Zo 3715, x8. C, Isogramma salteri Brand, BGS Zo 1525, holotype (Brand 1970, pl.5, fig.10), x2. D, Cyclus martinensis Goldring, BGS GSM 102638, holotype (Goldring 1967, pl.51, fig.2), x5.

the crustacean Cyclus (Fig.4D), both of which are very rare records for the British Carboniferous Limestone.

The Collection is registered with the following BGS numbers: GSM 87326, 87358-87360, 102638-102647, 103088 and Zo 967-3748.

LIST OF TAXA

ALGAE

Koninckopora sp.

FORAMINIFERA

More than 300 solid foraminifera have been developed out of the limestone and include specimens of Saccamminopsis fusulinaformis (McCoy).

PORIFERA

Asteractinella sp. (sponge spicules)

ANTHOZOA

Chaetetes sp.
Clisiophyllum sp.
Dibunophyllum bipartitum bipartitum (McCoy)
Hexaphyllia spp.
Koninckophyllum spp.
Lithostrotion junceum (Fleming)
L. pauciradiale (McCoy)
L. portlocki (Bronn)
Lonsdaleia duplicata (Martin)
L. floriformis (Martin)
Michelinia sp. juvenile
Palaeosmilia murchisoni Milne Edwards and Haime
Syringopora spp.

BRYOZOA

Fenestella spp.
Prismopora balladoolensis (J. Smith)

ANNELIDA

tube fragments

BRACHIOPODA

Actinoconchus sp.
Avonia sp.
Brachythyris sp.
Buxtonia sp.
Crurithyris sp.
Dielasma sp.
Eomarginifera spp.
Gigantoproductus sp.
Isogramma cf. germanica Paeckelmann (figured and described by Brand (1970, pp.67-83, pls.5-8)
Isogramma salteri Brand (figured and described as above)
Orbiculoidea sp.
orthotetoids
Pleuropugnoides sp.
Plicatifera sp.
Pugnax sp.
Punctospirifer sp.
Pustula sp.
Reticularia sp.
Schizophoria sp.
Spirifer spp.
Spiriferellina sp.
spiriferoids (smooth and reticulate)

AMPHINEURA

Gryphochiton sp.

GASTROPODA

The gastropods of the C.B. Salter Collection have been monographed by Batten (1966), who listed a full synoptic classfication of the Compton Martin fauna (pp.102-105) with details of the sample size; the following is a list of the genera and species that were recorded:

Euphemites dorbignii (Portlock)
E. koninckii (Weir)
E. urii (Fleming)
Bellerophon costatus J. de C. Sowerby
B. meeki de Koninck
B. sowerbyi d'Orbigny
Knightites (Retispira) exilis (de Koninck)
K. (R.) keynianus (de Koninck)
Straparollus (Straparollus) dionysii Montfort
S. (S.) levigatus (Léveillé)
S. (S.) planorbiformis de Koninck
S. (Euomphalus) acutus? (J. Sowerby)
S. (E.) catilliformis (de Koninck)
S. (E.) catillus (J. Sowerby)
S. (E.) amaenus (de Koninck)
Rhineoderma hotwellsensis Batten
Scalitina tabulata (Phillips)
Baylea spirolirata Batten

B. yvanii (Léveillé)
Mourlonia carinata (J. Sowerby)
M. striata (J. Sowerby)
M. placida de Koninck
Tropidostropha compta Batten
Porcellia puzo Léveillé
Euconospira conica (Phillips)
Spiroscala intricata Batten
Luciellina helicinoides? (McCoy)
L. poolvashensis Batten
Peruvispira? deornata (de Koninck)
Hesperiella thomsoni (de Koninck)
?H. sp.
Gosseletina nodosa Batten
G. portlockiana (de Koninck)
Platyzona tornatilis (Phillips)
P. cirriformis (J. Sowerby)
P. sp.
Tapinotomaria? spinosa Batten
Shansiella globosa (Thomas)
Borestus similis (de Koninck)
B. sp.
Salterospira tabulata Batten
S. plectata Batten
Lepetopsis retrorsa (Phillips)
L. phillipsi de Koninck
Yunnania semicancellata (de Koninck)
Y. sp.
Microdoma triserrata Batten
M. bicrenulata (de Koninck)
M. uniserrata Batten
Anomphalus umbilicoliratus Batten
Tychonia omaliana (de Koninck)
Straparella fallax (de Koninck)
S. umbilicata Batten
Naticopsis (Naticopsis) consimilis de Koninck
N. (N.) planispira (Phillips)
N. (N.) elongata (Phillips)
N. (N.) gracilis Batten
N. (N.) variata (Phillips)
N. (N.) sigaretiformis de Koninck
N. (Marmolatella) ampliata (Phillips)
Turbonitella biserialis (Phillips)
Murchisonia (Donaldospira) pertusa (de Koninck)
M. (Murchisonia) verneuiliana? de Koninck
Cerithioides telescopium Haughton
C. sp.
Glyphodeta zonata (Donald)
Aclisina striatula (de Koninck)
A. sp.
Stegoceolia (Hypergonia) quadricarinata (McCoy)
S. (H.) kirkbyi (Donald)
S. (H.) cincta (Donald)
S. (H.) cf. acuminata (de Koninck)
S. (H.) percarinata (Longstaff)
S. (H.)? sp.
S. (S.) compacta (Donald)
Pithodea amplissima de Koninck
Palaeozyglopleura scalarioidea (Phillips)
P. benniana (Longstaff)
Palaeostylus (Stephanozyga)? rugiferus (Phillips)
Microptychis constricta (J. Sowerby)
M. wrighti Longstaff
Hemizyga (Hemizyga) clathratula (Young and Armstrong)
H. (H.)? bilineata Batten
H. (H.)? heliciforma Batten
Ceraunocochlis polyphemoides (de Koninck)
Ianthinopsis rectilinea (Phillips)
I. ventricosa (de Koninck)
I. conspicua (de Koninck)
I. sp.
Soleniscus acutus (J. de C. Sowerby)
Meekospira cf. peracuta (Meek and Worthen)
Girtyspira fusiformis (de Koninck)
Acteonina carbonaria (de Koninck)
Donaldina nana (de Koninck)
D. pulchra (de Koninck)
D. costatula (Donald)
D. quadrata (Donald)

BIVALVIA

Aviculopecten sp.
Conocardium sp.
Edmondia sp.
Parallelodon sp.
Promytilus?
Sanguinolites sp.
Solenomorpha sp.
Streblopteria sp.

CEPHALOPODA

orthocone nautiloids
Vestinautilus sp.
Imitoceras sp.
goniatite indet.

TRILOBITOMORPHA

trilobite glabellae and pygidia

CRUSTACEA

Cyclus mendipensis Goldring (figured and described by Goldring 1967, pp.317-321, pl.51)

OSTRACODA

CRINOIDEA

columnals, brachials and cups

ECHINOIDEA

Archaeocidaris sp. spines and plates
parts of jaw apparatus

VERTEBRATA

fish teeth

ACKNOWLEDGEMENTS

Mrs Esmé Salter and Professor D.T. Donovan gave invaluable assistance in preparing this paper, which is published with the permission of the Director, British Geological Survey (NERC).

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JOHN FULLER (1937-1986): AN APPRECIATION

BY TRISTRAM P. BESTERMAN

On 11 October 1986 John Fuller died suddenly and unexpectedly at the age of 49. As a senior member of the curatorial staff of the Mineralogy Department of the British Museum (Natural History) he was widely known, liked and respected both in Britain and abroad.

After National Service and a couple of short-term jobs, John was appointed in 1960, at the age of twenty-three, Scientific Assistant in the BM(NH) Mineralogy Department, with a background in maths and civil engineering. Over the next twenty years he was promoted steadily in the Department, until he was appointed Senior Scientific Officer in 1981. In this position he was formally designated Collection Manager for one of the world's greatest mineral collections.

As Collection Manager, it was not so much scholarship but John's superb organisational qualities, coupled with a gift of advocacy and an engagingly outgoing personality, that made him so effective. These peculiar attributes (not perhaps entirely typical of curatorial staff in a national museum) were fostered in particular by Peter Embrey, who recognised John's value to the Department. Of course, his responsiblity for locating and evaluating material to add to the collection relied first and foremost on a thorough and encyclopaedic knowledge of his institution's collection. But it was the network of personal contacts which John built up both nationally and world-wide, with dealers and collectors of all kinds, which was to prove so important. John knew the markets and was himself held in high regard in a world where minerals are often big business. As a result

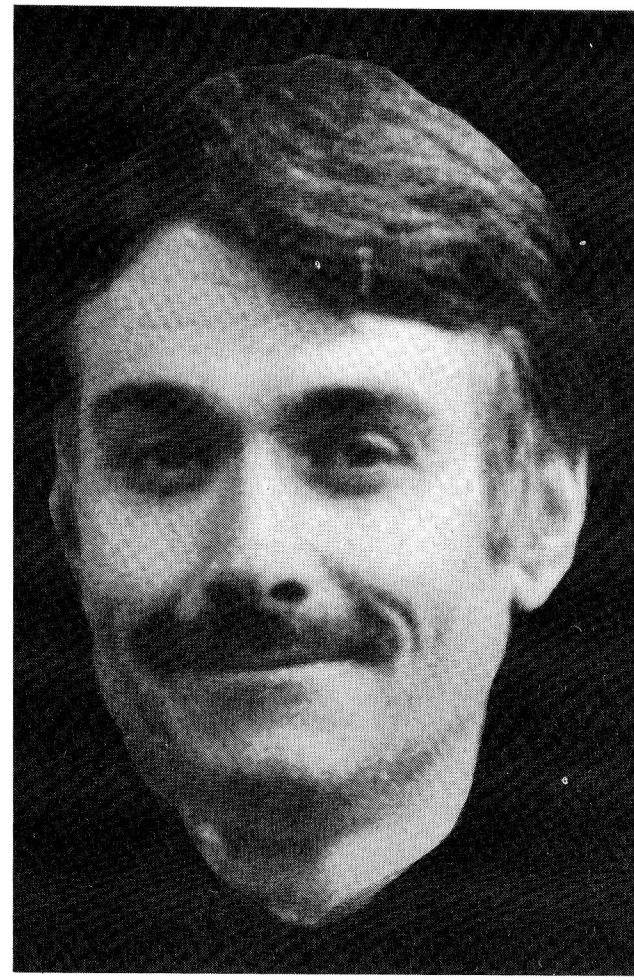

Fig.1. John Fuller in 1985.

of his reputation, the Department was given first refusal on important material which might otherwise not have come its way at all, or have come on the open market on terms rather less favourable to the BM(NH). So it would not be over-stating the case to say that the development of the BM(NH) Mineral Collection over the last ten years has been achieved largely as a result of John Fuller's personal qualities and commitment.

Since 1981, John was Mineral Advisor to the Fund for the Preservation of Technological and Scientific Material administered through the Science Museum. It was in this role that I first met and got to know John Fuller, when Plymouth decided to go for the Barstow Collection of Devon and Cornwall minerals. From the outset he played a crucial role both in evaluating and advising the Museum on the financial value of the collection, and subsequently in supporting our application to the Science Museum. Although scrupulously objective, this was a collection after his own heart - rare, quality material from his favourite stamping grounds in the south-west. Indeed, he had been working with Peter Embrey on photographic material for a book entitled Minerals of Cornwall and Devon at the time of his death.

His scientific publications include, with Peter Embrey in 1980 A Manual of new mineral names 1892-1978 (BM(NH) and Oxford University Press). John was also Editorial Consultant for the Journal of the Russell Society since 1984.

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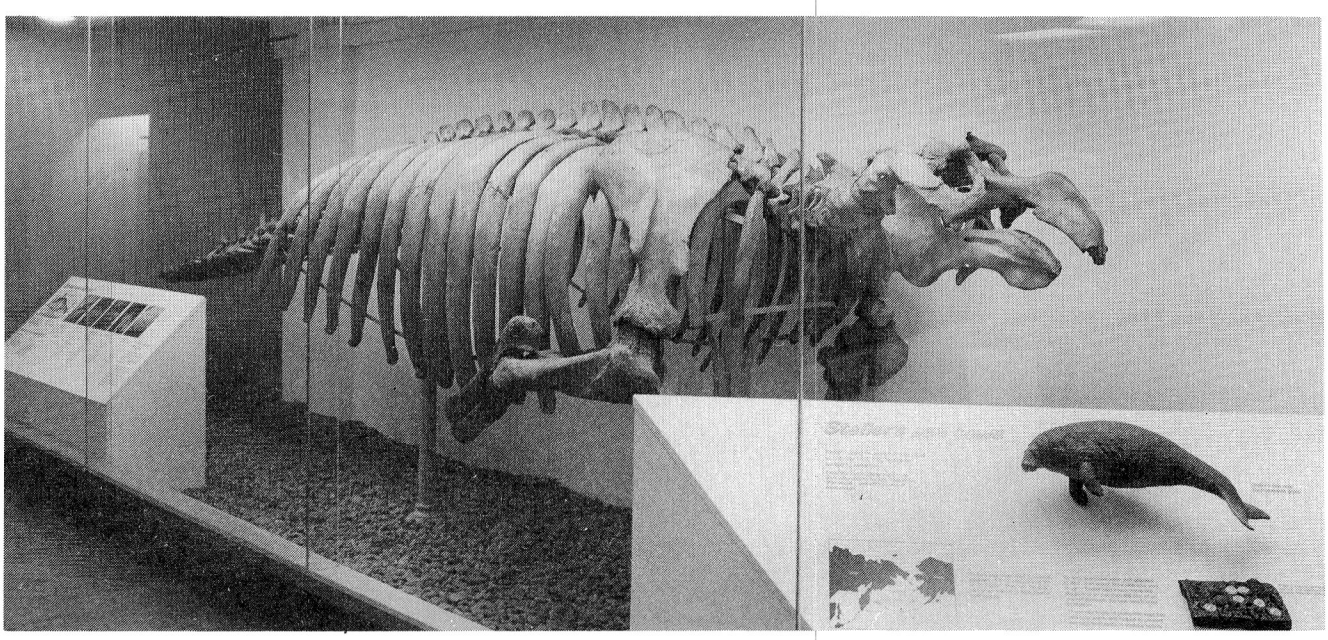
I had an opportunity to observe at first hand John Fuller's eye for material that would add scientifically to the Department's collections. My father-in-law, a retired Cornish farmer, had a small, qualitatively unremarkable but well documented collection of minerals from Cornish mine dumps which included material collected on trips with Sir Arthur Russell after the last War. This small collection was acquired gratefully by John Fuller for the Department because he soon realised that it provided locality data missing from a number of Sir Arthur's specimens in the BM(NH). A nice moral there for all of us charged with the care and development of a geological collection.

John was a man with a kind of physical stature that resulted in his not infrequently being mistaken for a policeman - I was with him on one such occasion. And it was all taken in good part as yet another example of life's ironies which evidently appealed to John's well developed but gentle sense of the ludicrous. Although strongly gregarious by nature, John Fuller was also a reticent and rather private man; he leaves no immediate family.

As a colleague and friend, and roving ambassador for the BM(NH) Mineralogy Department, John Fuller will be deeply missed throughout the mineralogical community in the UK and overseas. The sense of loss is both personal and professional. It is a tribute to his achievement that he has left a void which it will be very hard indeed for the BM(NH) to fill after a quarter of century of his service.



Stellar's sea cows were hunted to extinction in the mid-1700s, in the cold waters of the Bering Sea. These placid mammals were a rich source of meat and oil. From the new permanent exhibition at the BM(NH), 'Discovering Mammals'.

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COLLECTIONS, COLLECTORS AND MUSEUMS OF NOTE, No.52

GEOLOGICAL COLLECTING AND A GEOLOGICAL CAREER: DANIEL JONES (1836-1918)

WITH NOTES ON OTHER MIDLANDS COLLECTIONS FROM THE JONES ARCHIVE

BY HUGH S. TORRENS

INTRODUCTION

Daniel Jones is remembered today as an authority on the geology of the Shropshire coalfields, having produced a series of papers on the subject between 1871 and 1898 in the Geological Magazine and the various Transactions of the Caradoc Field Club, Manchester Geological Society, Severn Valley Field Club and the Federated Institute of Mining Engineers. Many are listed in the relevant catalogues of scientific papers (Royal Society 1879, p.33; 1918, p.134; Whitaker and Watts 1889). But as always with such catalogues they neglect important scientific papers published in the mining literature. Jones's work is no exception and his papers read to the South Midland Institute of Mining, Civil and Mechanical Engineers (Jones 1870-1871, 1872) are not listed.

In about 1866 Jones was appointed Assistant Commissioner under the 'Royal Coal Commission appointed to inquire into the several matters relating to Coal in the United Kingdom' (Mate 1906, p.44; Penn 1907, p.193; Cantrill 1920 - who wrongly says 1869). It was this appointment that stimulated the above series of publications. There is, however, a little uncertainty about the exact date of his being commissioned. David Jones's own autobiographical notes, written in old age, again gave the date as 1866 (Shropshire Record Office, Shrewsbury (hereafter SRO) 1781/5/22), the year the commission was issued (Report 1871). But a brief article on Jones's career (SRO 1781/5/53) - perhaps by Stephen Lawrence of Seaford, Sussex - gave 1867 (Ruth Bagley pers. comm.).

DANIEL JONES'S GEOLOGICAL EDUCATION

Of particular interest is how Daniel Jones became interested in geology. New light has been thrown on this subject by a recently discovered 'diary' of Jones covering the decade 1850-1860 (item 248 in Catalogue of ..... Books (etc) concerned with geology no.1 offered for sale by Martin Simpson, Ventnor, Isle of Wight, 1985). This has now been purchased by the Shropshire Record Office, where it joins a series of other records (SRO 1781) from the same Jones family, who were landed gentry of Kilsall and Shackerley Halls near Donington in Shropshire (see Burke 1937, p.1609 sub Jones Mitton). This existing deposit includes a series of Daniel Jones's own journals from 1852 to 1866 (SRO 1781/5/6 - 13) as well as a manuscript autobiography

Fig.1. A photograph of Daniel Jones taken at about the turn of the century (from Penn 1907).

(1781/5/18 - 24), only commenced as he entered his 70th year in May 1905 and mainly completed by 1912, but containing entries at the very end from 1916-1917.

From these and the new 'diary' or notebook we are able to see how important Daniel Jones's own geological collecting was in his geological upbringing and how it was possible for a member of the Victorian landed gentry - when faced with a financial disaster - to get a commission as a geologist.

Jones was born on 8 May 1836, not in South Staffordshire as stated by Cantrill (1920), but at Hartlebury, Worcestershire according to Jones's own autobiographical account (SRO 1781/5/18 : 1). Cantrill's error can be forgiven as Jones himself records (SRO 1781/5/20) that he too was completely misinformed about the place of his own birth until about his twenty-first year when the truth was disclosed!

Jones's grandfather George (1781-1857), who came from Broseley in Shropshire (Vaughan 1883, pp.43-49), had been a successful iron master since at least 1825 when he became a co-partner in the Chillington Coal and Iron Company in South Staffordshire (SRO 1781/5/2). He took out a number of significant iron-making patents (SRO 1781/5/3). With his son John (1805-1882) - Daniel's father (see Vaughan 1883, pp.81-82) - the family's involvement in ironworks and collieries then spread to South Wales (Cantrill 1920) where they owned the Blaina Iron Works in Monmouthshire. They also greatly expanded operations in South Staffordshire and by the time Daniel became involved in the management of the family's collieries and iron works in 1853 they were involved both at Spring Vale, west of Bilston, Staffordshire, where they owned blast and puddling furnaces (Hunt 1853, pp.343-346; Gale 1979, pp.70, 90) and at Birch Hills, a colliery and iron works complex with three blast furnaces, north west of Walsall (Hunt 1853, pp.197, 343-346). [Family portraits of George Jones (1781-1857) and his wife, John Jones (1805-1882), and of Daniel Jones himself are owned by Daniel's only surviving grand-daughter Mrs G. Lacy-Hulbert, Shackerley, Lavant, Chichester, West Sussex PO18 ODA; the unsigned oil painting of Daniel measures 36 x 26 ins and shows him as a young man.]

This industrial activity is reflected in the newly discovered Jones 'diary'. The volume has been lettered by a binder on its spine 'D. Jones diary vol.2', but it is much better referred to as a Notebook (and will be so hereafter). It carries the date 5 April 1851 at the beginning and was clearly used initially for some early mathematical exercises, one of which (p.43) was signed and dated by Jones on 4 April 1851. The Notebook also refers to the family's Spring Vale works (p.100) and to those at Birch Hills (p.22). Some unnumbered pages at the beginning of the Notebook carry analyses of many varieties of coal from South Wales.

Daniel's autobiography reveals that chemistry was an early interest and that during the holidays of 1847-1848 from the school he attended for one year at Totteridge, near Whetstone, in Middlesex, he sometimes went to the family's Bilston ironworks (SRO 1781/5/19). Here in Bilston he made the acquaintance of a chemist called White and a local physician, Dr Cooper, who had a collection of fossils. This last, Daniel reported, 'set up in my mind an intense ferment'.

Daniel seems to have been in a considerable ferment about subjects other than geology in his school days! In 1848, at the age of twelve, he moved to the Rev. E.H. Day's school at Cleveland House near Brixton, where he learnt painting and mechanical drawing. Furthermore 'a dear old man named Johnson from Guy's Hospital [in London] lectured to us sometimes, a series on Geology, Chemistry or Botany'; Daniel recorded that he 'was about the only boy who took notes of these lectures' (SRO 1781/5/19). These lectures were given by Charles Johnson (1791-1880), Lecturer at Guy's from 1830 to 1873 and at the Medical Botanical Society in London (Desmond 1977, p.346). Daniel was clearly inspired by them, noting later that 'Johnson's lectures certainly laid the foundation of my interest in Natural Science. Geology and Chemistry were my favourite studies'.

In 1851 - when the Notebook was started - Daniel was expelled from his London school for misconduct and obstinacy! Geology thereafter had to be self-taught through collecting fossils and reading geological books. He spent much time in breaking ironstone nodules from the family works in search of ferns and fossils, labelling and arranging the specimens and studying with the aid of G.F. Richardson's book Geology for beginners.

In 1851, after urgent family consultations involving his irate father, it was agreed that he be sent to school in Berlin under the care of Professor Zumpt (a family friend) of the Friederich Wilhelms Gymnasium. Berlin gave particular opportunities for the study of chemistry 'which would be useful to an ironmaster'. Daniel studied chemistry at the Laboratory of the Gewerbe [Technical] Institute under Karl Friedrich Rammelsberg (1813-1899; chemist, mineralogist and metallurgist). Rammelsberg was the author of an influential Handbuch der Mineralchemie first published in 1841. Daniel, who had arrived in Germany without a word of German (SRO 1781/5/20), quickly settled in and also attended occasional lectures at the University.

At the age of only sixteen his summer vacation in 1852 was spent with a fellow student on an adventurous eight-week tour of Russia to Moscow (SRO 1781/5/6, p.19; 26, p.20). However, he was soon in trouble on his return to Berlin, where he started spending too much time drinking and smoking with a group of young military friends, and was sent home by Zumpt. He left Berlin in October 1852 (SRO 1781/5/32-33) and arrived home with a certificate from Rammelsberg certifying his diligent work in the chemistry laboratory (particularly in chemical preparation and analysis; SRO 1781/5/25).

In 1852 Daniel entered the iron trade under his father - by then no doubt anxious to be able to keep an eye on him at all times (SRO 1781/5/24). The state of the iron trade in South Staffordshire in 1854 was later vividly described and visualised by Jones (1895, pp.11-12, pl.1) when 150 blast furnaces and 2000 pudding furnaces lit up the road between Birmingham and Wolverhampton. The industry here reached its apogee in 1857, since when, as Jones (1895, p.10) himself notes, 'a gradual decrease has taken place'.

The Jones family were one of those that suffered worst. As Daniel reported (SRO 1781/5/22, p.76) his 'poor father suffered from land hunger' and had made large

purchases in Monmouthshire. He borrowed money to support his iron works there and, as time and interest advanced, his father's debt to the bankers became nearly £50,000. On Black Friday (11 May 1866) the widespread financial collapse of the London banks (Annual Register 1866, pp.183-185) caught up with the Jones family. Overend, Gurney and Co. of London stopped payment, with financial involvements of £19 million! No single bankruptcy had ever caused so great a shock to credit. John Jones was forced to declare himself bankrupt and his affairs were placed in the hands of the Court of Chancery (SRO 1781/5/22, p.78).

Daniel Jones too suddenly became unemployed but was lucky enough to be soon appointed an assistant commissioner on the Royal Coal Commission for the whole county of Shropshire, where his home was, at a wage of 5/- an hour plus travelling expenses (SRO 1781/5/22, p.80). But how was it possible for a member of the English Landed Gentry, of an ironmaster's family, to suddenly get paid employment as a geologist? To answer this we need to uncover more of Daniel's early geological activities. Both the new Notebook, whose geological contents date from 1856 to 1860, and other material in the Jones family archive shed valuable light on how Daniel taught himself geology, after the introduction Charles Johnson's lectures in London had provided to the subject.

These same sources also reveal how important Daniel Jones's own geological collection and its classification was to his geological education. It was because of this largely self-generated education that Daniel was able to switch from the metallurgical activities, for which his family background and his training in Germany had equipped him, to the geological activities of the Coal Commission.

DANIEL JONES'S ASSOCIATION WITH R.S. COOPER

We have already noted Daniel's visits, while a schoolboy, to a fossil collector at Bilston called Dr Cooper.

Richard Spooner Cooper (fl.1829 - fl.1860) had trained in London as a surgeon-apothecary and published 'On the stricture of the nervous system' (Cooper 1829). He gained his licentiateship of the Society of Apothecaries of London (LSA) on 25 February 1830 and became a member of the Royal College of Surgeons of England (MRCS) on 14 May 1830. In the same year he moved to 16 High Street, Bilston in Staffordshire, becoming medical officer of the Western District of the Bilston and Wolverhampton Union and medical officer of the Bilston Commissioners. [He is not to be confused with another Richard Cooper (1802-1872) - also LSA and MRCS - who was in practise in Leek, Staffordshire (Staffordshire Advertiser 29 June 1872, pp.4-5; Miller 1891, p.148).]

Cooper married Ann Peace at St. Peter's, Wolverhampton on 23 February 1832. His prospects must have seemed good but were rudely shattered by the terrible cholera epidemic which struck Bilston in August and September of that same year (Leigh 1833). He was a surgeon on the hastily appointed Local Board of Health set up to contain the outbreak, which caused 742 deaths (1 in 20 of the population).

He has been described as 'a clever antiquarian collector and critic' (Lawley 1890, p.34). His fossil collection was well advanced by 1842 when 'Mr Cooper of Bilston' was noted as one of the original team who had lent their collections for the fine Museum set up in Dudley for the first General Meeting of the Dudley and Midland Geological Society on 17 January 1842 (Murchison 1842, p.31). There is much uncertainty about the longevity of both the Society and its Museum (Cutler 1981, p.4). Cooper's brother-in-law Francis Paul Palmer recorded in 1845 the necessity of visiting 'the splendid geological museum in the New Street of Dudley' and that 'the great fossil fish [there], the Megalicthys Hibberti is from the collection of my excellent and learned kinsman Richard Cooper Esq. of Bilston' (Palmer and Crowquill 1846, p.58). Murchison had also described this fish at the opening of the Museum in 1842 as 'perhaps the finest which has ever been found' (Murchison 1842, p.30).

Palmer and Crowquill (1846, p.26) also recorded the 'innumerable fossils, electrotypes [casts] and local curiosities' in the 'antiquarian snuggery' of Cooper's Bilston home. This became a powerful magnet for the young schoolboy Daniel Jones who, in his journal for 25 October 1855, describes another visit as follows: 'This morning I went to see Dr Cooper of Bilston. He has a most splendid collection of fossils and has offered them to me for £30 - case into the bargain. I am sure they are cheap at £100. I do not know whether I shall be able to buy it. It is rich in Ammonites, Belemnites, Encrinital heads and steams [stems]. Also some fossil nautili. His vegetable remains from the Carboniferous formation is very fine. He has a most beautiful fish, one of the finest specimens in Europe from the Silurian L'Stone of Dudley. He offered it to the British Museum for £50 and it has roused the Geological fire still more' (SRO 1781/5/8, p.468). The fish must again be the Megalicthys, allowing a mistaken identification of its horizon by the nineteen year old youth. This reference suggests too that the specimen had been returned to Cooper after the disbandment of the Dudley Museum display.

Daniel's father, however, would not provide the money, so Daniel next day wrote to Cooper offering him £25 for the collection on his own account. Daniel was to have bought a new scarlet coat and top boots, which his journal records would have cost £10 with the expense of going to London, but he decided to defer the purchase and added 'I shall hold hard my outgoings until I have paid this £25. There is a satisfaction in doing this. The collection is quite of county notoriety' (SRO 1781/5/8, pp.469-470).

Immediately after this exchange Daniel went on holiday to Scarborough on the Yorkshire coast, of which a separate journal survives (SRO 1781/5/9). This journal records his several fossil hunting expeditions and that the man he went to for advice was a local working-class dealer in fossils Peter Cullen. [Cullen was the Yorkshire coast dealer commissioned by John Phillips (1800-1874), before 1867, to collect Liassic belemnites and specifically to explore the upper part of the Lower Lias at Robin Hood's Bay (Phillips 1867, pp.57, 86). Almost certainly, Cullen was also the working man called 'Irish Peter' mentioned by Williamson (1896, p.55) as one of the two working-class fossil dealers then in Scarborough and who were largely instrumental in helping John Leckenby (1814-1877) form his fine Yorkshire fossil collection (Cleevely 1983, p.181).] One late October afternoon Daniel walked to the Mews near the Museum where Peter had his fossil stall: 'He was out but in the course of half an hour I saw Peter's form bent with the might of fossils he bore. He [had] collected from the lower beds of the Oolite. Some of these I bought .... He sometime ago found an ichtyosaur from the Lias. The vertebra[e] he has in large quantities'.

On 1 November his Scarborough journal notes, 'All the go with the ladies just now is the anticipated Free Trade Hall Ball. Kate wishes Ruth and myself to come but I am opposed to it. The fact is if I am to buy Cooper's geological collection I cannot afford to go to any expense for ball dressing. I bought some [more] fossils from Peter Cullen for 2s/8d' (SRO 1781/5/9). On 6 November he also visited the private geological and conchological museum of Mr William Bean II (1787-1866) (see McMillan and Greenwood 1972, p.155) but Bean had been ill and could not then show him his fine collection, so an arrangement was made for some future visit.

On his return to Shropshire, Daniel noted of his Scarborough break, 'during this visit I have acquired a thirst greater than before after Geological Information. The Museum of Scarboro' [Philosophical Society opened 1829] and the private geological collection of Mr Wm. Bean are productions of much amusement to those who delight in matters of Natural Science' (SRO 1781/5/8, p.472).

At last by November 1856 Daniel Jones had collected the purchase price of Cooper's collection together and was able to conclude the purchase of it, as the new Notebook records. Here Jones noted that Cooper 'had a friendly feeling towards me and offered the entire collection to me for £30. I could not prevail on my father to purchase it for me so I offered him £25 on my own account which he accepted. To provide funds I deferred purchasing new top boots and a pink hunting coat which I had previously contemplated buying'. The fossils were removed to Ruckley Grange in the parish of Tong, two miles east of Shifnall in Shropshire 'in a waggon without sustaining any injury' (page headed 'History of the Collection in re Cooper' at the end of the notebook). Jones described in his autobiographical notes that he lived here from 1852 on his entry into the iron trade (SRO 1781/5/19, pp.39-40).

Letters about the transaction are transcribed into the Notebook (pp.8-11) and copies were placed in the cabinet itself and show that Cooper was allowed to remove certain fossils from the collection before Jones collected it. Whether he did, and what might have been removed, is unknown. In one of Jones's letters to Cooper he noted 'I suppose you will still feel interested with geological specimens [after the departure of the collection to Ruckley and] if in my rambles I should find any of peculiar interest I will be careful to send you a specimen'.

THE LATER HISTORY OF THE JONES-COOPER COLLECTION

Daniel's interest in palaeontology was clearly stimulated by the purchase of the Cooper collection. On 17 March 1857, by then aged twenty, his Notebook records that he wrote to Henry Beckett FGS (died 1876), the mining engineer and fossil collector based in Wolverhampton (Warwick 1967, p.24; Cleevely 1983, p.52), about joining the Palaeontographical Society (of which Beckett was then Local Secretary for the area). Jones was elected a Fellow of the Geological Society of London in 1869.

Evidence also survives in the Notebook of the ways in which Jones added to the Cooper collection. His younger brother Henry Francis John Jones - later Vaughan (1841-1930) (Burke 1952, p.2592; Auden 1931) - was then at school in Diss, Norfolk before his matriculation at Oxford University in 1859, from where he graduated BA in 1863 (Foster 1888, p.764). For Daniel's collection Henry provided fossils from the Suffolk Crag (Notebook, p.28) which had come from the cabinet of Rev. Greville John Chester (born c.1831), a cousin of William 3rd Baron Bagot (1811-1887) (Burke 1891, p.77); these specimens all bore Chester's own distinctive labels on wooden boards, which may allow the specimens to be recognised, if the collection survives. In March 1858 the Jones collection was further extended by George Holyoake (1801-1879) who had family connections with the Jones's parish of Donington, Shropshire (Vaughan 1883, p.89). Holyoake was then serving in the Staffordshire Militia and gave Daniel all the shells, minerals and fossils which he had collected from Corfu while stationed there (Notebook, p.96). Daniel Jones's collection was also exhibited in about 1858 at a local exhibition in Bilston (Notebook, p.101) which was enthusiastically noted in the Wolverhampton Chronicle. By then the collection included material from the Paris Basin as well.

Transcribed letters in the Notebook between the Jones brothers show too that Daniel was also busy growing relevant examples of living plants in the family gardens at Shackerley Hall, with the help of the estate's gardener Mr Thomas Shortland. The purpose was to compare these with the Carboniferous fossil plants being uncovered in the Jones family collieries in Staffordshire.

Other insights into Daniel's geological activities are given in the Notebook, including: a long section of notes on the first chapter of Genesis (pp.49 et seq); remarks on the plain at Ormskirk and Southport; a letter about a living frog found in a clay bed at Benthall, Shropshire in about April 1857; and observations on the 'Trap' of Powkhill near Walsall. Among books noted by Jones as having proved useful in his early geological studies, apart from G.F. Richardson's Geology for Beginners, was Hugh Miller's Testimony of the Rocks. One of the most intriguing notes is of 29 October 1858 (Notebook, pp.100-101) which shows that Daniel Jones, aged twenty-two, had lectured on geology to the work force of the family ironworks at Spring Vale - reminding us of the importance of the spoken word in disseminating information in Victorian times.

After his father's death in 1882 Daniel moved to Kilsall Hall at Shifnal in Shropshire (illustrated by Mate 1906, p.199). Here the Jones-Cooper collection must have followed him. In later life (1905) Daniel recorded that it was then 'contained in a cabinet of about 50 drawers and is illustrative of most geological formations' (SRO 1781/5/19, pp.11-12). Its fate is uncertain, but it seems highly likely that the collection passed to the Geological Museum of Birmingham University: for in 1906 Daniel Jones was made a Life Governor of the University (SRO 1781/5/22, p.91) and, at about the same time, he handed over his large collection of geological sections, reports and papers to the University. His autobiography, written at that time, records 'there the collection of Fossils might be helpful for the Museum and so become useful to others rather than to lie idle'. Whether the collection reached the Museum needs investigation, but this may be difficult as the accession books are not very 'helpful' between 1900 and 1906, after which the entries cease until after the First World War (Strachan 1979, p.309). The Jones-Cooper collection could well have arrived unrecorded during this period.

Richard Spooner Cooper appears in the records of the Royal College of Surgeons of London as still at 16 High Street, Bilston, until 1860. He had taken a partner from 1857 to 1859. He is still listed in the Calendar from 1861 to 1872 but no address is given. His last entry was in 1872 (which may mean only that the College had by then finally lost contact). The deaths of three Richard Coopers are recorded in the Dudley district alone between 1864-1871, and the date of Richard Spooner Cooper's death is unknown.

The value of the Jones-Cooper collection may not have been high in scientific terms but its value in educational terms is clear from Daniel Jones's reminiscence (SRO 1781/5/22, p.82) about how he became a geologist after the financial crisis his family faced in 1866: 'I little thought that my boyish pastime of collecting fossils and studying geology would serve me such a good turn in after life as to become a service of considerable emolument. Up to the present time (1905) I have received in fees connected with geological work not less than £1,200'.

WILLIAM STOWE AND THE BUCKINGHAMSHIRE FOSSIL RUSH OF 1856-1857.

After Daniel Jones purchased the Cooper collection , relations between the two continued cordially and the Notebook reveals that Cooper soon sent Jones cuttings from the Times newspaper about the discoveries of fossils made locally late in 1856 by William Stowe, a surgeon in Buckingham.

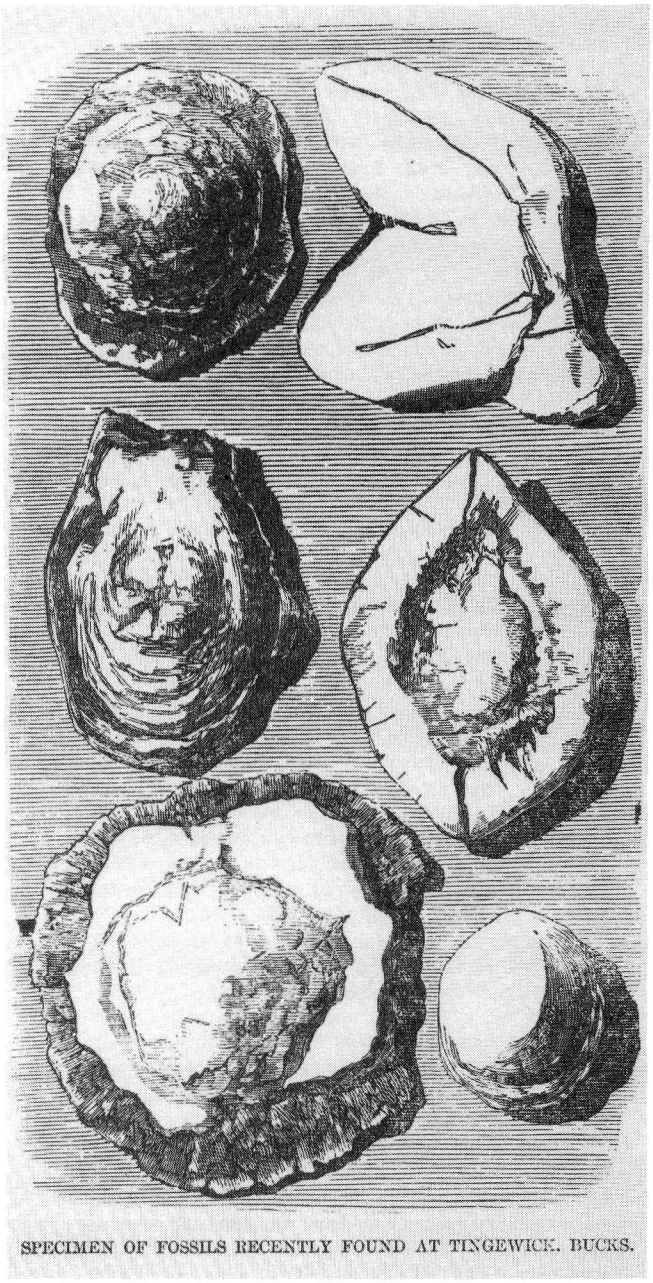
William Stowe (c.1791-1860) had gained membership of the Royal College of Surgeons in 1813 and the licentiateship of the Society of Apothecaries of London in 1817. From 1813 to 1816 Royal College of Surgeons records give his address as Oxford, and then as Andover from 1820 to 1823. By 1824 he was living in Buckingham where he spent the rest of his life. Apart from the field of medicine, in which his publications include A Manual of Toxicology (in at least two editions to 1823), On Scarlatina (in The Lancet 1834) and a very popular Toxicological Chart (in at least thirteen editions, both in English and French, up to 1872), he was active as a natural historian as well.

His first paper in this field (Stowe 1831) may be connected with his membership of the British Meteorological Society (formed 1821). It described the fall of a Meteoric Stone at Launton, Oxfordshire in February 1830. The stone came to the private Museum of John Lee (1783-1866) at Hartwell House, near Aylesbury (Smyth 1851, pp.141-142). Stowe's note in this paper that if he had obtained it he would have deposited it in the 'scientifically arranged Ashmolean Museum at Oxford as a county curiosity' suggests some balanced insights into the rationale behind forming collections and some rivalry with John Lee.

In late 1834 (not 1845 as stated by Delair and Sarjeant 1975, p.23) Stowe discovered bones 'of some yet undescribed reptile of enormous stature' which he sent to William Buckland at Oxford whose letter of thanks was published by Phillips (1871, pp.245-246). These were bones of the dinosaur Cetiosaurus, which was later described as a gigantic crocodile by Owen in 1841 (Delair and Sarjeant 1975, p.24). It has been wrongly claimed that Buckland never published on this Buckingham material (Delair and Sarjeant 1975, p.23), whereas Buckland read a special communication to the Geological Society of London on 29 April 1835 (Buckland 1835) which noted that the preservation of the material was 'owing to the zeal of William Stow Esq' of Buckingham.

Stowe's fossil collecting and geological observing continued. In 1849 his attention was drawn by Buckland to the new railway cuttings then being created on the Buckinghamshire Railway near Buckingham; he sent a short description of the cutting to the Geological Society of London (Stowe 1850).

The 1856 Buckinghamshire fossil-rush discovery was made on the farm of a Mr Greaves at Tingewick in Buckinghamshire whilst cutting brick-clay. Some of the material was sent to Stowe who gave his



SPECIMEN OF FOSSILS RECENTLY FOUND AT TINGEWICK, BUCKS.

Fig.2. Specimens from Tingewick which appeared in the Illustrated London News (24 January 1857, vol.30, pp.67-68).

opinion about the origin of these apparently concretionary objects as 'marine vegetables, fungi, algae and fuci'. This was recorded by the Oxford Journal, their report ending: 'we are authorised to say that Mr Stowe would send specimens to any institution or individual who takes an interest in such matters on their paying the carriage by rail'. Unfortunately the Times newspaper picked up and reprinted the notice (6 January 1857, p.12, col.1); the result was outlined by Stowe himself two days later in a letter to the Times (9 January 1857, p.10, col.f):

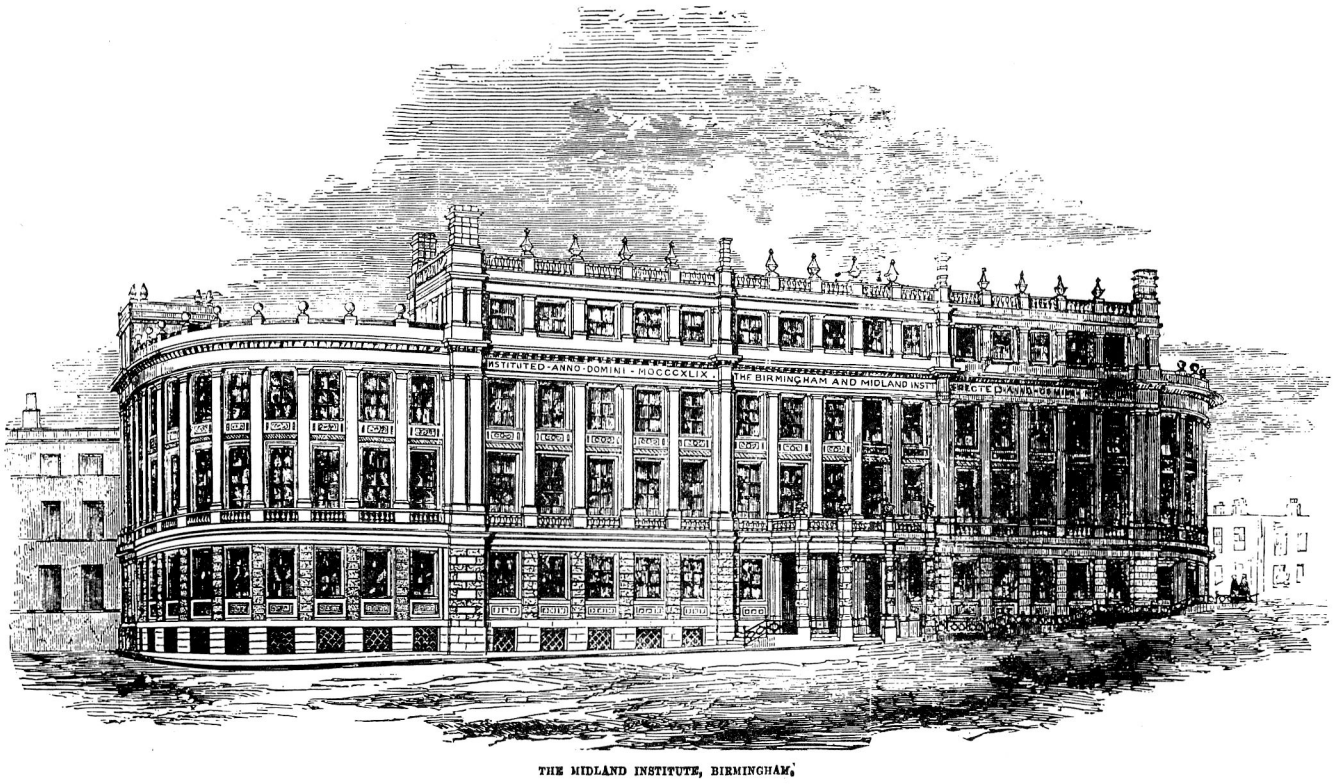
'Sir, - The transference of a paragraph about fossils from a local paper into your wide-world publication has overwhelmed me with applications for them, having had about 70 in 24 hours, which it is impossible to attend to at once. I purpose sending them off as widely as I can, and, in the meantime allow me to say that there are specimens to be seen in the Geological Museum in Jermyn-street, whither I sent them a week ago. Yours truly, W. STOWE Buckingham, Jan 8'.

In a benevolent attempt to help Stowe a letter under the name Conchos then appeared noting that fossils were also appearing in great numbers in the new sewerage excavations in London! (Times 10 January 1857, p.10 col.a):

'Sir, - Perhaps the fossil collectors who have overwhelmed your Buckingham correspondent, W. Stowe, whose letter appears in your columns of to-day, may feel interested in the fact that, in excavating for the sewers on the new London road now forming to shorten the distance from central Essex and the Lea-bridge-road to the metropolis, the workmen have within the last few days, at a depth of about 20 feet, dug into a bed of seasand, containing numerous shells, both univalves and bivalves of supposed extinct species, commingled with what appears to be drift wood in large pieces, now quite black, thus evidencing that at some period of our world's history the seashore reached to Upper Clapton. For those curious in the matter I may add that the site of this discovery is not far from where Clapton-gate formerly stood - for that barbarian barrier, with its ante-diluvian gatehouse, is, if not fossilized, at least disintegrated, and now, like the inhabitants of the said uni and bi valves, among the "things that were, but are not" - and on the new line of road thus thrown open opposite its site, proceeding west and south-west towards London. The distance is about two and a-half or three miles from the Royal Exchange. I am, Sir, your obedient servant, CONCHOS
London, Jan.9'.

Cooper, when sending these letters to Jones, offered to obtain specimens of the Tingewick fossils from his fellow surgeon for Jones who 'not wishing to trouble [Cooper], I thankfully declined'. It would be of interest to know if readers can shed light on the material generated at Tingewick and by the Upper Clapton (North London) sewers. The interest in the Tingewick discovery was such that an article also appeared in the Illustrated London News (30, pp.67-68 of 24 January 1857), with illustrations of some of the specimens (reproduced here as Fig.2). By this date Stowe had been deluged with 170 letters asking for specimens but he was 'unable to go on satisfying the claimants as the men have ceased to dig for clay for the season'! The sheer volume of the response gives a clear indication of the great popularity of fossil collecting 130 years ago.

On 22 June 1860 Stowe died in Buckingham at the age of 69 (Times 27 June 1860, p.1). The fate of his personal, and perhaps considerable, fossil collection is unrecorded. When Owen (1842, p.101) described Cetiosaurus he noted that the few large caudal vertebrae and other bones of C.



THE MIDLAND INSTITUTE, BIRMINGHAM.

Fig.3. Architect's final design for the Birmingham and Midland Institute, as it appeared in the Illustrated London News (vol.27, pp.603-604).

medius Owen which Stowe had discovered in 1834 were still then in Dr Buckland's Museum at Oxford. But by the time of John Phillip's study of Cetiosaurus (1871, pp.245-294) the author reported that the material could not then be identified at Oxford; he noted, however, that the form of the large caudal vertebra was preserved to science in the form of an admirable cast given to the Museum by Stowe's son Alfred (c.1834-1915). This implies that William Stowe's fossil collection had remained in the family. Any further information would be welcomed.

THE FATE OF THE BIRMINGHAM PHILOSOPHICAL INSTITUTION COLLECTION

A final observation in the Notebook, while not related to the Jones collection, sheds welcome light on the mystery surrounding the fate of the major geological museum once attached to the Philosophical Institution in Cannon Street, Birmingham. This had grown from the Birmingham Philosophical Society (founded in 1800) and had long served as the major repository for geological material from the Birmingham region before courses in geology started at Mason College in 1881. It included cited material (Page 1979, p.359) and was flourishing when Hugh Miller (1802-1856) visited the museum in 1845. He found it beautifully kept and scientifically arranged and Miller was delighted to discover that admission was free (Miller 1857, pp.207-208). The building was illustrated by Waterhouse (1954, pl.8).

But the Institution soon started to suffer from financial problems, like many such organisations in the later 1840s. Birmingham's were particularly acute and in 1847 the Institution had to dismiss James Buckman (1814-1884), its paid curator (Langford 1873, p.134). Worse was to follow, for in November 1849 (ironically, just after the visit by the British Association for the Advancement of Science) it was forced to close for lack of support. But the fate of the Geological and Mineralogical Museum has always remained a mystery. A sale of it by auction was announced in November 1852 (Aris's Birmingham Gazette 19 November, 1852) but this was postponed in the following month (op. cit. 13 December 1852).

Chalmers-Hunt (1976, p.93) suggested that the sale may have been abandoned and the Museum presented to the Queens College, Birmingham. Queens College had originated in a small medical school which, attracting funds, was granted a charter in 1843 and a gothic building erected in Paradise Street, Birmingham - which included a museum (Gill 1952, pp.396-399 and plate). The College could then have received the collections of the Philosophical Institution Museum in 1852.

But a newspaper cutting pasted in the Jones Notebook (p.98) from the Midland Counties Herald newspaper reads as follows:

'A valuable collection of recent Shells has just been presented to the Midland Institute by Mrs. Taylor, late of Moseley Hall. It includes a large proportion of the species that are found on our own coast, besides many fine specimens of foreign shells, all in excellent condition. This and the other contributions lately received will considerably enrich the existing collection,

which constituted the Museum of the old Philosophical Institution, and has been transferred to the Midland Institute.'

Langford (1873, p.272) dated the Taylor donation as April 1858. The notice at last demonstrates conclusively that the Museum collections of the former Philosophical Institution 1800-1849 were not sold at auction in 1852 but were passed instead to the Midland Institute.

The Birmingham and Midland Institute idea was first mooted in 1849 after the closure of the Philosophical Institution (Langford 1873). At a public meeting early in 1853 the project was properly launched (Langford 1873; Gill 1952, pp.394-396; Waterhouse 1954) with plans for a museum of geology, manufactures and models of machinery. The foundation stone was laid in November 1855 (Illustrated London News, 27, pp.603-604). The institution was to promote science and art among the middle and working classes. The teaching of geology 'as especially bearing upon the industrial pursuits of the midland district' was to be particularly encouraged and a geological museum was to support this. An engraving of the architect's final design is shown here from the same source (Fig.3); the building (now demolished) as finally built was illustrated by Waterhouse (1954, pl.1).

The building was opened in 1857 and clearly, from the above notice, the old collections of the Philosophical Institution were moved in soon afterwards and before April 1858. The Museum opened on 9 January 1860, when it was reported to have had 'a good geological collection and specimens of natural history which have been classified by Professor Morris and others' (Langford 1873, p.275).

John Morris (1810-1886) had been appointed to the chair of Mineralogy and Geology at University College, London in 1855 (Topley 1886). His obituarist recorded that he was indecisive, but there seems nothing of this sort in his curatorial methods with the old Birmingham Philosophical Institution geological collections, which had been without a salaried curator since 1847! C.J. Woodward (died 1932), Morris's assistant, recalled 'as in all museums duplicate and inferior specimens had accumulated, and this rubbish was a great trouble to Professor Morris as he scarcely liked to throw it away for fear of incurring the displeasure of the Committee, and it was out of the question to bestow time and attention to such inferior specimens. However he determined to get rid of it, so we carried basket after basket of the 'stuff' to the Newsroom stairs and tipped their contents on to the ground below' (Waterhouse 1954, pp.41-42)!

The only problem, as ever it seems with geological material, was the subsequent treatment of these collections. When the Smallbrook Ringway was being built as part of post Second World War road improvements the Institute building with the collections was demolished. The collection was apparently 'just thrown out' and a number of good but poorly labelled specimens, later found to include one figured specimen, were rescued by Dr G.R. Coope who passed them to Birmingham University's Geological Museum (Strachan 1979, p.317). The figured specimen was of the crustacean described by Salter (1861, p.531, fig.7) as Anthrapalaemon dubius (Prestwich). It was one of two specimens, of which electrotype casts had been given to the Geological Society of London when their discoverer William Ick FGS briefly first described them (Ick 1845, p.199). It was one of these which Salter had illustrated. Dr William Ick (1800-1844; see Bagnell 1891, p.499) was the first curator of the old Philosophical Institution and his two original specimens had clearly passed into its Museum on his death.

POSTSCRIPT

It is hoped these notes will make researchers aware of the material preserved amongst the Jones of Shackerley archive at the Shropshire Record Office. If they also generate more information on the fates of the Cooper-Jones, Stowe, and Midland Institute collections, such would be a valuable additional bonus.

ACKNOWLEDGEMENTS

Grateful thanks are due to Marian Halford - county archivist - and Ruth Bagley (who first brought the Jones archive to my attention) for their help with material in their care. Miss J.M. Aspden of the Royal College of Surgeons, London provided much data on the surgeons Cooper and Stowe. Material from the Jones archive is quoted by kind permission of the Shropshire County Archivist.

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EXHIBITION REVIEW

MR WOOD'S FOSSILS - A TRAVELLING EXHIBITION

'Mr Wood's Fossils' has been prepared by the Hunterian Museum of Glasgow University with assistance from the British Museum (Natural History); it is sponsored by The Royal Bank of Scotland with support from the Nature Conservancy Council and the Scottish Museums Council. The exhibition is touring museums in Scotland, England and Wales, 1986-1988 (for itinerary, see Geol. Curator, 4, pp.353-354).

'Specimens of enormous scientific interest which are amazingly beautiful' said Sir David Attenborough when he officially opened 'Mr Wood's Fossils' at Glasgow's Hunterian Museum in April 1986, underlining by his words and presence the significance of Stan Wood's remarkable palaeontological discoveries. Sir David, a fossil enthusiast himself, told the 300 plus people present at the opening that he had thought the 'heroic' period of palaeontology was in the past and over. 'I could not have been more wrong', he said, 'for Stan Wood is a hero, a dyed-in-the-wool palaeontological hero'.

'Mr Wood's Fossils' is about Stanley Purdie Wood, born in Edinburgh in 1939, and the exciting fossil finds he has made in Scotland since 1971. His more recent discoveries have significantly altered the story of evolution and of Carboniferous 'Life on Earth'. The exhibition is set out chronologically with respect to Stan's life and palaeontological discoveries. Themes used are: Meet Mr Wood; Fossil fishing, Edinburgh 1971-1972; Scotland the Grave (Aiming at Amphibians), Cowdenbeath 1974-1978; Suburban shark hunting, Bearsden 1981-1982; Bathgate Beasts 1984- , the world's oldest complete land amphibians; and A Future for the Past?

As you go through the exhibition you are struck by the unique and extraordinary collection of fossil 'firsts' on display. These include the world's oldest complete fully landgoing amphibians from near Bathgate; the world's oldest harvestman spider; a fine complete Carboniferous fossil shark from Bearsden; and the first reconstruction of the 2.5m long 'amphibian-crocodile' found near Cowdenbeath. Clearly aiming at introducing Mr Wood and his fossils to a wide audience, the exhibition works hard in its presentation to make the fossils 'come alive'. It successfully bridges the 340 million year generation gap between the fossils and ourselves by taking us back in time to a land that is both familiar and strange. That land is still Scotland but, through detailed reconstruction of the exotic habitats in which the animals lived, the exhibition conjures up a very different landscape and climate. For example, in the reconstruction of the area that is now the Glasgow suburb of Bearsden, we see the shark Stethacanthus, palaeoniscoid fishes and the shrimp Anthracophausia all living in shallow tropical seas more reminiscent of Bermuda than Scotland's largest city! At the same time the exhibition shows that the fossils, ancient as they are, provide a link with the present and have a place in today's world. Even the postcards on sale reinforce this message, albeit in a tongue-in-cheek way. One entitled 'Yesterday's Cod' shows a specimen of the palaeoniscoid fish Gonatodus among present day chips and newspaper. Another showing a 'punk' image of Stethacanthus, one of the Bearsden sharks, with its toothed 'brush' on its first dorsal fin, provides an image that everyone can relate to. It is this sort of touch that makes the exhibition so special.

A variety of methods are used to communicate with the visitor, including well-illustrated and clear poster-boards to guide you around the exhibition and interactive quizzes which make sure you're thinking about the evolutionary relationships of what you've seen. A quarter scale reconstruction of Crassigyrinus scoticus, an 'amphibian-crocodile' over two metres long, helps to flesh-out some of the discoveries. A video entitled 'Stan, Stan the Fossils Man' and one showing 'sand-blaster' preparation of Bearsden sharks provide an interesting insight of Stan at work, both in the field and in the palaeontological laboratory. One part of the exhibition shows the treatment of fossil material from its collection, through preservation and conservation, to formal description, giving a nice collage of the 'nuts and bolts' of palaeontology. The end of the exhibition is marked by 'A Future for the Past?' with a cartoon audiovisual concerned with conservation and concomitant problems.

The fossils themselves display the enormous scientific interest and amazing beauty of which Sir David spoke in his opening address. Yet again Stan Wood's presence is felt. Some of the exhibition's specimen labels are not the traditional format labels of museum collections (a 'keystone' of curation nonetheless), but personalised notes and comments that are both comprehensive and clear. You get the impression you are reading directly from Stan Wood's field notebook.

A tribute to both Stan Wood and his fossils, 'Mr Wood's Fossils' will prove to be one of the most significant palaeontological exhibitions of the century. The press and media coverage Stan Wood and this exhibition have received means that palaeontology must be on to a winner! Now Stan Wood, our 'local hero' could become an international star if possible plans for the exhibition to go to the USA come about. Whatever your geological interests, don't miss the chance to visit this exhibition!

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Typescript received 25 July 1986

LETTERS TO THE EDITOR

Dear Editor,

THUMBS UP CAMPAIGN

Andrew Mathieson has expressed (Geol. Curator 4, p.329) understandable concern that the leaflet 'Rocks, Fossils and Minerals: how to make the best of your collection' does geology a disservice on at least two counts:

1. 'It does not demonstrate how specimens provide evidence for past life and environments.....'

2. It ignores the 'problems of geological site conservation brought on by over-collecting'.

For an educationalist who has had daily contact with young enthusiasts over many years, Andrew's stance depresses me and I fear would depress the infant geological tyro. We were faced with a genuine, and widespread need that was reflected in the experience of most of those serving on the GCG Committee three years ago when the idea was first discussed. The problem was simply this: what to do about the stream of small children who bring bags of assorted geological goodies to the enquiry desks of museums up and down the country every year? The principle on which the leaflet is based is that we should build on and try to channel the collecting instinct, not stifle it and either kill the child's enthusiasm or drive the child away from the museum and its influence.

The new orthodoxy which preaches that all amateur collecting per se should be discouraged is on dangerous ground morally and risks the alienation of the children that museums are there to serve. Such an approach is far removed from the NCC's GCR thinking and indeed Bill Wimbledon was one of those who gave the draft leaflet the thumbs up! This is, no doubt, in part due to the fact that the opening salvo of the leaflet states 'never collect from cliffs or quarry walls .... collect from fallen blocks and waste tips'. Hardly an incitement to the despoilation of the scientific heritage.

It is a leaflet and not a book. For that reason we quite deliberately omitted all the fascinating things to which a study of fossils, rocks and minerals may lead. But we do repeatedly direct the child to the local museum for further information (which could include alternative safe sites from local record centres, interpretation etc.) and to literature that will lead to an understanding of what the child has found.

Yours faithfully,

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Dear Editor,

At the risk of preaching to the converted (I really want to reach non-geological curators of museums with geological collections) I would like to support Bob King's comments regarding unscrupulous mineral collectors (Geol. Curator, 4, p.330).

Further, I think that custodians of material held in the public domain should also beware of offers to 'sort out' their collections made by academics seeking research material. Though their motives might (and probably would) be genuinely altruistic, their approach would almost certainly not be that of a trained and experienced curator. A rapid sort through in the course of a few days could not possibly provide a balanced view of a large and neglected collection. A recommendation to dispose of material after such a cursory examination would seem (to me, at any rate) irresponsible in the extreme.

Local museum collections are not simply receptacles for high quality and/or rare specimens. They also reflect human social and scientific history. To this end they will provide a very unbalanced viewpoint if 'experts' have been allowed to dispose of everything which appeared to them 'not worth keeping'.

It must be remembered that academic expertise does not necessarily equal curatorship, although an offer of help, made by a respectable academic, might seem tempting indeed to a non-geological curator with a small mountain of 'dirty stones' in the proverbial basement. However, one would like to think that curators faced with such problems would, as a matter of course, request advice from GCG before committing irrevocable action. The availability of such an advisory service cannot be brought too often before the attention of the rest of the profession.

Yours faithfully

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Dear Editor,

Your readers will be interested to hear the background to my short note in the Bulletin of Horsham Museum Society, no.36 (September 1985), which was reprinted in the Geological Curator, vol.4, p.300, under the title 'One way to dig a dinosaur'.

Rudgwick Brickworks do not normally allow collectors to enter their pit, although I and Museum Society members had been there on previous occasions. Only the day before the dinosaur bones were discovered I was informed by telephone that a visit to the clay pit which I was to have led was not possible, owing to expansion work being carried out, and that while I would be permitted access people unknown to the staff would not be allowed to visit. I was given permission to take essential photographs of the bones in situ before excavation, but this was on the understanding that photography would be limited to just that. My Bulletin article was written for the benefit of Museum Society members and workers at the brickworks, as a 'thankyou' to those people who gave up their time to help with the excavation.

Rudgwick is a small pit producing high quality bricks to special orders so they hire a sub-contractor to excavate clay for a short period during mid summer. When we were informed of the find on the Tuesday morning the curator, Elizabeth Kelly, was unable to leave the museum at that time; we were therefore grateful that staff at the brickworks were able to stay after hours so we could go there in the evening.

It was obvious that if any more finds were there they would probably be destroyed the first thing the next day as the most likely place for them to be was in the next strip to be removed - although there were no signs at all to help in tracing them.

I was unable to go there the following day owing to lack of transport and thought that by the time I was able to get there on Thursday it would merely be a case of searching through already excavated clay. Remember that the original find had been moved and deposited by the excavator, and for all any one knew the rest of it could already have been destroyed. This original find was only spotted because the driver stopped to speak to Mr Morris Zdrzalek, who as soon as he saw it reported it to Horsham Museum

I was not expecting to be permitted to collect the material for more than the one day and was surprised to find that we were able to continue until the Sunday. If I had made the find public at that stage the works might well have objected and perhaps not have reported any more finds. This was not an ideal situation, but I tried to make the best of it.

I was pleased to find that the driver had avoided the strip we hoped to look at and was working in another area. However, we could find no clues to further material, and neither could we probe the grey clay (which was harder than usual because of the hot weather). In desperation I gave the driver permission to remove the strip half an inch at a time while we watched intently. As soon as I saw the dark stain appearing I halted the machine and we were able to expose several undamaged bones. Rain the next day enabled us to probe the area thoroughly on the following Sunday and find three more bones which were slightly lower down in the clay. We also found some small bits in the spoil heap. Several members of the brick works staff gave up their Sunday to work under my direction.

I was in error in my article when I described some finds from Rudgwick as scales from the skin; they were of course the small fish teeth that are common in the Paludina limestone and in the Hasting's Beds at Cliff End.

I visited the brickworks again on 11 December 1986 to collect some fragments found by the men after they had been washed out of the spoil heap. There were several fragments of a lower jaw with part of the tooth sockets (no teeth, however); also some waterworn scales of Lepidotes mantelli and two fish coprolites. After the first finds were collected in 1985, the directors of the brickworks gave me permission to come again if necessary. I hope if anything else is found, and if it is another important find, that specialists would be permitted to come and remove them - a situation I would much prefer.

Yours faithfully,

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LOST AND FOUND

COMPILED BY DONALD I. STEWARD AND HUGH S. TORRENS

Abbreviations

AGASSIZ - Agassiz, J.L.R. 1844-1845. Monographie des Poissons Fossiles du Vieux Gres Rouge ou Systeme Devonian (Old Red Sandstone) des Iles Britanniques et de Russia. Neuchatel.
ANDREWS - Andrews, S.M. 1982. The discovery of fossil fishes in Scotland up to 1845. Royal Scottish Museum, Edinburgh.
BURKE - Peerage or LG (Landed Gentry), refer to the relevant edition of these works.
CHALMERS-HUNT - Chalmers-Hunt, J.M. 1976. Natural history auctions 1700-1972. Sotheby Parke Bernet, London.
CLEEVELY - Cleevely, R.J. 1983. World palaeontological collections. British Museum (Natural History) and Mansell Publishing Company, London.
DNB - Dictionary of national biography.
GCG - Newsletter of the Geological Curators' Group, continued as The Geological Curator.
LF - 'Lost and Found' reference number in GCG.
MURCHISON - Murchison, R.I. 1839. The Silurian System. John Murray, London.

4 Benjamin Heywood BRIGHT (1787-1843)

CLEEVELY, p.65
GCG, 1(1), 18; 2(3), 126-127; 3(4), 238
MURCHISON, pp.414, 626

Murchison (p.626) alluded to 'the rich collection of Mr. Benjamin Bright' and (p.414) 'By far the greater part of these choice specimens [Wenlock fossils] have been collected by Mr. Benjamin Bright in the quarries upon the estate of his father at Brand Lodge'. The Murchison subscribers address was given as 'Bright, Benjamin Heywood, Esq., FGS, &c., Stone Buildings, Lincoln's Inn'. Figured specimens previously sought, and via the LF columns (see GCG entries above), have not yet been found, but we live in hope (see Fig.1)! It is possible that a search of the Malvern Museum and the (former?) Malvern College collections may produce some results.

55 Francis DOWNING (1777-1857) and Mrs. DOWNING

CLEEVELY, p.105
GCG, 2(3), 125-126; 2(6), 352; 2(9&10), 614; 3(4), 238-241
MURCHISON, p.485

It has already been recorded in the LF columns that Mrs. Downing provided fossil material figured by Murchison, whilst it was her husband 'My kind friend Mr Downing of the Priory [Dudley], to whom I am above all other persons indebted for an acquaintance with the structure of the Dudley district' (p.485) whose job as a mining agent gave him a working knowledge of the geology of Dudley. Further figured specimens may be at Birmingham University Museum as the collection of William Mathews (1828-1901) housed there contains original Downing material (GCG, 2(6), 352) (see Fig.2).

56 Henry William INWOOD (1794-1843)

CHALMERS-HUNT, pp.83, 179
GCG, 2(3), 126; 2(9&10), 614

We have already sought crinoids figured by Murchison (1839) in The Silurian System from the collection of H.W. Inwood (GCG, 2(3), p.126), and then suggested the possibility that the fossil collector was the same man as the London based architect Henry William Inwood (1794-1843) of the DNB, who is known as a collector of antiquities.

This is made almost certain because the architect can be recorded as a collector of natural history specimens, as becomes clear from a letter he wrote on 9 July 1834 from 5 Southampton Place, Euston Square, London to John Thomas Hope MP (1761-1854), father of F.W. Hope (1792-1862) the entomologist. In this Inwood wrote on the subject of the scarab beetle (Ateuchus sacer), revered and reproduced as gems by the ancient Egyptians. Inwood sought information for his study, of which only two parts were published in 1834, 'Of the Resources of Design in the Architecture of Greece, Egypt and other countries obtained by ....studies ....from Nature', in which he drew parallels between the fluting of Doric columns and the formation of certain shells. In this letter (preserved in the Hope MSS, Entomology Library, University Museum, Oxford), he wrote 'I purchased the series [of scarabs] in Mr [Adrian Hardy] Haworth's collection [auctioned in June-July 1834 (Chalmers-Hunt, p.83)] and some from Mr. [Rev. Lansdown] Guilding's [FLS, FGS, FZS; 1797-1833] ... but I have not yet commenced my plate on them ....May I presume to submit to you that I am only as an Architect and Antiquarian applying myself to such parts of Entomology as illustrate the researches I am now preparing for publication'. It becomes clear from this letter that Inwood also saw in the mineral Kingdom inspiration for all the 'most beautiful examples of all the geometrical forms as well as of the pyramids and obelisks'.

Similar inspiration must have come from the world of fossils and Inwood's fine collection of these was sold at auction between his death in 1843 and 1863 (GCG, 2(9&10), p.614). No sale catalogue has yet been traced (Chalmers-Hunt, p.179).

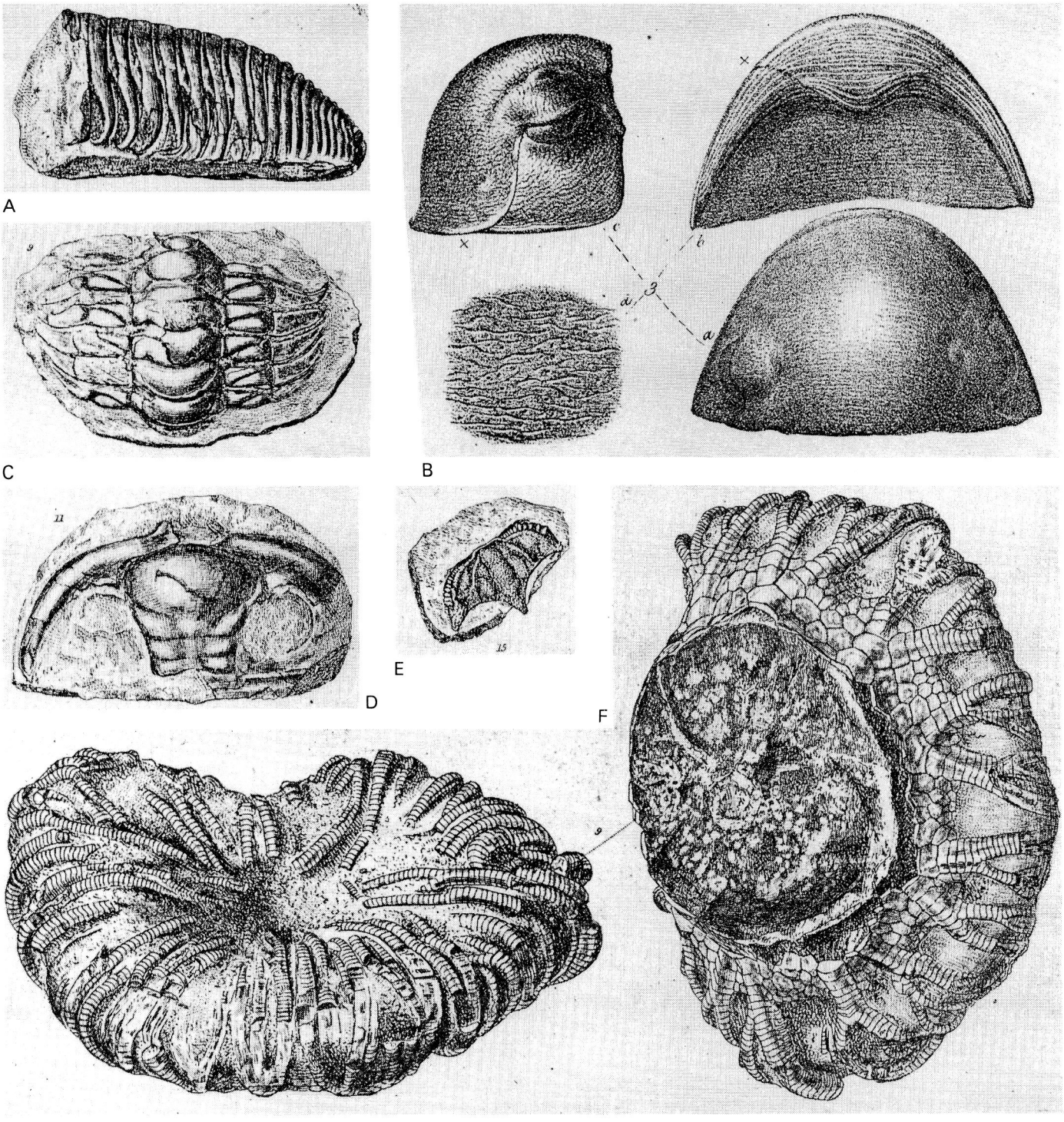


Fig.1. Specimens figured by Murchison (1839) in The Silurian System, provided by Bright. A, Pl. 7, fig.2, Homalonotus Knightii, Upper Ludlow, Malverns/Ludlow. B, Pl.7 bis, fig.3, Bumastus Barriensis, Wenlock Lst., Malverns. C, Pl.14, fig.9, Paradoxides bimucronatus, Wenlock Lst., Malverns. D, Pl.14, fig.11, Asaphus longi-caudatus, Wenlock Shale, Malverns. E, Pl.14, fig.15, Acidaspis Brightii, Wenlock Lst., Malverns/Dudley. F, Pl.17, fig.9, Actinocrinites expansus, Wenlock Lst., Dudley. Reproduced at approximately original publication size.

127 John Towry BURGON (c.1789-1870) and John Alfred BURGON (?-1871)

GCG, 3(4), 248-249; 3(5), 323; 3(6), 397

H.S.T. writes:

'In previous LF 127 notes we tried to unravel the story of the collections of J.T. and J.A. Burgon. Accidental discoveries whilst looking for other unrelated material have shed new light on these two which seems worth putting on record.

The Staffordshire Advertiser (17 December 1842) recorded that J.T. Burgon, wholesale hardwareman of Bucklersbury, had to surrender to the Court of Commissioners in Bankruptcy on 21 December 1842. Despite the dividend announced for his creditors on 21 August of

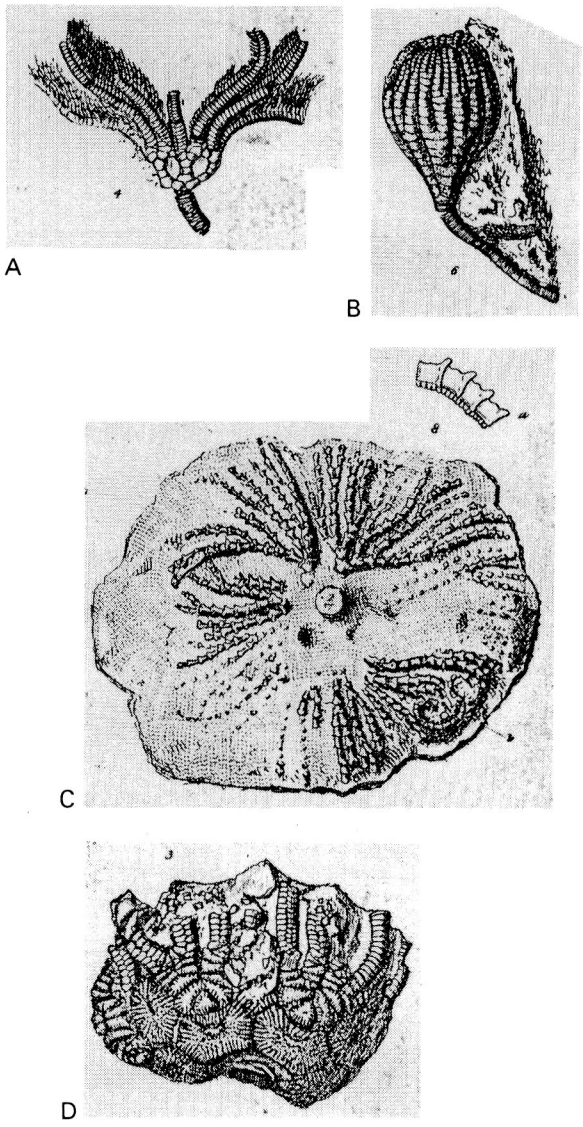


Fig.2. Specimens figured by Murchison (1839) in The Silurian System, provided by the Downings. A, Pl.17, fig.4, Dimerocrinites decadactylus, Wenlock Lst., Dudley. B, Pl.17, fig.6, Cyathocrinites pyriformis, Wenlock Lst., Dudley. C, Pl.17, fig.8, Actinocrinites arthriticus, Wenlock Lst., Dudley. D, Pl.18, fig.3, Marsupiocrinites coelatus, Wenlock Lst., Dudley. Reproduced at approximately original publication size.

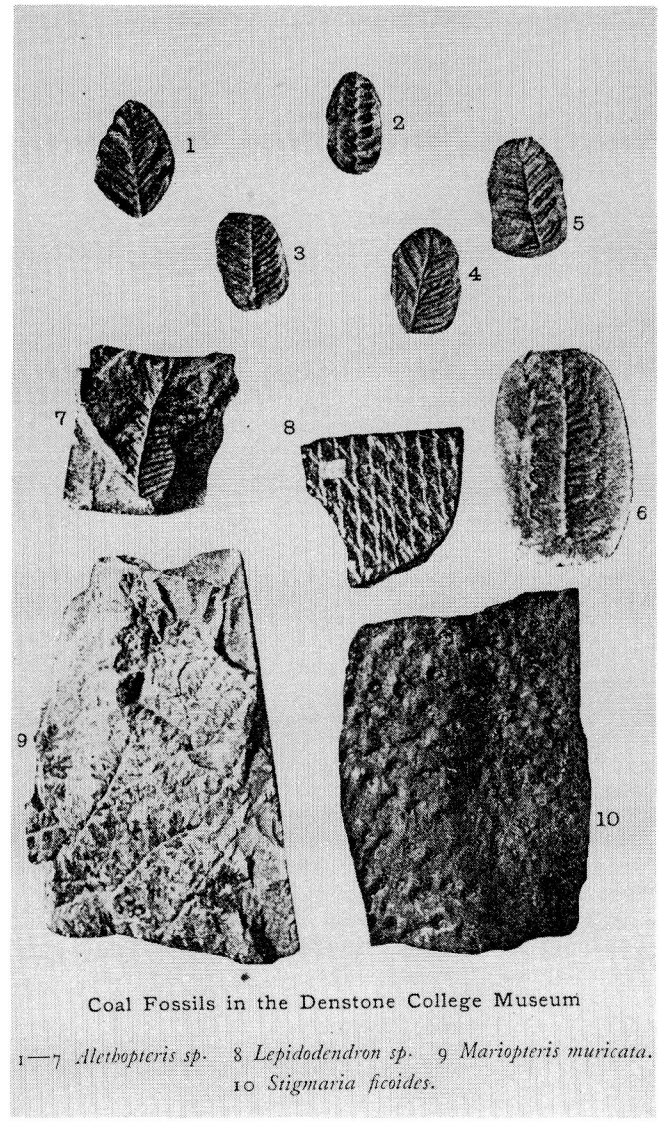


Fig.3. Some Denstone College fossils; from Smith, W.B. 1915, Cambridge county geographies: Staffordshire, p.34. Cambridge University Press. (Walter Bernard Smith was the Senior Science Master at Denstone College; the fossils illustrated are not referred to in the text.)

the following year (Staffordshire Advertiser 5 August 1843) this bankruptcy must have affected both his collecting pursuits and his scientific standing thereafter. The Times (21 January 1870, p.1) recorded his death 'on the 19th. January at 2 Claremont Terrace, Hackney late of 35 Bucklersbury, City [of London] in the 81st. year of his age'. This gives his date of birth as c.1789 and adds further, if circumstantial, evidence that he must have been a younger brother of the Thomas Burgon (1797-1858) mentioned in GCG 3(4), p.249.

John Alfred Burgon was the only member of the Burgon family to have been elected FGS (John Thackray, pers. comm.), becoming so on 13 April 1836. His collection of fossils in 1838 was noted in GCG 3(5), p.323. Since his City address was the same as J.T. Burgon's, and from what follows below, we must assume he was a son of J.T. Burgon. JAB's death was reported to the Council of the Geological Society on 21 February 1872, and is likely to have occurred in 1871 and not, as we reported earlier (GCG 3(6), p.397), in 1872. From some of the sponsors of his election as FGS - Edward Turner (1798-1837; first professor of chemistry and lecturer in geology at University College, London) and Robert Edmund Grant (1793-1874; first professor of zoology and comparative anatomy also at the University College) - we must assume J.A. Burgon was one of the first geology students at that college.'

161 DENSTONE COLLEGE Collection

GCG, 4(5), 293-294

Tom Sharpe (Dept. of Geology, National Museum of Wales, Cathays Park, Cardiff CF1 3NP) writes:

'It may be of interest to record that the NMW acquired several specimens from the Cyril Brett mentioned in connection with Denstone College (see also Fig.3). The first acquisition in 1923 from 'Prof. Cyril Brett, Denstone College Museum, Staffs.' comprised six fossils from the Trias and six specimens of salt pseudomorphs from the Keuper Marl of Staffordshire, and the second in 1934 from 'Cyril Brett MA, 23 Lon-y-dail, Rhiwbina', comprised gem gravel (sapphire and garnet) from Butte, Montana, USA.'

169 Figured specimens from 'The Silurian System' (Murchison 1839)

GCG, 4(6), 347
MURCHISON, p.702

Further details of our original request [LF 169] for information about the figured specimens still being sought by J.D.D. Smith (International Commission on Zoological Nomenclature, BM(NH)) have here been subdivided, for ease of reference, into separate LF entries under the names of the collectors associated with individual 'missing' specimens; the listing of these, in their LF number order, is as follows:

LF 4 BRIGHT, Benjamin Heywood: GCG, 1(1), 18; 2(3), 126-127; 3(4), 238.

LF 54 MURCHISON, Roderick Impey: GCG, 2(3), 125.

LF 55 DOWNING, Francis, and Mrs: GCG, 2(3), 125-126; 2(6), 352; 2(9&10), 614; 3(4), 238-241.

LF 56 INWOOD, H.W.: GCG, 2(3), 126; 2(9&10), 614.

LF180 BIDDULPH, Ormus

LF181 BOWERBANK, James Scott

LF182 CARTWRIGHT, [Cornelius]

LF183 EVANS, W[illiam] R[owland]

LF184 GOODHALL, H[enry] H[umphreys]

LF185 HERSCHEL, Sir John

LF186 LEWIS, Rev. Thomas T[aylor]

LF187 MALCOLMSON, John Grant

LF188 MARTIN, John

LF189 OLLIVANT, Rev. Alfred

LF190 STOKES, Charles

LF191 STRICKLAND, Hugh Edwin

It has not been possible to attribute six of the figured crinoid specimens to particular collections, only that they must be from the collections of either Bright, Murchison or Inwood. These are reproduced here as Fig.4.

174 Rev. E[dmund] JERMYN [1845-1925]

Michael A. Taylor (Keeper of Natural Sciences, Museum and Art Gallery, George Street, Perth PH1 5LB) writes:

'In 1895 the museum of Trinity College, Glenalmond near Perth received 'a large collection of fossils, minerals and rocks from the Rev. E. Jermyn'. This donation was followed in 1900 by a 'nearly complete Ichthyosaurus from the Blue Lias of Somerset'. None of these donations are identifiable in the surviving geological material from the school museum which passed on to Perth Museum and Art Gallery last year. Any information about Rev. E. Jermyn and, in particular, the fate of the ichthyosaur would be most welcome. There are no indications of the size or state of preparation of the latter.'

H.S.T. Writes:

'The donor of this collection is the Rev. Edmund Jermyn (1845-1925). He attended Westminster School in whose school record (Barker and Stenning 1928, pp.515-516) he is recorded thus:

Jermyn, Edmund, eldest son of Hugh Willoughby Jermyn [who also attended Westminster] by his first wife; b. Oct.17, 1845; adm. Oct.1, 1858; elected to Ch. Ch. Oxon. 1864, matric. May 18, 1864; shot for the Chancellor's Challenge Plate at Wimbledon against Cambridge 1868; Burdett Coutts Scholar 1870; B.A. 1869; M.A. 1871; ordained 1870; Curate of St. Paul's, Oxford, 1870-2; S.P.G. [Society for the Promotion of the Gospel?] Secretary at Madras 1873-4; Chaplain on the Bengal Ecclesiastical Establishment 1875-94; Rector of Newenden, Kent, 1894-7; Vicar of Helsby, Cheshire, 1897-1903; Rector of Croughton, Northants, 1903-12; m. 1st, Feb.3, 1873, Katherine, daughter of Lieut.-Col. Joseph Chambers, of Oxford; 2nd, Oct.8, 1878, Constance Barre, daughter of Charles Paget Carmichael, of Hove, Sussex; d. April 8, 1925.

The most significant item recorded here is that he was a Burdett-Coutts Scholar at Oxford University in 1870. These had been endowed in 1861 as 'two scholarships for the study of geology and of natural science as bearing on geology each of an annual value of about £115 and tenable for two years'. They had their origin in a donation from the banker and philanthropist Angela Burdett-Coutts (1814-1906) (see DNB 1901-1911, p.262). She at the same time purchased the Devonian fossil collection of her scientific mentor William Pengelly (1812-1894) and presented that to the Oxford University Museum in 1860 (Pengelly 1897, p.93).

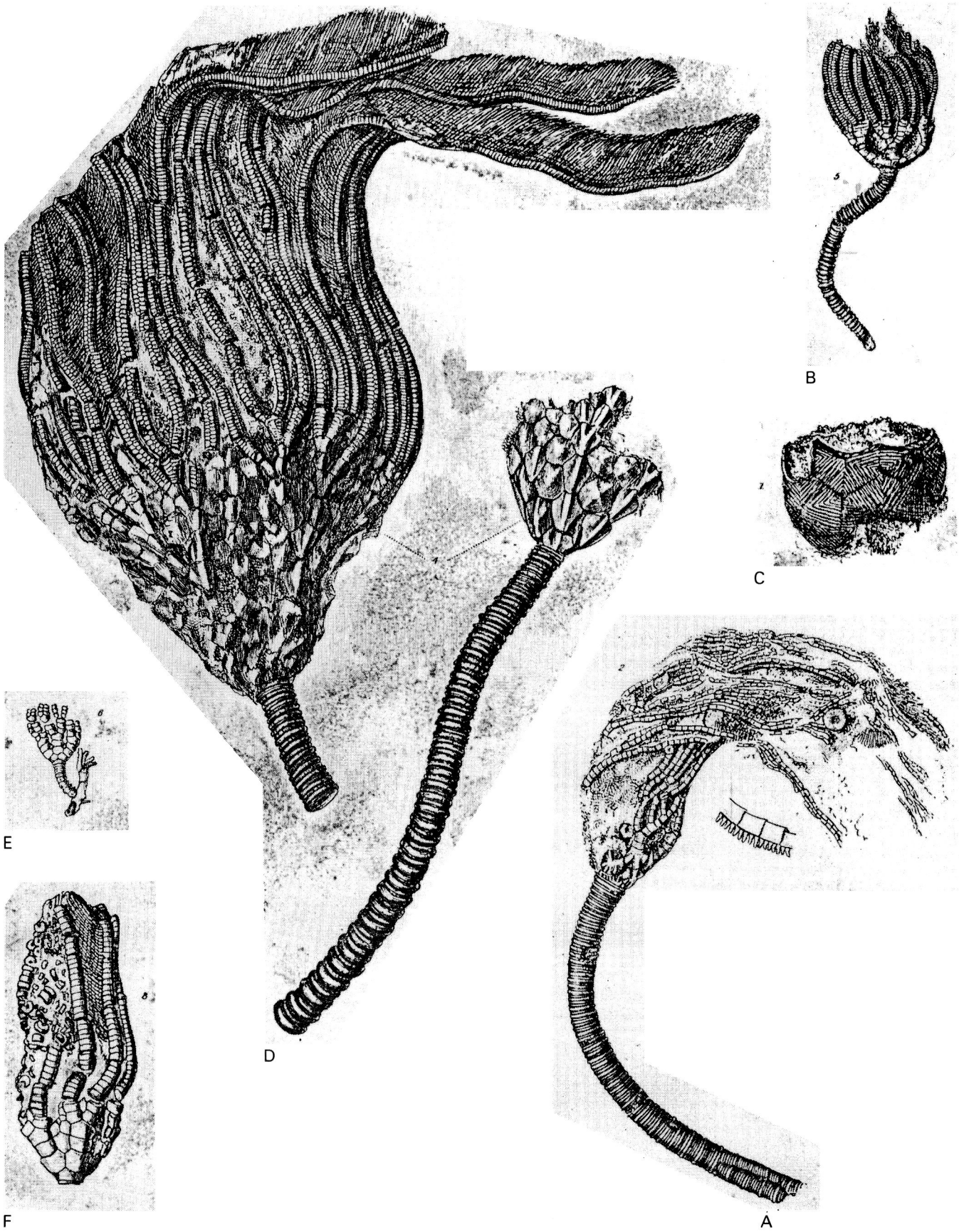


Fig.4. 'Missing' crinoids, figured by Murchison in The Silurian System (1839). A, Pl.17, fig.2, Cyathocrinites capillaris, Wenlock Lst., Wenlock/Dudley. B, Pl.17, fig.5, Dimerocrinites decadactylus, Wenlock Lst., Dudley. C, Pl.18, fig.1, Cyathocrinites rugosus, Wenlock Lst., Dudley. D, Pl.18, fig.4, Actinocrinites moniliformis, Wenlock Lst., Dudley. E, Pl.18, fig.6, Cyathocrinites tuberculatus, Wenlock Lst., Dudley. F, Pl.18, fig.8, Actinocrinites moniliformis, Wenlock Lst., Dudley. Reproduced at approximately original publication size.

Jermyn's geological work while a Burdett-Coutts Scholar has not been examined but this may well explain the origin of much of the donations of 1895-1900 to Trinity College, Glenalmond. However, the dates of the donation have a possible double significance. First Edmund's two children, E.A. Jermyn (1881-1908) and L.A.S. Jermyn (1886-fl.1955), were then attending the College (1893-1900 and 1897-1905 respectively; Quinton 1955) and this alone may explain how the Jermyn collection came to be donated.

On the other hand, Edmund's father, Hugh Willoughby Jermyn (1820-1903) (for whom see Barker and Stenning 1928, vol.1, p.516; Venn 1947, p.569) was Primate of Scotland, 1886-1901, and would have had close connections with Glenalmond, the 'official' episcopalian college for Scotland. H.W. Jermyn had been Rector of Nettlecombe in Somerset, 1858-1870, while his son was studying geology at Oxford, and this may explain the origin of the nearly complete Somerset ichthyosaur donated in 1900. If material from the father's collection was included it would be worth investigating if this Jermyn collection could also have included material from earlier members of the family whose relations are shown below:

Peter Jermyn
(solicitor of Halesworth, Suffolk)

Peter (dates?) — Henry (1787-1820)

George Bitton (1789-1857)

Hugh Willoughby (1820-1903)

Edmund (1845-1925)

Henry Jermyn above of Sibton Abbey, Suffolk, Edmund's great-grand-uncle, was a subscriber to William Smith's (1769-1839) great geological map of 1815 and a personal friend of Smith from about 1813 (Phillips 1844, p.73). His collections of Suffolk antiquities came to the British Museum (Venn 1947, p.569) so it is at least possible he was also a collector in the field of geology.'

Barker, G.F.R. and Stenning, A.H. 1928. The Record of Old Westminsters, 2 vols. Chiswick Press, London.

Pengelly, H. 1897. A memoir of William Pengelly of Torquay FRS, geologist. John Murray, London.

Phillips, J. 1844. Memoirs of William Smith LL.D. John Murray, London.

Quinton, G.St. 1955. The Glenalmond Register: a record of all those who have entered Trinity College, Glenalmond, 1847-1954 (2nd. ed.). Constable, Edinburgh.

Venn, J.A. 1947. Alumni Cantabrigienses, part II, 1752-1900, vol.III. Cambridge University Press.

175 Abingdon's Arkell Ammonites

See CING 5 (GCG, 4(6), 350)

Simon Knell (Travelling Geology Curator, c/o Geological Museum, Exhibition Road, London SW7 2DE) writes:

'Thanks to the efforts of Nancy Hood of Oxfordshire County Museum Service, and Philip Powell, at Oxford University Museum, many of the ammonites previously at Abingdon Museum which were associated with W.J. Arkell have now been transferred on permanent loan to OUM. A number of these specimens were used by Arkell in his A Monograph of the English Corallian Ammonites Palaeontogr. Soc. Lond. (1939-1943). The following is a list of those transferred, with the OUM number each has been allocated:

J47140 a, b Perisphinctes cymatophorus (S.S. Buckman), figd. pl.37, fig.2a, b; p.169.
J47141 a, b P. cymatophorus (S.S. Buckman), not figd. but labelled by Arkell.
J47142 a, b, c Aspidoceras akantheen S.S. Buckman, figd. pl.44, fig.1a, b; p.206.
J47143 A. akantheen S.S. Buckman, not figd. but labelled by Arkell.
J47144 Cardioceras moderatum (S.S. Buckman), figd. pl.55, fig.3a, b; p.251.
J47145 C. moderatum (S.S. Buckman), not figd. but labelled by Arkell.
J47146 Goliathiceras rhodesi Arkell, figd. pl.55, fig.5a, b; p.253.
J47147 G. rhodesi Arkell, mentioned p.254.
J47148 G. microtrypa S. S. Buckman, figd. pl.58, fig. 2a, b; p.262.
J47149 G. microtrypa S.S. Buckman, figd. pl.58, fig.3.

Five ammonites associated with W.J. Arkell at Abingdon Museum remain to be found. Three of these are only given brief mention and would be difficult to isolate. The remaining two are of special importance and are certainly not in the collections at Abingdon. The missing specimens are:

Aspidoceras crebricostis Arkell, mentioned p.206.

Cardioceras serrigerum (S.S. Buckman), described p.226.

C. dorsale S.S. Buckman var. subdorsale Arkell, figd. pl.53, fig.2a, b; described p.250.

Goliathiceras rhodesi Arkell, Holotype, figd. pl.55, fig.4a-e [reproduced herein as Fig.5]; described p.253.

G. elegans Arkell, mentioned p.263.

Any information about the possible fate of these specimens would be gratefully received.'

176 George F. MATTHEW Collection

Randall F. Miller (Assistant Curator of Geology, The New Brunswick Museum, 277

Fig.5. Holotype of Goliathiceras rhodesi Arkell. From Arkell, W.J. 1942. The Ammonites of the English Corallian beds. Palaeontogr. Soc. (Monogr.), part 8, pl.55, fig.4a-e. Reproduced by permission of the Palaeontographical Society.

Douglas Avenue, Saint John, New Brunswick, Canada E2K 1E5) writes:

'Never really lost, rather just well travelled, a collection of invertebrate fossils dating from about 1880-1920 from the maritime provinces of Canada has found its way back to the New Brunswick Museum. The collection of G.F. Matthew, including many type specimens, was sent to B.F. Howell at Princeton University by Matthew's wife and son William following the elder Matthew's death in 1923. By good fortune and the generosity of Dr Ron Pickerill, University of New Brunswick, Fredericton, this collection has returned to Saint John where it was originally stored. Field notebooks, original manuscripts, maps, and letters accompany the collection.

In addition, type specimens of Carboniferous insects from 'Fern Ledges', Lancaster (Saint John), N.B. have been recovered from museum storage. This and other collections from the old Natural History Society of New Brunswick should soon be made available along with a type catalogue.'

177 William STOWE Collection

Hugh S. Torrens (Lower Mill Cottage, Furnace Lane, Madeley, Crewe CW3 9EU) writes:

'Two queries are raised in the article on Daniel Jones (GCG, 4(8),pp.493-501) relating to the fossil collecting of William Stowe of Buckingham. Firstly, mention is made of a 'fossil-rush' in 1856 at Tingewick, Buckinghamshire where brick-clay was being extracted; the response to a note in the Times (6 January 1857) was overwhelming and it would be interesting to collate specimens in museums which originated from this source. Secondly, the fate of Stowe's personal collection is also unrecorded; he died on 22 June 1860 in Buckingham and circumstantial evidence indicates that the collection remained in the family until at least 1871. Any information about either of these two points would be welcome.'

178 Daniel JONES Collection

Hugh S. Torrens (Lower Mill Cottage, Furnace Lane, Madeley, Crewe CW3 9EU) writes:

'The Daniel Jones/Richard Spooner Cooper collection (see GCG, 4(8) p.493) may not have been of high value in scientific terms, but it is of great interest because of the role it played in stimulating an unexpected career in geology. The fate of the collection (contained in a 50 drawer cabinet and illustrative of most geological formations) is uncertain, but it is possible that it passed to the Geological Museum of Birmingham University. Strachan (GCG 2(6), 309) records that the accession books are not very 'helpful' between 1900 and 1906 and then entries cease until after the First World War; this is the period when the collection may have arrived unrecorded. Any information to substantiate the fate of the collection would be gratefully received.'

179 Specimens from the wrecks of LA BOUSSOLE and L'ASTROLABE off Botany Bay, Queensland, Australia (La Pérouse Expedition 1785-1788)

Sue Turner (c/o Queensland Museum, Gregory Terrace, Fortitude Valley, Queensland, Australia 4006) writes:

'Mr Ron Coleman, curator of Maritime Archaeology, Queensland Museum, presented for identification by the Geology Section of the Museum a find from the hold of the wreck of one of the two ships which had carried the La Pérouse Expedition. The specimen was identified as a fossil bivalve, a rather poorly-preserved lamellibranch steinkern, coated with limonite, and, unfortunately, damaged in the hinge region; it is probably of Mesozoic age. The fossil is only one sample brought up from the scientific collections which must await retrieval until the next field season in the Solomons Group. The collections include fossils, rock samples, and a Recent shell collection. Naturally, no labels have survived the 200 years since the fateful night when La Boussole, La Pérouse's flagship, and L'Astrolabe, perished on the reefs of Vanikoro. However, the specimen is certainly one of the earliest collected from the Pacific region. It presumably came from somewhere on the expedition track, which included the western seaboard of North America, Kamchatka and Siberia, Japan, the Phillipines, Easter Island, and, the final port of call before the disappearance of the ships in March 1788, Botany Bay on the eastern shore of Australia.

Jean Francois de Galaup, comte de la Pérouse (1741-1788), was selected in 1783 to lead the scientific expedition organized by the ancien régime. The large-scale, comprehensive scientific survey, the plans of which were supervised by Louis XVI, was designed to visit the Pacific and Indian oceans. The French King, who had been fired by reading Cook's account of his trip, wished the survey to clear up all the remaining great mysteries of the 'South Seas', including those of the new Southern continent. After investigating the unknown coasts west of Cape Horn, and around the Pacific rim, La Pérouse was expected to survey the western and southern coasts of Australia. His expedition was well-equipped; La Pérouse was a careful investigator who aimed at perfection, and who was prepared to allow time for the achievement of his scientific goals, especially in natural history. At each location the scientists were sent ashore with time to conduct surveys in a detailed manner (Marchant 1982).

After his Pacific trip La Pérouse did not adhere to his orders, but sailed for the new British settlement at Botany Bay, which he had heard about en route. His ships approached the harbour on 24 January 1788, almost simultaneously with Captain Arthur Philip and the First Fleet. The sighting of ships half-panicked and then excited the settlers but before the French could put in adverse winds prevented their arrival and they did not reappear until 26 January. They were then escorted into Botany Bay where La Pérouse and his men spent February building a stockade, an observatory, and replacing two boats. His scientists spent their time 'botanizing, star-gazing and geologizing' (Eldershaw 1938). The French ships set sail again on 10 March and disappeared at sea.

The mystery of their loss was not solved until 1827, when Irish Captain Peter Dillon gathered information about a wreck and survivors at Vanikoro in the Santa Cruz Group (then New Hebrides). Dillon searched the area and discovered hard evidence of a shipwreck which was later confirmed in France as part of the La Pérouse expedition. Dumont d'Urville then went in search of relics and left a memorial on the spot.

Only in 1986 have the wrecks of the expedition been scientifically investigated and it seems probable that the geological collection comes from La Boussole. The specimens were undoubtedly collected by the scientist from La Boussole, M. de Lamanon, who was in charge of natural philosophy, mineralogy and meteorology. He notes in a letter sent early in the voyage to M. Condorcet, perpetual secretary to the French Academy of Sciences, that he and Abbé Monges were determining their respective limits as regards to mineralogy. The Abbé, who was expert in ornithology, microscopic animals and cryptogams, left the ship at Tenerife because of ill health. Thus the geological observations devolved upon de Lamanon, whose duties also included ichthyology, entomology, conchology, and magnetic observations. Other expedition scientists and naturalists included Dufresne and Father Receveur on L'Astrolabe.

The team from the Queensland Museum will be working on the wrecks for the next two or three years, depending on the availability of funds from private industry.'

Eldershaw, M.B. 1938. Philip of Australia. Angus and Robertson Publishers, (paperback edition 1977), London, Sydney, Melbourne, Singapore, Manilla, 367pp.
Marchant, L.R. 1982. France Australie, Artlook Books, Perth, xvi + 384pp.

180 Ormus BIDDULPH

BURKE, LG 1894, 1, p.148
MURCHISON, pp.414, 626

Murchison noted that 'Mr Ormus Biddulph has a small collection of fossils of the Wenlock limestone at Ledbury Park' (p.414); Mr Ormus Biddulph, 'whose cabinet has furnished other species for illustration of this work', found the figured specimen of Lituites? Biddulphii (p.626); and 'the park of Mr Biddulph' was at Ledbury (p.411). The list of subscribers includes: Biddulph, John, Esq., 14 New Street, Spring Gardens and Ledbury; and Biddulph, Rev. J., Amroth Castle, Tenby.

H.S.T. writes:

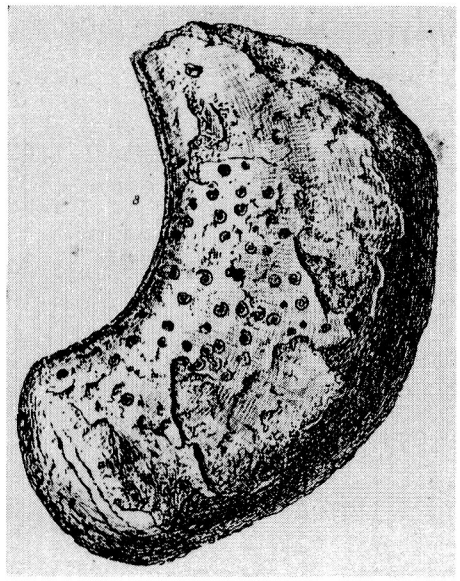


Fig.6. Specimen figured by Murchison (1839) in The Silurian System, provided by Biddulph. Pl.11, fig.8, Lituites Biddulphii, Lower Ludlow, Ledbury. Reproduced at approximately original publication size.

'The relationships between these three members of the Biddulph family are revealed in the pedigree published by Burke (LG 1894, 1, p.148). John Biddulph senior was born in 1768 and marrying in 1797 had, with six daughters, four sons who all attended Harrow School, namely: Robert (1801-1864); John (?-1881) - he of South Wales above; Francis Thomas; and Ormus, whose collection we seek. Ormus' nephew Michael, son of Robert, was elevated to the Peerage in 1903 as Baron Biddulph. His descendants still live at Ledbury and it would be worth investigating if they still possess this Biddulph collection.

However, my inadequate notes from a clearly too short visit to Worcester Museum record in the basement a specimen of Lituites Biddulphi Sowerby from Ledbury labelled 'O. Biddulph - Type'. The existence of this is confirmed by Rosemary Roden (in lit. to H.S.T. 5 December 1979). With the original figure here reproduced (Fig.6) we hope its status can be confirmed and details of when/if and what Biddulph collection reached Worcester properly confirmed.'

181 James Scott BOWERBANK (1797-1877)

CHALMERS-HUNT, p.103
CLEEVELY, p.63

Cleevely recorded that Bowerbank was a wealthy London distiller whose large collection of British fossils was used for his own research and by contemporary palaeontologists. On his retirement to St. Leonards-on-Sea, Sussex in May 1864 the collection was offered for sale to the BM(NH) but was eventually auctioned at J.C. Stevens in November-December 1865, when the BM(NH) purchased a large number of important

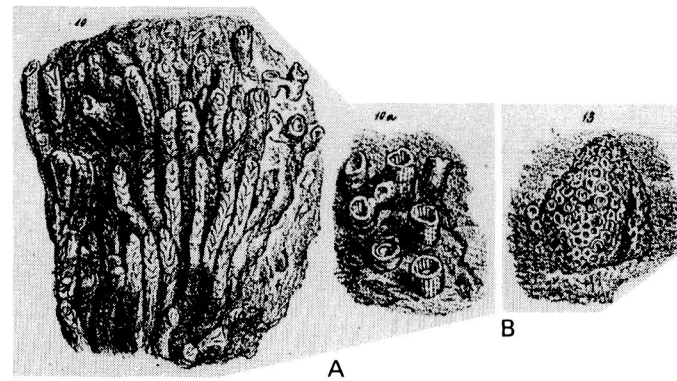


Fig.7. Specimens figured by Murchison (1839) in The Silurian System, provided by Bowerbank. A, Pl.15 bis, fig.10, 10a, Syringopora reticulata, Gleedon Hill, Wenlock. B, Pl.15 bis, fig.13, S. coespitosa, Wenlock Lst., Wenlock/ Woodhope. Reproduced at approximately original publication size.

specimens. A copy of the sale catalogue survives in the BM(NH) Palaeontology Library (Chalmers-Hunt) and this may shed light on the possible purchase of the sought figured corals from Murchison's (1839) The Silurian System (Fig.7). Some other specimens are with the BGS collections; Liverpool Museum also purchased 100 British fossils in 1865 but these were destroyed during the Second World War (see GCG 1(6), p.257).

182 [Cornelius] CARTWRIGHT (of Dudley) [?-1867/1868]

MURCHISON, pp.492, 498

Murchison paid tribute to the collection of local fossils possessed by a Mr Cartwright, an eminent surgeon of Dudley, and to his local geological knowledge (pp.492, 498); the subscribers list includes 'Cartwright, W.H., Esq., Dudley', but in Murchison's (1842) Inaugural Address...at...the Dudley and Midland Geological Society (published by R. and J.E. Taylor, London) three members of this Cartwright family are named:

1. Cornelius Cartwright Esq. of Dudley is listed as having donated or lent material to the embryonic Dudley Museum and as a first Trustee of the new Society; he was elected a Member of the Royal College of Surgeons of London 1804, was Mayor of Dudley 1821 and died 1867-1868 (Calendar of the Royal College of Surgeons 9 July 1868, p.260, Taylor and Francis, London; Hannah and Chandler 1949, p.192).

2. Rev. W.H. Cartwright, Vicar of Dudley from 1835 and of Compton Martin, Somerset from 1845; he is listed as the donor of a large coral to the new museum and as a life member.

3. Rev. Henry Antrobus Cartwright (c.1774-?), who graduated BA Oxon. 1795 and BD 1808, is listed as the donor of Wealden Reptilia from Sussex from his Trinity College, Oxford address; he was an annual

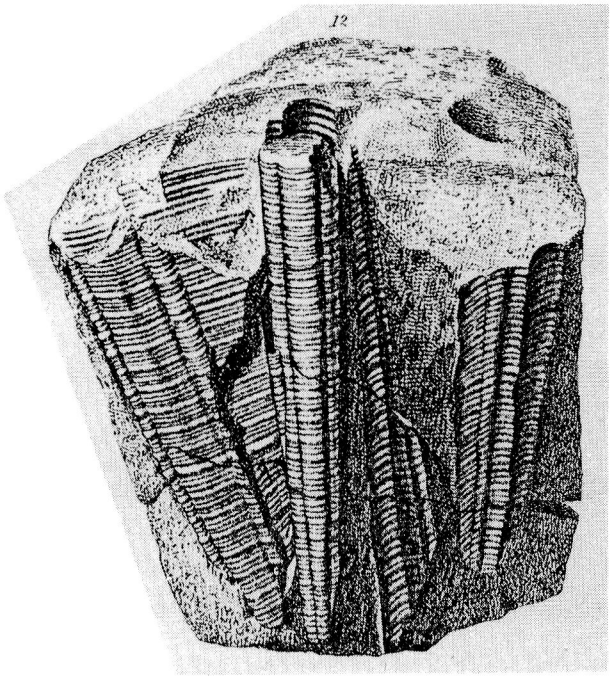


Fig.8. Specimen provided by Evans and figured in The Silurian System by Murchison (1839, pl.26, fig.12) as Cophinus dubius, Upper Ludlow, Ludford. Reproduced at approximately original publication size.

subscriber to the Dudley Society and was the son of a former vicar of Dudley, Joseph.

From this it seems likely that the donor of the crinoid figured by Murchison (pl.17, fig.3, the original of Hypanthocrinites decorus, from the Cartwright collection) is Cornelius; the eminent surgeon, Robert Garner - who relied much on the Dudley Museum collection for his list of fossils of Staffordshire (Garner 1844, pp.446-467) - in describing the Silurian crinoids there, reported them to have come in part from Messrs. [Cornelius] Cartwright and [George] Bennet [of Himley] collection. Garner further reprints (pp.456-461) a report on these crinoids from the Report of the Dudley and Midland Geological Society of 1843. This does not seem to have been located (Cutler 1981, p.4) but may shed additional light on the figured crinoids being sought (Fig.3). J.D.D. Smith (ICZN BM(NH)) further reports that Joan Round has recently located the original of pl.17, fig.3 above at Dudley Museum. This confirms that the Cornelius Cartwright collection is, in part at least, at Dudley.

Cutler, A. 1981. A short history of the Dudley and Midland Geological Societies. Black Country Geologist, 1, 1-21.

Garner, R. 1844. Natural History in the County of Stafford. Van Voorst, London.

Hannah, G. and Chandler, I.C. 1949. Dudley as it was and as it is today. Batsford, London.

183 W[illiam] R[owland] EVANS [1810-1842]

BURKE, as listed
CLEEVELY, p.114
MURCHISON, pp.212. 554

'My young friend Mr Evans of Kingsland' (p.554) and 'my zealous young friend Mr R.W. Evans' (p.212) are two of the descriptions given by Murchison in referring to the excavation of the cavern at Ippikin's Rock, SW of Wenlock. The entry by Cleevely for Evans, W.R. is 'London, IGS. Pleistocene of Ippikins Cave, Kingsland (1836); Ludlow from Shropshire (1839) presented to the Geological Society'. Thackray (1979, p.193) pointed out that Murchison referred to R.W., W.R., Rev. W. and Rev. J. Evans at different places in his writings but that all seem to refer to this one William Rowland Evans who died at the tragically early age of 31 at Leamington Spa (Gent. Mag. NS 18 (1842), p.439). The Evans pedigree, published in Burke (LG 1952, p.772) shows the Kingsland Evans's and their connection with the Evans's of Eyton. Murchison (1853, p.16) much later reported 'I regret to say that some of the most curious fragments [from the Ludlow Bone Beds] published in the Silurian System which were found by the late Rev. R.W. [sic] Evans and beautifully arranged on cards by that gentleman, are nowhere to be found'. Thackray (1979, p.193) pointed out that some of these are preserved at Neuchatel. See Fig.8.

Murchison, R.I. 1853. On some of the remains in the Bone Bed of the Upper Ludlow Rock. Proc. geol. Soc. Lond. 9, 16-17.

Thackray, J.C. 1979. T.T. Lewis and Murchison's Silurian System. Trans. Woolhope Nat. Fld Club, 42, 186-193.

184 H[enry] H[umphreys] GOODHALL (d.1836)

CHALMERS-HUNT, p.104
CLEEVELY, p.131
MURCHISON, subscribers list

Cleevely recorded that Goodhall, H.H., FGS was a collector of fossils who supplied specimens to contemporaries for research. His collection was sold by auction at Stevens in August 1866 and a copy of the sale catalogue, with some prices marked, survives in the BM(NH) Palaeontology Library (Chalmers-Hunt); the BM(NH) have many specimens from Goodhall used by the Sowerbys in their publications. The Murchison subscribers list refers to 'Goodhall, H.E., Esq., 22, Guildford Street (deceased)'. See Fig.9.

185 Sir John HERSCHEL (1792-1871)

MURCHISON, p.583

Murchison reported that Herschel was responsible for forwarding specimens from Cedarburg, 150 miles north of Cape Town, and 'collected by Dr. [later Sir Andrew] Smith

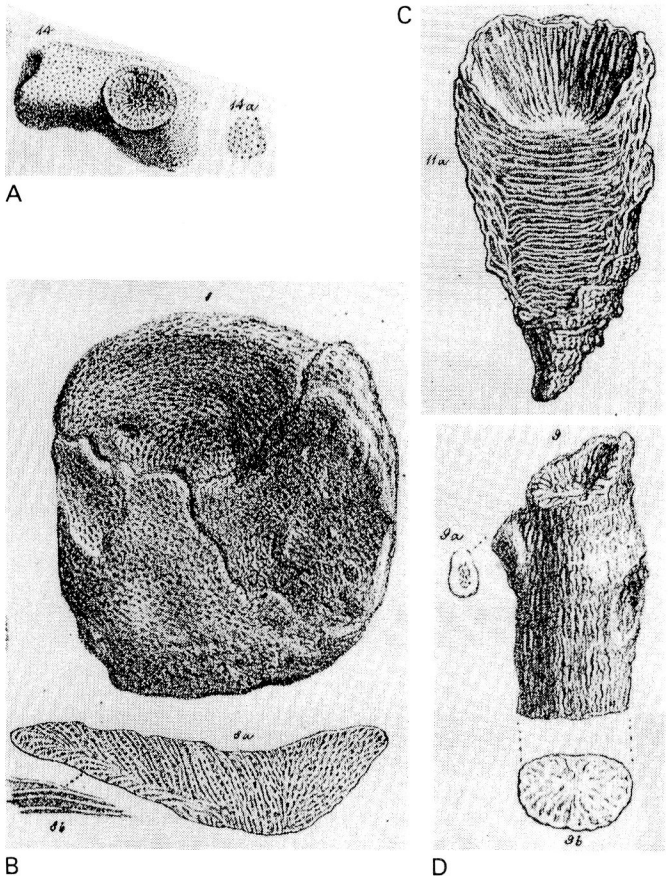


Fig.9. Specimens figured by Murchison (1839) in The Silurian System, provided by Goodhall. A, Pl.15, fig.14, 14a, Heteropora crassa, Wenlock Lst., Benthall Edge. B, Pl.15 bis, fig.8, 8a, Favosites spongites, Wenlock Lst., Benthall Edge. C, Pl.16, fig.11a, Cyathophyllum turbinatum, Wenlock Lst., ?loc. D, Pl.16 bis, fig.9, 9a, Cladocora sulcata, Wenlock Lst., Benthall Edge. Reproduced at approximately original publication size.

[1797-1872], the enterprising explorer of Southern Africa' (p.583). The untraced specimen Homalonotus Herschelii (Pl.7 bis, fig.2) [herein Fig.10) is referred to by Murchison - 'This is the only foreign specimen figured in this work, and I have selected it, because it marks the fact, that the eminent astronomer, after whom it is named, occupied a portion of the time he passed in Southern Africa in promoting geological investigation. The fossil was first sent to me by him'.

Sir John was based at the Cape of Good Hope from 1834 to 1838 (Buttman 1974) when 'scarcely any branch of Science escaped his attention'. His diaries in South Africa were published in 1969 (Evans 1969) and may shed further light on this untraced trilobite. Andrew Smith, its collector who was in South Africa 1821-1837, was 'for several years.... director of the government civil museum at Cape Town without salary' (DNB). It is possible that the specimen was returned to the museum after Murchison had figured it.

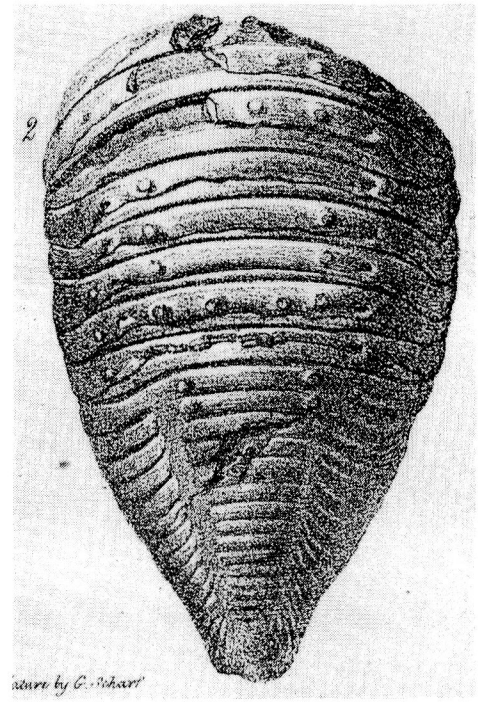


Fig.10. Specimen figured by Murchison (1839) in The Silurian System, provided by Herschel. Pl.7 bis, fig.2, Homalonotus Herschelii, Devonian, Cedar Mountains, Southern Africa. Reproduced at approximately original publication size.

Buttmann, G. 1974. The shadow of the telescope. A biography of John Herschel. Lutterworth Press, Guildford.

Evans, D.S. 1969. Herschel at the Cape. University of Texas Press, Austin.

186 Rev. Thomas T[aylor] LEWIS (1801-1858)

CLEEVELY, p.184
MURCHISON, p.201

Murchison wrote of 'my friend the Rev. T.T. Lewis': 'The application of his leisure hours to the cultivation of the natural history of his neighbourhood may one day enable Mr Lewis to confer upon Aymestry the celebrity which White has bequeathed to Selborne' (p.201). Cleevely recorded that the Lewis collection of fossils was divided between several institutions. The BM(NH) purchased a small remnant in 1898, the BGS has a large part of the Palaeozoic collection presented to the Geological Society between 1834 and 1842, and the Yorkshire Museum, York, has Palaeozoic fossils donated 1830-1836. A single donation of fossil remains of Silurian fish was made to the Shropshire and North Wales Natural History Society in 1836 (GCG, 2(6), 364). T.T. Lewis's important work in connection with Murchison's Silurian System has been the subject of a special study by Thackray (1979). See Fig.11.

Thackray, J.C. 1979. T.T. Lewis and Murchison's Silurian System. Trans. Woolhope Nat. Fld Club, 42, 186-193.

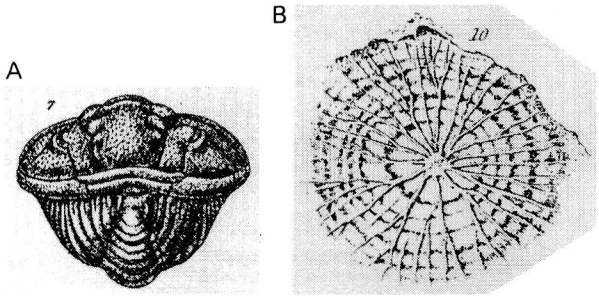


Fig.11. Specimens figured by Murchison (1839) in The Silurian System, provided by Lewis. A, Pl.7, fig.7, Calymene blumenbachii, Wenlock Shale, Ludlow/ Dudley. B, Pl.26, fig.10, Spongarium edwardsii, Upper Ludlow, Bircher Common, Aymestry. Reproduced at approximately original publication size.

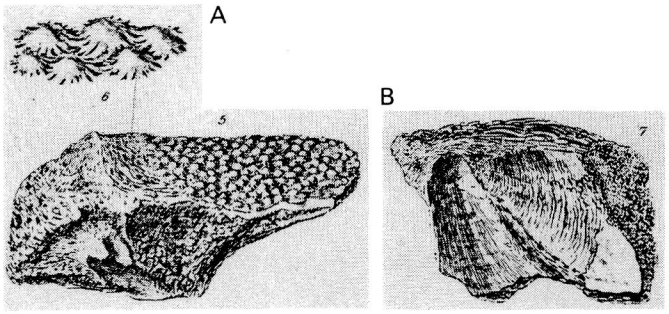


Fig.12. Specimens figured by Murchison (1839) in The Silurian System, provided by Malcolmson. A, Pl.2 bis, figs. 5, 6, Holoptychius sp., ORS, 4 miles S.of Elgin. B, Pl.2 bis, fig.7, Ichthyolites, ORS, 4 miles S of Elgin. Reproduced at approximately original publication size.

187 John Grant MALCOLMSON (1802-1844)

AGASSIZ, as listed below
ANDREWS, various pages
CLEEVELY, p.194

An exhaustive account of the life of John Grant Malcolmson (17 November 1802 to 23 March 1844) was given by Andrews who recorded that JGM was very active geologically between 1836 and 1840 in the Elgin area,whilst recovering from an illness which had temporarily forced him to leave his medical work in India. During four years in Scotland he visited Hugh Miller in Cromarty, formed close friendships with members of the Elgin Scientific Association (including John Martin and Rev. G. Gordon), exhibited ORS fossil material at the Geological Society in London (including the Scaat Craig teeth belonging to Martin and figured by Murchison), and also took the same material to Paris for Louis Agassiz to examine and figure in his monograph on ORS fish (Agassiz, Tab 28a, fig.18; Tab 30a, figs.16-18; Tab 33, fig.28; of these only Tab 30a, figs.17-18 belonged to Malcolmson). An obituary appeared in the Bombay Monthly Times Summary of Intelligence for April 1844 (1 May 1844, p.50, col.4 - p.52, col.2); he was outlived by his brother James (1801-1860).

Andrews reported that John Grant Malcolmson donated material to the Geological Society of London, the Museum of the Royal Asiatic Society, Bombay, and Elgin Museum. A collection of fossils and minerals remaining at his mother's house in Forres after his death went to the Falconer Museum, Forres in 1869 - two years prior to its official opening. See Fig.12.

188 John MARTIN (1800-1881)

AGASSIZ, Tab.28a, fig.18
ANDREWS, various pages
MURCHISON. p.600

In referring to a tooth (Pl.2 bis, figs.8, 9) from the Old Red Sandstone, Murchison stated that it was found 'four miles to the south of Elgin, by Mr Martin of that town'(p.600).

Andrews detailed the geological activities of John Martin, Schoolmaster at General Anderson's Institution at Elgin and curator of Elgin Museum from 1840 until his death. He formed a close friendship with John Grant Malcolmson during the recuperative stay in Scotland of the latter and they accompanied each other on many geological collecting trips. An obituary appeared in the Elgin Courant and Courier (17 May 1881, p.5).

Martin may have sold specimens to geologists and museums, but the bulk of his large collection from Scaat Craig was presented to Elgin Museum. The specimen belonging to Martin figured by Agassiz (Tab.28a, fig.18 in his monograph on ORS fish and wrongly attributed to Malcolmson) and by Murchison (Pl.2 bis, figs.8, 9) is apparently lost (Fig.13). None of the several Martins mentioned by Cleevely appear to correspond to this person, but the Rev. G. Gordon (who Murchison noted as a collecting companion of Mr Martin) has material - mainly Triassic reptiles - in Elgin Museum, Royal Museum of Scotland, BM(NH), and BGS.

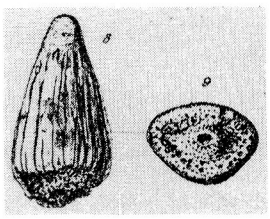
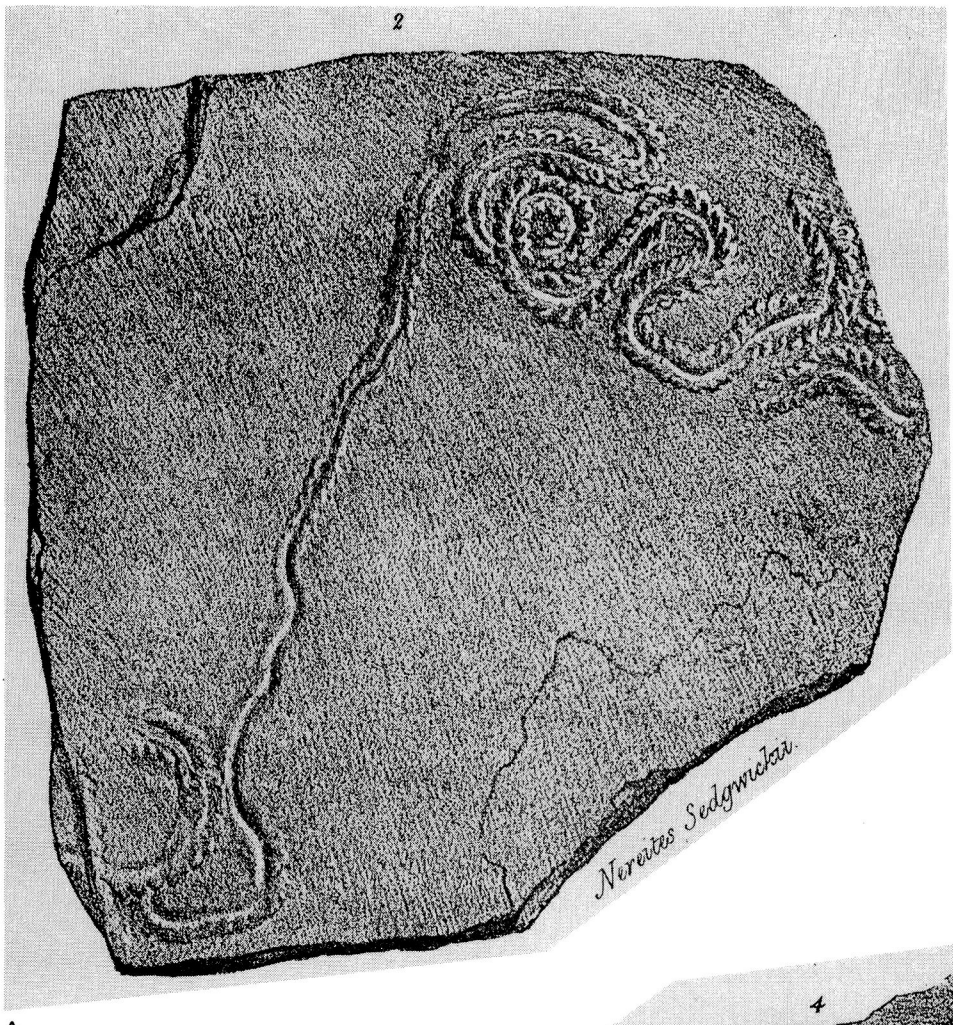
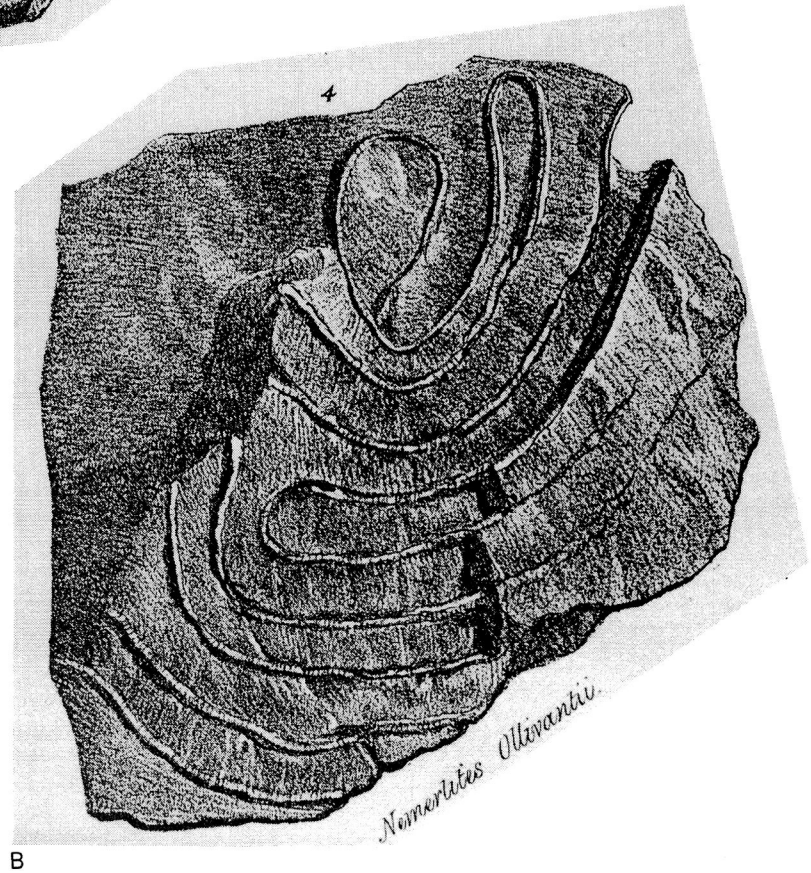


Fig.13. Specimen provided by Martin and figured in The Silurian System by Murchison (1839, pl.2 bis, figs. 8, 9) as Holoptychius or Megalichthys, ORS, 4 miles S. of Elgin. Reproduced at approximately original publication size.



A



B

Fig.14. Specimens figured by Murchison (1839) in The Silurian System, provided by Ollivant. A, Pl.27, fig.2, Nereites Sedgwickii, Llandovery, Lampeter. B, Pl.27, fig.4, Nemertites Ollivantii, Llandovery, Lampeter. Reproduced at approximately original publication size.

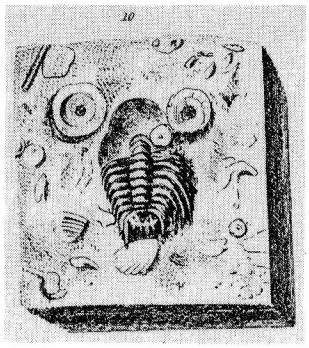


Fig.15. Specimen provided by Stokes and figured in The Silurian System by Murchison (1839, pl.14, fig.10) as Paradoxides quadrimucronatus, Wenlock Lst., Dudley/Malverns. Reproduced at approximately original publication size.

189 Rev. Alfred OLLIVANT (1798-1882)

MURCHISON, p.699

Alfred Ollivant (16 August 1798 to 16 December 1882) was Vice-Principal of St. David's College, Lampeter, [Dyfed], 1827-1843 (DNB). It was during this period that he discovered the trace fossils figured by Murchison 'in the schistose building-stone of that place [Lampeter]' (p.699). The original specimen of Nereites cambrensis (Pl.27, fig.1) was recognised in the Powysland Museum collection from Welshpool when it was transferred to its current home at the National Museum of Wales in 1962 (Bassett, M.G. and Owens, R.M. 1974, Fossil Tracks and Trails. National Museum of Wales, Cardiff). See Fig.14.

190 Charles STOKES (1783-1853)

CHALMERS-HUNT, p.94
CLEEVELY, p.277

Cleevely noted that Charles Stokes FRS, FGS was a London business man who collected rare and interesting specimens for use by specialists such as Murchison. A large collection of 751 lots, including minerals and fossils, made by Stokes was sold in June 1854 at Sotheby's in London after his death. Two copies of this sale catalogue, both with prices noted, are recorded (Chalmers-Hunt). The bulk of his collections were supposedly to have gone to the BM(NH) but some material is also with the BGS and the Oxford University Museum. See Fig.15.

191 Hugh Edwin STRICKLAND (1811-1853)

AGASSIZ, as listed
ANDREWS, various pages
BURKE, as listed
CLEEVELY, p.279
MURCHISON, pp.21, 597

The subscription list in The Silurian System refers to 'Strickland, Hugh E., Esq., Cracombe House, Evesham, Worcestershire'

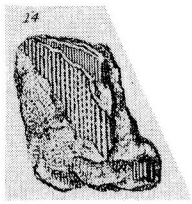


Fig. 16. Specimen provided by H.E. Strickland and figured in The Silurian System by Murchison (1839, pl.2, fig.14) as Ctenacanthus ornatus, ORS, Sapey, Worcestershire. Reproduced at approximately original publication size.

and his geological activities were acknowledged (Murchison, pp.21, 597). See Fig.16.

Hodgetts (1986, pp.15-18) provided some family and ephemeral details regarding HES's association with the Malvern Naturalists' Field Club. Cleevely reported that a large collection was bequeathed to the Sedgwick Museum, Cambridge, in 1888, by the wife of HES, and that material presented to the Geological Society by HES between 1841 and 1853 is with the BGS. Andrews (p.44) noted a HES specimen figured by Agassiz (Tab 14, figs. 6, 7), but then adds (p.77) that none of the HES fossil collection 'could be traced to specimens in the Sedgwick Museum, Cambridge' nor in any other of the Oxford and Cambridge institutions listed (HES was Reader in Geology at Oxford University 1849-1853). However,the HES collection is certainly at the Sedgwick; as recorded by Woods (1891, p.xiv) it was 'a large and varied collection [which] contains a few figured specimens'. At the last count (GCG 4(4), p.207) 3645 specimens in it were listed.

Murchison mentioned (as an aside to the collecting of Benjamin Bright) 'Since my first visits to the Malvern Hills, the city of Worcester has done honour to itself in establishing a Natural History Society. An elegant and commodious building has been erected, the Museum of which, when I last saw it, promised to be soon filled with all the characteristic Silurian fossils' (p.414); HES was involved with this (Edwards 1907, p.6). Jones (1980) sketched the foundation of this Natural History Society in 1833 and Edwin Lees (1800-1887), one of the founding fathers of the Society, reported his association with the 'ardent band who conceived and formed the....Society' and that HES took a very active part in forming the nucleus of the museum (Lees 1856, pp.65-66). HES's own first full geological publication was read to the Society in 1834 (Strickland 1835) and mentioned the museum on a number of occasions.

Resulting from this early association/ connection Worcester Museum has had at least two later 'donations' of HES material according to the printed annual reports of the Worcester Library and Museum (teste notes by D.J.Small 1979). One in 1888-1889 by the late Miss Frances Strickland, sister of HES

(see Burke Peerage 1891, p.1315) who bequeathed a fossil and bone collection formed by HES; the other by Mr Algernon Strickland c.1910 of miscellaneous geological specimens collected by the late HES. Algernon Strickland (1837-1914) was the cousin of HES who had inherited his old home, Apperley Court, Tewkesbury (Burke LG 1921, p.1689). Spalding's reference to this last acquisition as 'purchased 1909' seems to have misled Cleevely (p.279) into recording it as from Sir Charles William Strickland (1819-1909) of Yorkshire who had died in 1909 and who was a distant cousin of HES (Burke Peerage 1891, p.1314).

Stroud Museum also has a small amount of unspecified 'Strickland' material (probably HES) (Doughty 1981).

Doughty, P.S. 1981. The state and status of geology in UK museums. Misc. Pap, geol. Soc. 13, 118pp.

Edwards, H.E. 1907. The Museum as an index ....of Worcestershire. Bayliss, Worcester.

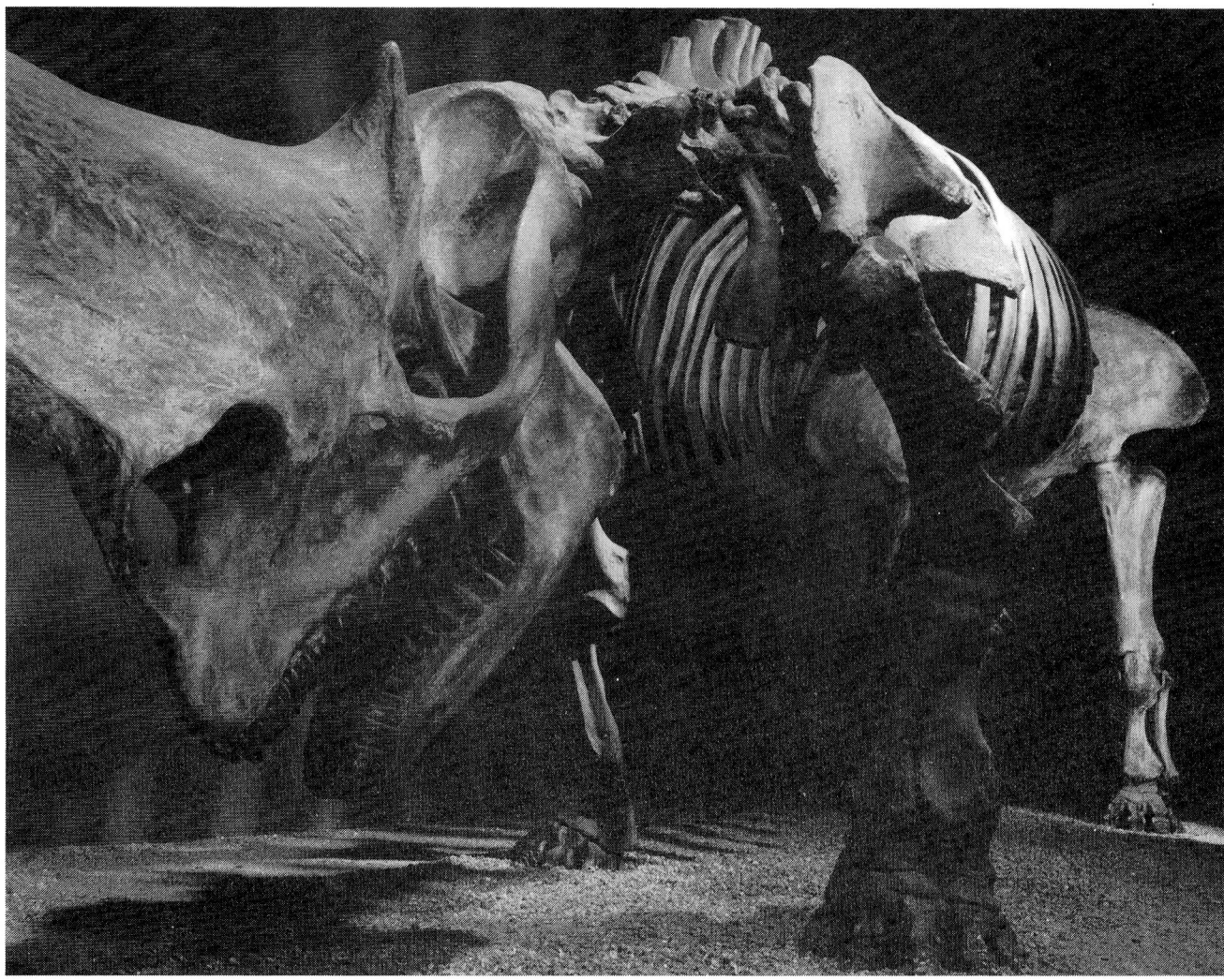
Hodgetts, M.C. 1986. Malvern Naturalists Field Club founded 1852: the early history. Malvern Naturalists Field Club, Malvern.

Jones, M.M. 1980. The Lookers-Out of Worcestershire. Worcester Naturalists Club, Worcester.

Lees, E. 1856. Pictures of nature in the Silurian Region. Lamb, Malvern.

Strickland, H.E. 1835. Memoir on the geology of the Vale of Evesham. Analyst, 2, 1-10.

Woods, H. 1891. Catalogue of the type fossils in the Woodwardian Museum, Cambridge. Cambridge University Press.



Thirty-five million years ago Arsinotherium browsed the African rain forest. From the new permanent exhibition at the BM(NH), 'Discovering Mammals'.

COLLECTIONS INFORMATION NETWORK, GEOLOGY

COMPILED BY DONALD I. STEWARD

CING 23 BURTON upon TRENT Museum

When the museum was closed in 1981, the geological collections were transferred to the Burton upon Trent Technical College on a ten year loan. The material, c.700 assorted specimens, is mainly from the collection of T. Cuthbert Day (donated to Burton in February 1916) and a small collection of minerals from Miss Jackson. The mould and cast of an example of 'Cheirotherium' footprints found in the local Triassic sandstones went to the Bass Museum, Burton.

CING 24 CHELTENHAM Art Gallery and Museum

Cheltenham Art Gallery and Museum allocated £1000 towards the care of their geological collection in 1986-1987, aided by a 45% grant from the Area Museum Council for the South West, following a survey and report by the AMCSW Geological Officer, Mike Taylor. George Breeze, the Director of the Art Gallery and Museum, accepted the recommendation that priority be given to making a start on the basic documentation and registration of the collection, thus eliminating the risk of specimens being dissociated from their labels, and sorting out those which have been. Sylvia Humphrey, who has worked as a geology volunteer at Bristol and at Cardiff, has been carrying out this work under contract at the City of Bristol Museum and Art Gallery, where the general facilities of its Geology Section, and suitable working space were put at her disposal.

This splendid news is a tribute to the work of Gaynor Andrews (Assistant Curator of Fine Art) who has for years looked after the geological collection and prevented it from falling into still worse, and hopeless, disorder. Mike hopes eventually to report more fully on the history of the collection and to assess the lessons of the recent pastoral work by the AMCSW. Hugh Torrens will also have his own morals to draw since he has been researching the history of the earlier geological collections of Cheltenham, pre-eminent among which were the Literary and Philosophical Institution and the Cheltenham College collections (both long since dispersed).

CING 25 - 36 provides a very basic review of a selection of museums with geological collections, based on the returns concerned with the up-dating of the 'State and Status' data. The information is intended as an introduction to the facilities available at the listed museums, which can be augmented via the 'Museum File' of Geology Today, the 'Collections, Collectors and Museums of Note' articles in Geol. Curator, or the publications of the Natural Science Collections Research Units. Further entries in this format will appear in subsequent issues of Geol. Curator. Discretion should be used when reading the listings; a trained geological curator is more likely to be critical and accurate with an assessment of the state of the collections than others! The recent spate of thefts from museums means that access to reserve collections is unlikely to be granted to anyone arriving on the 'spur-of-the-moment'.

CING 25 CARLISLE Museum

Geological public service: permanent display; access to reserve collections; no specialist curator; identification service; not a NSGSD record centre.

Geological collections: 1,000-5,000 specimens; good local coverage of rocks, minerals and fossils; condition mainly good; systematically stored and mostly registered; some figured and cited fossils, possibly some type Lingula from the Skiddaw Slates. February 1986.

CING 26 CLIFFE CASTLE Museum, KEIGHLEY

Geological public service: permanent display; access to reserve collections by written request and appointment only; one specialist curator; identification service; NSGSD record centre for Bradford District.

Geological collections: 10,000+ specimens (c.16,000); good local and general coverage of rocks, minerals and fossils, also maps, books and some manuscripts; condition fairly good; systematically stored and MDA documentation underway; major strength in palaeontology; collections represent the amalgamation of those of the boroughs of Ilkley, Keighley and Bradford - all now part of the Bradford Metropolitan Council Museums and based at Keighley. September 1985.

CING 27 North East FIFE District Museum Service, CUPAR

Geological public service: permanent geology display at Laing Museum, Newburgh; access to reserve collections; no permanent specialist curator post; identification service; not a NSGSD record centre.

Geological collections: 1,000-5,000 specimens; rocks, minerals and fossils, some manuscripts; condition good; systematically stored and full MDA catalogue; major strength in agates. December 1985.

CING 28 BOWES Museum, BARNARD CASTLE

Geological public service: permanent display; access to reserve collections by

written request and appointment only; no specialist curator; limited identification service; not a NSGSD record centre.

Geological collections: less than 1,000 specimens; local coverage of rocks, minerals and fossils, some maps; condition indifferent; no system, fewer than half specimens with labels. August 1986.

CING 29 FURNESS Museum, BARROW-in-FURNESS

Geological public service: no display; access to reserve collections; no specialist curator; no identification service; not a NSGSD record centre.

Geological collections: less than 500 specimens; rocks, minerals and fossils, some local; condition variable; sorted into boxes of rocks, minerals and fossils, approx. 25% with labels. July 1986.

CING 30 BATH Geology Museum

Geological public service: permanent display; access to reserve collections by appointment; one specialist curator; identification service; not a NSGSD record centre.

Geological collections: 5,000-10,000 specimens; rocks, minerals and fossils (the bulk of the material), also maps, charts and drawings; good condition; stored in drawers and packing cases, most of Jurassic fossils registered; major strengths in Jurassic fossils and some good minerals; type and figured fossils in the Charles Moore collection. July 1986.

CING 31 WILLIAMSON Art Gallery and Museum, BIRKENHEAD

Geological public service: no display; access to reserve collections; no specialist curator; no identification service; not a NSGSD record centre.

Geological collections: c.1,000 specimens; rocks, minerals and fossils; good condition; easy to locate, basic catalogue available; major strength in minerals. July 1986.

CING 32 BOLTON Museum

Geological public service: permanent display; access to reserve collections; one specialist curator; identification service; NSGSD record centre for Bolton Borough.

Geological collections: 10,000+ specimens (c.20,000); good local and general coverage in rocks, minerals and fossils, also maps and photographs; condition 90% good; mostly systematically stored, most registered; major strength in local Coal Measure material; type, figured and cited fossil material. July 1986.

CING 33 BRISTOL Museum

Geological public service: permanent display; access to reserve collection by appointment; two full-time and two part-time specialist curators; identification service; NSGSD record centre for Avon (Bristol Region Environmental Records Centre), Somerset (Mendips), Gloucestershire and Wiltshire.

Geological collections: 10,000+ specimens (c. 500,000); moderate local and general coverage for rocks, good for minerals and fossils (over 80% of collection), also maps, manuscripts and photographs; condition mainly good; systematically stored and most specimens labelled; major strengths in Palaeozoic and Mesozoic fossils from the West of England; c.600 type and figured specimens. July 1986.

CING 34 TOWNELEY HALL Art Gallery and Museums, BURNLEY

Geological public service: no display (as yet), a display of local geology of the Burnley area is being proposed for the Natural History Centre; access to reserve collections; no specialist curator; identification service; not a NSGSD record centre.

Geological collections: 1,000-5,000 specimens; rocks, minerals and fossils; condition mainly reasonable; systematically stored and whole collection registered. August 1986.

CING 35 BURY Museum

Geological public service: no display; access to reserve collections by appointment; no specialist staff; identification service; not a NSGSD record centre.

Geological collections: 500-1,000 specimens; good local coverage of rocks, minerals and fossils, also maps, manuscripts and photographs; condition good; systematically stored, labels with specimens but no register; major strengths in copper minerals. July 1986.

CING 36 BUXTON Museum

Geological public service: permanent display; access to reserve collections; one specialist curator; identification service; not a NSGSD record centre.

Geological collections: 10,000+ specimens (c.25,000); good local and general coverage in rocks and minerals, very good for fossils (c.90% of collections), also maps, photographs and archives (W. Boyd Dawkins and J.W. Jackson); condition good; systematically stored and cataloguing on MDA cards progressing; major strengths in Lower Carboniferous fossils and Pleistocene vertebrates; figured and cited fossils. June 1986.

NOTES AND NEWS

COMPILED BY MICHAEL A. TAYLOR

NEWLY PRESERVED GEOLOGICAL SITE, COVENTRY

On 21 November 1986 Wickes PLC officially 'opened' a geological exposure of the Corley Conglomerate, part of the Carboniferous Enville Formation, to scientists. The locality is situated behind the new Wickes Building Supplies store on the Radford Road section of the Coventry Ring Road (NGR SP33167955).

At this site, one of the largest exposures of the Corley Conglomerate, the pebble size is at its maximum development, indicating the existence of an upland area just to the east of Coventry at that time. The predominately limestone pebbles have yielded marine fossils of Silurian age, a period not represented in the Coventry area. The exposure also shows the overlying sandstones as all the strata dip westwards. The face is some 3-4m in height and about 30m in length.

Access to the face involves a short ladder climb and visiting parties ought to be restricted in size to around 15-20 people. Anyone planning to visit the site should first contact Mr R. Oxley, Store Manager, Wickes Building Supplies Ltd., 2 Radford Road, Coventry, West Midlands (Tel. Coventry 52150). Please do include this site on your field trip itineraries and help make Wickes' efforts to preserve it worthwhile. For further information contact John Crossling at Warwickshire Museum, Market Place, Warwick CV 34 4SA (Tel. 0926 493431).

BARYONYX WALKERI, ALIAS 'CLAWS'

The remarkable new carnivorous dinosaur, found in a Surrey claypit in January 1983 by amateur fossil collector Bill Walker, and described and named Baryonyx walkeri by Drs Alan Charig and Angela Milner at the British Museum (Natural History), is claimed by the BM(NH) to be 'the most important fossil found in Britain this century' - so much for Stan Wood's discoveries, or the conodont animal (to name but several)!

More than three years have elapsed since the skeleton was excavated by Museum staff in May-June 1983 (see Cover photograph). The excavation revealed the well-preserved, partial skeleton of a large flesh-eating dinosaur from the Lower Cretaceous (some 124 million years old). Carnivorous dinosaurs are indeed very rare; only one other reasonably complete specimen has ever been found in Britain (more than a century ago, and no large reasonably complete carnivorous dinosaur of this age has previously been discovered from anywhere in the world.

Baryonyx walkeri differs from all known dinosaurs in possessing at least one disproportionately large claw-bone (Fig.1),

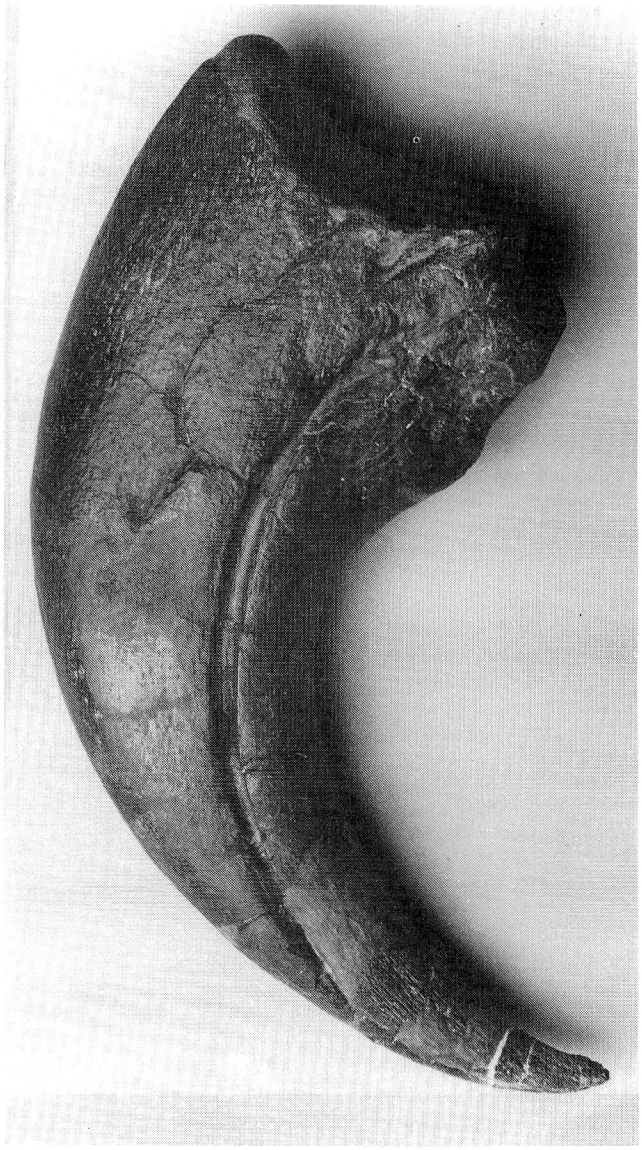


Fig.1. The gigantic claw-bone, probably from the 'hand' of Baryonyx walkeri is almost 31cm long. Copyright BM(NH).

and in several other respects; it is deemed so different even to merit a new family name, Baryonychidae. More than half of the skeleton has been recovered. This includes parts of the skull, with a snout which is unusually long and narrow for a carnivorous dinosaur, and the jaws with an unusually high number of teeth (Fig.2). Standing on its back legs the animal was 10-15ft tall.

The elongated snout and finely serrated teeth suggest that Baryonyx was a fish eating dinosaur living near rivers and swamps, perhaps a quadrupedal predator crouching on the banks rather than a biped stalking through the shallows (see p.536). The Museum plans to exhibit Baryonyx in 1987.

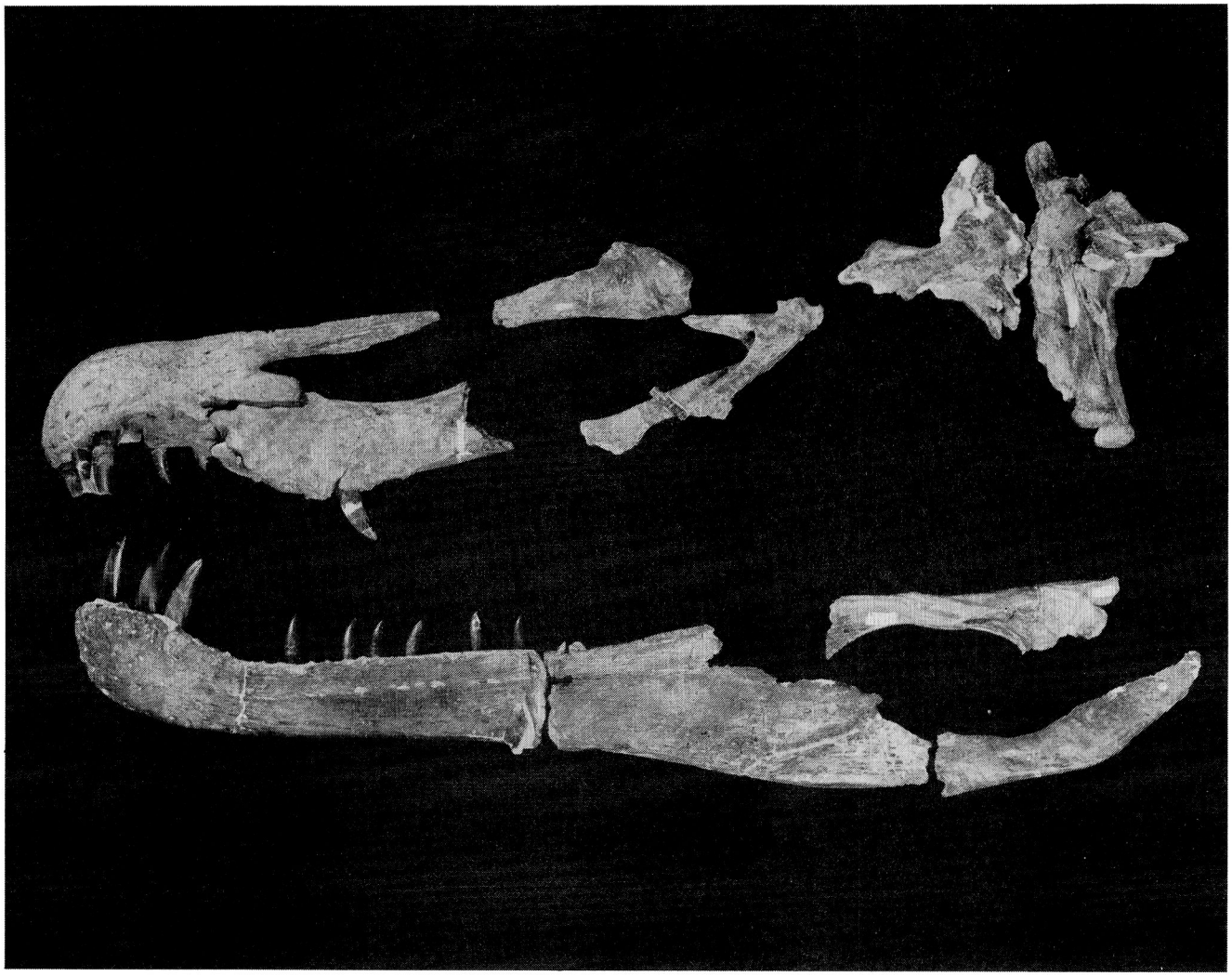


Fig.2. The elongate skull and jaw of Baryonyx walkeri. The length of the skull is estimated at just over 1m. Copyright BM(NH).

SHROPSHIRE MAMMOTHS

John Norton (Department of Natural Sciences, Shropshire County Museum Service, Ludlow Museum) reports:

'The discovery of a mammoth on 27 September 1986 from the Amey Roadstone Corporation's gravel quarry at Condover, near Shrewsbury, caused great interest and the find was extensively reported in the press and on radio and television. Shropshire County Museum Service was notified immediately by Mr Roberts of Bayston Hill who was taking his dog for a walk near the quarry and saw the quarryman looking at some large bones which they had unearthed with a JCB.

Dr Russell Coope of the Geology Department, Birmingham University, visited the site and supervised throughout the excavation. It is possible that at least 75% of the bones have been recovered.

The find is of particular importance as the remains of a baby mammoth have also been recovered from the same site; in fact, we have found a mother and calf. It seems highly likely that this example will prove to be the youngest known mammoth in Great Britain (and probably Western Europe); preliminary dating suggests a late glacial age of only about 11,000 B.P. Never before has such a complete skeleton been found in such good condition in Britain, and it will be possible to study in considerable detail the development of the animal (for example, the fusion of the epiphyses of the long bones is apparent). Associated faunal remains from the matrix indicate a cold harsh environment. Dating is being carried out at Birmingham University and also at Oxford by Dr John Gowlett (Radiocarbon Accelerator Unit). Dr Adrian Lister (Cambridge) and Dr Arthur Cruickshank have given valuable osteological advice. David Parish (Aylesbury Museum) provided useful information on conservation of the remains and Dr Tony Sutcliffe (Department of Palaeontology, BMNH) helped a great deal with information about British mammoths; Dr Peter Toghill and Mike Watson both gave valuable advice and much practical help throughout the project.

It is likely that the bones recovered will be sufficient to enable us to mount an articulated skeleton and we very much hope to have this on permanent display in Shropshire. ARC have been extremely generous with money, labour and machinery for the project, and all of us at the County Museum Service appreciate their kindness and cooperation.'

THE PRICE OF FOSSILS

Angela Milner and Ian Rolfe are collecting information on historic and present prices of fossils, as a guide to current pricing practice (and thus to insurance and indemnity values of museum collections). To make this study reliable, they would welcome dated examples of prices that museums and others have paid for fossils, or for collections of them. They need examples of expensive, mid-range and cheap fossils; copies of old priced lists of fossils are particularly welcome, as are illustrations of priced specimens, references thereto, and references to discussion of this topic. Results will be presented at a Geological Curators' Group/ Palaeontological Association/Geological Society meeting, 'The Conservation of Palaeontological Sites' (at the Geological Society, Burlington House, Piccadilly, London 1-2 October 1987), and published thereafter. Please contact them at the Palaeontology Department, British Museum (Natural History), Cromwell Road, London SW7 5BD (tel. 01 589 6323 ext.727) or the National Museums of Scotland, Chambers Street, Edinburgh EH1 1JF (tel. 031 225 7534 ext.239).

A RECORDING FORM FOR BIOGRAPHIES AND OBITUARIES

John Cooper (121 Hayes Chase, West Wickham, Kent BR4 OHY) writes:

'For nearly fifteen years now the Tertiary Research Group has employed the 'Biography/ Obituary Form' (commonly called the 'Biobit Form'), at present in its Mark III version, to record details of some of its members. The purpose of the form is twofold: firstly, to record the details of the lives of the living whilst they are still with us; and secondly, to act as a framework on which to record details of persons now deceased, from published and hearsay sources. In this way, it is hoped that curators will be able to make the work of themselves, researchers and compilers much easier, or at least to provide a 'skeleton' for further studies.

After finally reading through the stupendous work World Palaeontological Collections by Ron Cleevely (1983), a book that no curator or museum should be without, I have produced the Mark IV version of the Biobit Form which has extra categories (see copy enclosed with this issue of Geol. Curator). At this point, may we all join together in urging Ron Cleevely and the British Museum (Natural History) to produce the intended second, enlarged edition of this invaluable reference work, or at least a supplementary volume?

Ideally, every curator should fill in at least one copy of the Biobit Form for him/herself, and update it every three to five years or so, or more frequently as they get older. Another copy with basic and non-confidential details could be sent to a central source (?Ron Cleevely) and stored until needed. The personal or more confidential copy should be kept with one's Will or archives, with instructions for it to be released upon one's decease, thereby ensuring accurate immortality in print (even Who's Who entries do not necessarily fall into this category). To avoid complications with the Data Protection Act, information relating to living persons can remain on A4 printed forms, and not stored in a computer system. Further forms may be used to record details in museum archives and collections (copies again being sent to a central archive).

I would be grateful for comments on the 'Biography/Obituary Form' and any suggestions for its improvement.'

VICTORIAN MINERAL COLLECTION FOR SALE

Ex the late Henry Bramall Esq. FGS, Coalowner of Lancashire. Comprising a set of three mahogany cabinets, each of ten drawers, complete with mineral specimens and catalogue. Inspection can be arranged by appointment. Offers invited.

Apply David Bick, Pound House, Newent, Glos. (Tel. 0531 820650). Note: the collection would preferably be retained as a whole.

ROYAL GEOLOGICAL SOCIETY OF CORNWALL RESTORATION FUND

The Royal Geological Society of Cornwall last year launched an appeal for £200,000 to finance urgent major structural repairs to its home, St. John's Hall, Penzance. Since its construction in 1867 the West Wing of this fine granite building has housed the Society's museum (open to the public in the summer months), lecture room and library. In 1952 St. John's Hall was designated a Grade II listed building.

Because of deterioration to the fabric of the building the museum was forced to close. Nevertheless, the appeal is being supported by the local business community with donations already received from the Bristol and West Building Society, and the major clearing banks.

Further details of the appeal can be obtained from Doreen Byron, Appeals Organiser, Sportsmans Ash, Teston Road, West Malling Kent (at home on 0732 849017, or at work for Rentokil, London Road, East Grinstead on 0342 27171).

DAMAGE TO MINERALOGICAL SITES

Members of the Northern Branch Committee of the Russell Society had their attention drawn to several instances of severe damage to important mineralogical sites in the Lake District. In particular, the outcrop of the Wet Swine Gill antimony vein on Caldbeck Fells and a lead-bearing vein on Buttermere Fells have suffered excavation and over-collecting to such an extent that little mineralisation can now be seen in situ at the former locality. Specimens from both localities, no doubt obtained by these activities, have appeared for sale in the mineralogical 'trade'.

Collecting on this scale and for commercial gain is quite contrary to the objectives of the Russell Society and is clearly in breach of the 'Code for Geological Field Work', as endorsed by all major British geological societies. The destruction of sites in this manner has severe implications not only for us, but also for future generations who will be deprived of their scientific heritage. The fact that the sites concerned are in a National Park is especially disturbing and is likely to result in legal action.

Whereas the Council and Northern Branch Committee of the Russell Society have no reason to suppose that any member of the Society was involved in these ill-advised activities, they would like to identify the individuals concerned and, if possible, take appropriate action to prevent any repetition of this kind of damage. Any help GCG members are able to give in this matter would be greatly appreciated by the Council of the Russell Society (write to 29 Braunstone Avenue, Leicester LE3 OJF).

DISCOVER MAMMALS IN CENTRAL LONDON

The latest permanent exhibition at the BM(NH) - 'Discovering Mammals' - was opened in October 1986 by Lord Dainton, a former Chairman of the British Library. Dominated by the famous 93 feet long blue whale, 'Discovering Mammals' uses a combination of traditional display techniques and interactive electronic exhibits to explore the relationship between a mammal and its environment - with the emphasis on conservation. The exhibition completes the first half of the museum's re-display of its mammals. It fills the old Whale Hall, complementing the re-display of 'Whales and their Relatives' (opened December 1984) which now forms part of the 'new' exhibition. The remainder of the mammals (early mammals, carnivores and rodents) are due to appear in 1989-1990.

The exhibition covers the artiodactyls (deer, pigs, hippos, sheep, cows, giraffes etc.), Proboscidea (the elephants), Hyracoidea (the hyraxes), perissodactyls (horses and zebras, rhinos, and tapirs), Cetacea (whales and dolphins; opened December 1984) and their fossil relatives. Fossils are integrated amongst their closest modern relatives so that the visitor can see how palaeontologists work out what they were like in life and how they might be related to extant animals.

The scientific content of the exhibition makes a point of going beyond merely displaying specimens. There are large numbers of specimens in the gallery, but the aim has been to tell visitors about the natural history of mammals in its broadest sense, explaining about life in natural habitats, distribution, conservation status, and adaptations to habitat.

Although the exhibition is basically arranged order by order, there are also sections that

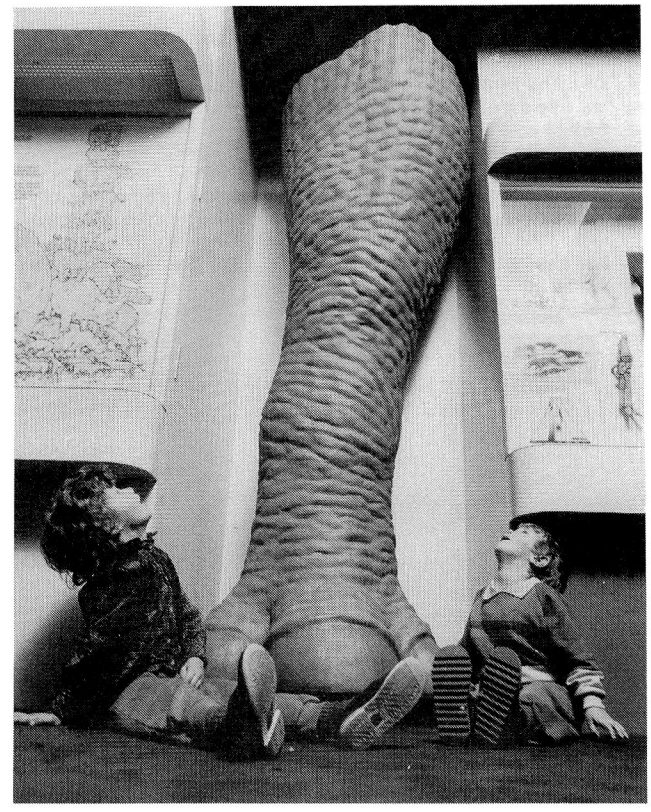


Fig.3. From the new permanent exhibition at the BM(NH), 'Discovering Mammals'. The giant modelled leg of extinct Paraceratherium gives an idea of how big the whole animal would have been. Paraceratherium is the largest land mammal that has ever lived - 5m tall at the shoulder. (Copyright BMNH).

cover the biology of mammals from a different standpoint. Examples are 'large size' (Fig.3) on the ground floor, or 'sea mammals' on the balcony. A wide range of media has been used in the exhibition. Large numbers of specimens are complemented by films, sound recordings, interactive displays, photographs, graphics, and computer games.

Conservation of wild populations has been treated as a vital component of the displays throughout the gallery and the conservation status of each of the specimens has been given along with details of the particular problems they face for their survival.

The content of the exhibition was decided after a considerable amount of 'market research' had been carried out with members of the public to discover what their background knowledge on mammals is, what their enthusiasms are and what misconceptions they have.

The exhibits have, whenever possible, been subjected to formative evaluation in the course of their development. Proposed exhibits were mocked up and tried out with volunteer visitors who helped identify shortcomings before money was spent on final production.

PROVIDING FOR THE WORST.—The *Journal de Calais* states, that an inhabitant of Southampton has recently been amusing himself by filling 14,000 bottles with 6,000 copies of an abridgment of *Universal History*. The bottles, well corked and sealed, have, by his order, been placed in deep cavities in the icy caverns of Greenland, in the hope, should a partial destruction of the globe again ensue, that they may survive the wreck and enlighten future ages, who would otherwise be ignorant of the events which have come to pass in this world.—It is not stated in what language this bottle-conjuror has chosen to preserve the knowledge of the present race of mankind.

Fig.4. An unusual example of real curatorial zeal forwarded by Hugh Torrens (Keele University). From The Times, 5 November 1835, p.7.

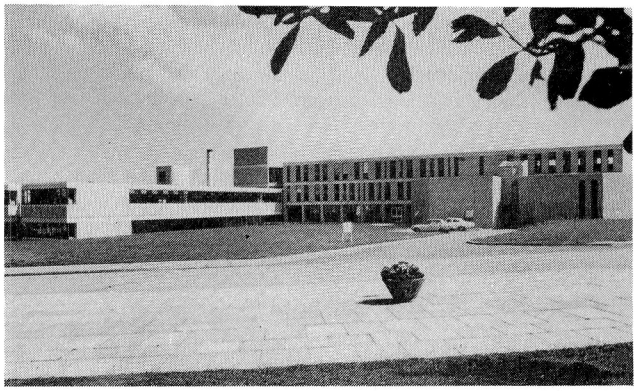


Fig.5. Camborne School of Mines, Pool, Redruth, Cornwall; one of the premier mining schools in the UK offering degrees in mining and mineral processing.

CORNWALL IN THE SPRING

Kate Pontin (Graduate Trainee, Earth Sciences Section, Leicestershire Museums Service) reports on the GCG meeting held at Camborne (30 May - 1 June 1986) and organised by Lesley Atkinson:

'The three day meeting started in the museum of the Camborne School of Mines (Fig.5) where our party was welcomed by Lesley Atkinson (Curator) and Alan Bromley (Head of Geology). After a look around the pleasing display of Cornish and world wide minerals, we were off to the Hot Dry Rock Site - the joint School of Mines/Department of Energy Geothermal Energy Project in the Carmenellis granite at Rosemanowes. A film explained the principles of geothermal energy and its development in this country, after which Alan Bromley conducted us around the site. After a good Cornish lunch we visited Truro Museum, primarily to see the Rashleigh Collection of minerals (surprisingly without a specialist curator). And then our first step into the field for a look at the St Agnes-Perranporth mineralised area of sheeted vein pegmatites. That evening we assembled again at the School of Mines to hear an enthusiastic lecture by Alan Bromley on granitic intrusion and associated mineralization. There followed a well illustrated description by Courtney Smales of the life of Phillip Rashleigh, his mineral collection and its international importance.

Porthmeor Cove was our first stop on Saturday morning: here the contact between a small granite intrusion and the surrounding rocks graphically illustrates stoping and pegmatite and xenolith formation. At Geevor Mine and Museum, Martin Mount (mine geologist) showed us an extensive model of the shafts and mineral veins of the area. A film illustrated the history of local mining techniques. Inside the Museum, wooden cladding to walls and roof cleverly suggests a mining environment. Martin took us on to Botallack to examine various skarns containing both garnet and magnetite, as well as tin ores. Below us towards the shore the restored Crown Engine Houses were visible, despite the mist. In the evening we were treated to a wonderful slide show on Cornish minerals and the heyday of Cornish mining by Bryan Cooper (Torquay Natural History Society Museum).

Sunday began back in the lecture room at the School of Mines, where Keith Atkinson surveyed mineral exploration techniques, past, present and future (those of today, although more sophisticated, seem no more successful than their predecessors!). Bob King talked about conservation of mineral specimens - prevention being better than cure - and described a new technique for maintaining a micro-environment around an individual specimen. Tristram Besterman concluded the morning by describing the Barstow Collection, the life and sadly early death of the collector, and the fight to buy his collection for Plymouth Museum (see also Geol. Curator, 4, p.356). Some members of the group made a visit down King Edward Mine after lunch.

Lesley Atkinson arranged the meeting for GCG members while Alan Bromley led the field trips and drove the minibus. Congratulations to them both, and to the other speakers, for providing an efficiently run, geologically stimulating and highly enjoyable long weekend in Cornwall.'

[Note: Lesley Atkinson describes the museum in Geology Today, 2, pp.88-89, and Robert Hunt and his collection in Geol. Curator, 4, 129-132.]

CHINESE DINOSAURS

Spectacular specimens of dinosaurs and related fossils from China form the centrepiece of a large exhibition at the National Museum of Wales in Cardiff. The exhibition opened in December 1986 and occupies two floors of the East Wing galleries at the Museum's Main Building in Cathays Park, where it will remain for 16 months until April 1988. The exhibition is one of the largest scientific exhibitions ever to leave China, and forms probably the largest concentration of dinosaurs ever seen in Britain. Cardiff is the only venue in Britain to stage this exhibition.

The specimens belong to the Institute of Vertebrate Palaeontology and Palaeoanthropology in Beijing (part of the Chinese National Academy of Sciences), which

also provided many of the photographs and diagrams incorporated in the exhibition. Dr Michael Bassett (Keeper of Geology, NMW) visited China early in 1986 as a guest of the National Academy to complete negotiations for the loan and shipment of the dinosaurs.

The specimens left Beijing in early September, arriving in Cardiff in mid October. Technicians from China mounted the skeletons within the geological 'sets' designed by Ian Kane, the NMW's Exhibitions Officer and his design team. Dr Alan Charig (British Museum (Natural History)) acted as scientific consultant, helping the staff in the Department of Geology in Cardiff to plan the exhibition.

Over the past twenty-five years or so, China has begun to yield enormous numbers of dinosaurs, rivalling in importance the 19th and early 20th century finds in other parts of the world. The recent expansion of cultural and scientific links with China now allows some of these important discoveries to be seen and assessed more widely.

Stars of the exhibition are six complete, free-standing dinosaur skeletons. One skeleton, Mamenchisaurus, is the largest fossil ever found in Asia and one of the largest dinosaurs known from anywhere in the world, with a neck and head occupying over half of its total length of 22 metres. Another distinctive form is Tsintaosaurus, a duckbilled dinosaur with a spike or horn projecting from the top of its skull. Most of the forms are unique to China.

In addition to the dinosaurs, there is also a pterosaur called Dzungaripterus which had a wing-span of over 3 metres (10 feet). 'Nests' of dinosaur eggs, dinosaur footprints, plus a range of smaller skeletons, skulls and isolated bones are also on display to illustrate the origins, life habits and relationships of dinosaurs and other vertebrate animals. Part of the exhibition concentrates on the submarine life that existed when dinosaurs lived on land.

Supplementary specimens from Europe and North America help to place the Chinese fossils in a world-wide context. Large dinosaurs of this kind are rare in Britain, and none have been found in Wales (although the evidence of footprints in South Wales indicates that dinosaurs did live in the area).

The difficult job of shipping the large dinosaur skeletons from China to Cardiff was undertaken by Overseas Containers (UK Agencies) Ltd. Support for the exhibition is being given by the British Council and the Friends of the National Museum of Wales. Further information from Dr Michael Bassett, Keeper of Geology, National Museum of Wales, Cathays Park, Cardiff CF1 3NP (Tel. 0222 397951).

MR WOOD'S FOSSILS EVOLVE!

The attention deservedly given to Stan Wood's fine fossils from the Carboniferous of Scotland should not make us forget that Stan has also made great progress with his business 'Mr Wood's Fossils', as one of the very few full-time professional fossil collectors in this country. The Scotsman Magazine (7 (1), 21-22: colour supplement to The Scotsman) noted that Stan 'decided to take the biggest gamble of his life. He sold his house, took a three-month Scottish Business School course, and persuaded Livingston Development Corporation and the Bank of Scotland to 'invest in one of the most unusual businesses to come into the new town - Mr Wood's Fossils.' Now his services and discoveries are available to museums, universities and a few private clients on a commercial basis..'

The development of Stan's business, based in an industrial estate in the New Town of Livingston to the west of Edinburgh, has been described by the Livingston Courier (11 July 1986) as follows:

'An amazing 12 months for Livingston fossil hunter Stan Wood was capped last week when he received an award - presented by Prince Charles - as one of Britain's most enterprising small businesses.

Stan's Dedridge-based company, Mr Wood's Fossils, already turning over more than £100,000 worth of business each year, came fourth in the BBC-sponsored competition.

Later Stan was told by two judges he might even have won if he had employed more people! And BBC Director General Alasdair Milne also had special praise for Stan for bringing the first YTS student to the awards in Astrid McCabe (16), of Polbeth, who has now been taken on full-time.

"It's been a great year for me," said Stan, who has seen his work start a nationwide tour; discussed with David Attenborough the prospect of featuring in a new TV series; graduated from Open University and appeared at countless exhibitions.

Stan (47), who has astounded experts with his finds, said he was greatly encouraged by words of praise from Prince Charles.

"He said he was very pleased with the progress I had made and he hoped the award would encourage me to do even better in the future," recalled Stan, who is busy completing an article for a prestigious French scientific magazine.'

NEW FROM BATH

The GCG's meeting of 3 October 1986 at Bath Geology Museum had the best ever attendance of any other than one-off conference meetings, appropriately enough in view of plans for the future of this museum. The Bath Museum News for Autumn 1986 reports:

'Two New Museums for Bath. In 1989 a new central Reference and Lending Library is to be built on the Podium site next to the Beaufort Hotel. The Royal Literary and Scientific Institute collections at Queen Square will be transferred as a Trust to the

City Council and re-housed in a new Geology Museum in Bridge Street. The vacation of the Lending Library will release a large space for museum development and over the next twelve months consultants working for Bath Museums Service will be looking at this area and the large lightwell behind the City Markets to see whether it would be possible to create a City Museum for Bath at Bridge Street.

An exciting thematic exhibition is planned taking visitors through 2,000 years of the city's development. This will be linked to the Geology Museum which will have a special section on local geology and the thermal springs. It is hoped that much needed additional exhibition space and picture storage can be provided for the Victoria Art Gallery as part of the development.'

NCC NEWS

Those of us who have been bemused and confused by the whole business of geology and the Nature Conservancy Council at last have an alternative to Grauniad articles and frustratingly incomplete missives from the Rt. Hon. William Waldegrave M.P. (or his minions). The Association of Geological Conservation Review Contributors has now produced its own Newsletter towards the furtherance of the Association's aims: 'the completion of the GCR project, the proper conservation of the selected sites, and the full publication of the results of the review, to the highest scientific standards and to the satisfaction of the contributors and the wider geological community which they represent.' Strong words, if only by implication that the NCC isn't up to scratch? The Newsletter is produced and edited by Mike Benton, Department of Geology, Queen's University of Belfast, Belfast BT7 1NN.

SURVEY NEWS

Graham McKenna, the Chief Librarian of the British Geological Survey, has issued the following notice:

'To users of BGS libraries. In May 1986 details were issued of the planned transfer of material from the Exhibition Road Library to Keyworth. The full BGS Library service ceased to operate at Exhibition Road after 29 August 1986; as of 1 September the BGS London Information Office situated in the Geological Museum became the main point of contact in London. The London Information Office holds a wide range of BGS material, including the National Grid, County Series, thematic and other maps, a reference set of BGS Reports, Memoirs, Bulletins, Open File Reports, Photographs and other relevant literature. The Office continues to hold most of the catalogues of the BGS Library's books, maps and serials. It also accepts orders for BGS publications and other publicly-available documents and deals with requests for photocopies of library material as well as providing a direct link to the wide range of data available from the National Geosciences Data Centre at Keyworth.

London Information Office: contact Miss Sylvia Brackell or Mrs. Vivienne Messenger (Tel. 01-589-4090). BGS Library, Keyworth, Notts. NG12 5GG (Tel. 06077-6111 ext.3205).'

MUSICAL CURATORS

Several GCG members have recently moved to new posts. In the south-west, Peter Crowther has departed Leicester to become Curator of Geology at the City of Bristol Museum and Art Gallery and Roger Clark has been promoted to Assistant Curator, in succession to Micky Curtis and Michael Crane (see Geol. Curator, 4, 215-216). Di Smith has moved from Norwich to become Curator of the Geology Museum, Bath, on Ron Pickford's retirement (see Geol. Curator, 4, 287-288). Mike Taylor's contract as Geological Officer for the Area Museum Council for the South West was renewed in October 1986 for a further two years, but he has left to take up Peter's old Assistant Keepership of Earth Sciences at Leicestershire Museums. This post is now one of two Assistant Keepers at Leicester due to Chris Collins's regrading from Senior Technician to Assistant Keeper (Conservation) - the first UK museum post for a conservator rather than a technician or preparator in geology. Mike's AMCSW post is being in part transmuted into financial support for Bristol's Assistant Geologist to be appointed in March; this two-year post will be devoted largely to urgent preparation and conservation requirements of Bristol's huge collections.

Elsewhere in the south-west, Peter Boyd has left Chelmsford to become the Museums Officer for North Devon District Council, with responsibility for developing a new district museum service founded on, amongst others, the important geological collections of the North Devon Athenaeum at Barnstaple, where he is based. Not far away, Somerset County Museum at Taunton has appointed David Parsons, ex Scunthorpe Museum, to the post of Keeper of Natural Sciences. Like the Bath post, both these appointments were made following detailed surveys and reports from the AMCSW.

Further north, Colin Reid, ex MSC worker at the Ulster Museum, has become the first curator of geology at Dudley Museum. Tony Stuart replaces Di as Assistant Curator of Geology at Norfolk Museums Service. He was formerly at the University of Cambridge where he wrote his book Pleistocene mammals of Britain (1983). Neil Turner has moved from Clitheroe Museum to become Assistant Keeper of Natural History at Wollaton Hall, Nottingham. David Norman, best known for his work on Iguanodon and his The Illustrated Encyclopaedia of Dinosaurs (1985), is leaving the University Museum and Department of Zoology, Oxford, for the Nature Conservancy Council at Peterborough. Arthur Cruickshank, formerly of Edinburgh University, the Bernard

Price Institute, Johannesburg, and (part time) the Open University, has joined Leicestershire Museums as a contract worker on the large Mesozoic reptile collections.

However, several posts have not been filled by geologists. That common habit of museum directors, lumping geology and biology into natural sciences sections, has lost us several places. John Crossling, who has now become Assistant Curator and Keeper of Geology at Warwickshire Museums Service in place of Tristram Besterman, was replaced at Derby City Museum by a non-geologist. The excellent geological collections of the Buckinghamshire County Museum at Aylesbury are also under the care of a newly appointed biologist. And, most sadly of all, our university museums continue to freeze posts: Ian Rolfe is still unreplaced as Keeper of Geology at the Hunterian Museum, University of Glasgow, after his move along the Midland Valley to become Keeper of Geology at the Royal Museum of Scotland in Edinburgh.

ISLE OF PURBECK MODEL

The Geology Department of the National Museums of Scotland has in its out-store a geological model of the Isle of Purbeck. It is unlikely that this museum will ever use or display this model in the forseeable future. We therefore wish to dispose of it to a museum or similar educational institution in the Dorset area who would be able to make some practical use of it. There would be no cost to the recipient of this model other than the cost of transport.

The model was made by James B. Jordan in 1903. It is in three parts, each part approximately 3 feet by 3 feet across, the whole being mounted in a large case 10 feet 2 inches long by 3 feet 6 inches wide by 3 feet 6 inches in height. The case has a glass top and sides, with four sturdy legs; although it would require to be repainted before display, it is not broken or otherwise damaged. The model itself represents an area of land from Bats Head to the west of Lulworth Cove in the west to Studland Bay in the east. Its northern limit is a line three quarters of a mile north of Chaldon Herring and Studland with the southern limit including St. Albans Head. The model is to a horizontal scale of 6 inches represents 1 mile and a vertical scale of 1 inch represents 440 feet. Although it would require some re-labelling of villages and other features the model is otherwise in sound condition.

The National Museums of Scotland would be very pleased to see this model go back on display in some suitable institution and looks forward to receiving applications from interested bodies. Please contact Dr W.D. Ian Rolfe, Keeper of Geology, Royal Museum of Scotland, Chambers Street, Edinburgh EH1 1JF (tel. 031 225 7534).

BOOK REVIEWS

Sutcliffe, A.J. 1985. On the track of Ice Age mammals. British Museum (Natural History), London, 224pp. ISBN 0 565 00869 2. Price £12.95 (hardback).

Antony Sutcliffe's infectious enthusiasm for his subject comes across on virtually every page of this attractive, popular-style book. His overriding theme is that Ice Age (Pleistocene/Quaternary) mammals are fascinating and exciting - and so they are. The book is profusely and well-illustrated, including both line-drawings and black and white photographs. Outstanding are five double-paged colour restorations of Pleistocene scenes by Peter Snowball.

The text is organised into fourteen chapters. The first two are concerned with the importance of Pleistocene/Quaternary studies and the background of climatic change etc. Ch.3, entitled 'Dragons, unicorns, giants and saints', is a light account of the commonly bizarre ways in which fossil remains were interpreted by our predecessors. Chs. 4 and 5 briefly examine fossil occurrences and methods of dating, respectively. Ch.6, 'Drawing the threads together', is largely concerned with the laudable, but not altogether successful, attempts to correlate the stratigraphic sequences on land with those of the deep ocean. Bone caves, a particular interest of Dr Sutcliffe, are examined in some detail in Ch.7, followed by a lively account of mammals in Palaeolithic art.

Chs. 9 - 13 deal with Pleistocene mammals from various parts of the world in widely differing detail. The first of these is essentially about frozen mammoths from Siberia, while Ch.11 is a useful summary of Pliocene to Pleistocene mammals from the East African Rift Valley; and Ch.13 deals with the late Pleistocene, largely marsupial faunas of Australia. Ch.12, entitled 'The New World', is virtually confined to discussion of just two localities - the celebrated 'tar pits' of Rancho La Brea, California and Ultima Esperanza Cave near the southern tip of Patagonia. In marked contrast, Ch.10 (at thirty-four pages by far the longest in the book) is a rather detailed account of the Pleistocene faunal history of the British Isles, with Dr Sutcliffe's own interpretation of the stratigraphic sequence.

The final chapter deals concisely with the intriguing phenomenon of late Pleistocene extinctions throughout the world. Was the demise of such animals as giant deer, mammoths, mastodons and ground sloths due to climatic changes or over-hunting by Palaeolithic man? No conclusions are offered: as is very properly noted, much work has yet to be done before we can answer such questions.

Although in many ways the book is excellent, I do have one major criticism. The book's uneven coverage detracts from its value as an introduction to the subject and gives a biased view of the relative importance of particularly chosen localities. Clearly it is unrealistic to expect anything approaching a comprehensive global coverage in a publication of this nature, but it would have been better to have included, for example, more information on Ice Age mammals of North America, not just the one atypical site of Rancho La Brea. Similarly, the vast literature on Continental Europe has been virtually ignored, whereas an entire chapter is devoted to the British Isles.

In conclusion, however, the book's virtues far outweigh any shortcomings and it is likely to have wide appeal both at home and overseas. Not least it is also good value for money.

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May 1986

Anon.1985. Guide to the Mineral Collection of the Passmore Edwards Museum. Passmore Edwards Museum, London, 32pp. ISBN 0 90612 306 2. Price £3.00 (including postage).

This is a small but well produced guide in A4 format. It consists of two main sections, comprising an introduction to minerals in a general sense and a listing of specimens held by the Passmore Edwards Museum. A description of the collection is included together with brief details of its history. The publication is illustrated with a number of A5 size photographs of minerals from the collection.

First impressions of this publication are good, but I must confess to considerable misgivings after a more detailed examination. It is far from clear who the authors intended the guide to be useful to. From the point of view of the interested layman, the information produced describing mineral species is more comprehensively covered in any number of easily available books. The section which covers the mineral collection itself (which incidentally takes up less than half of the publication) is of minimal interest to the layman, as it consists of lists with very little extra information. It may have been useful to have included more details on the history of the collection itself (if such information exists). From the standpoint of a person with a serious interest in mineralogy the guide is again, I am afraid, of little use. The collection, as is evident from the listing, can only really be described as modest, both in terms of the specimens themselves and associated data. This is not criticism, but the need to publish lists of minerals from such a collection in this manner should be questioned.

The illustrations are of high quality but have little visual impact, partly because the specimens themselves are not particularly good, but more importantly because they do not fill the frame, producing a rather odd effect. The Guide is not a success because the authors do not seem to know what they are trying to achieve. The result is a glossy booklet containing information which would be more at home as a number of photocopied sheets. The reasons for producing such a publication as this are unclear.

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12 May 1986

King, R.J. (ed.). 1982-1985. Journal of the Russell Society, vol.1, nos.1-3.

Amateur collectors and museum curators have much in common in their quest to preserve and expand their mineral collections, so it is hardly surprising to find that the Journal of the Russell Society contains much of interest to the mineral curator. The Russell Society, founded in 1972, has a national membership of mainly amateur, but dedicated and highly-respected mineralogists. Its objects are to promote education and interest in mineralogy, to preserve mineralogical sites and material, and to develop mineral sites for scientific research.

There has been a long-standing need for a journal to publish papers on topographic mineralogy which are now so rarely given space in existing academic periodicals. The Journal promises to fulfill this need. It attempts to match in academic standard the Mineralogical Record, a beautifully produced and lavishly illustrated American journal, containing a wealth of species and locality information for the serious collector. There are no lavish colour photographs in the Journal yet, and illustrations often lack an indication of scale. Publication is somewhat erratic (no.1 in 1982, no.2 in 1983, no.3 in 1985). Early teething problems have hit the format too. Nos.1 and 2 have a clear single column layout. The double column format in no.3 has a tiny typeface, enormous margins and lots of empty page between articles.

The papers published in the first three issues of the Journal are informative, concise and very readable. They span two main subject areas, topographic mineralogy, and the identification and curation of mineral specimens.

Reports of new discoveries of minerals dominate the topographic papers. They give the precise location, historical and geological details of the site, and describe the mineral association with comments on paragenesis. Some compare new localities with existing British or foreign occurrences. A second group of topography papers are historical reviews; for example, of the occurrence of galena in Leicestershire, and phosgenite and matlockite in Derbyshire. These well-researched reports, based on literature and specimen searches, coupled with the authors' personal knowledge of the localities, are particularly enlightening for those of us with old and sometimes mislabelled specimens!

There are only three locality reports for sites not notable for new mineral discoveries, the Isle of Sheppey in Kent, Fall Hill Quarry in Derbyshire and Dyliffe Mine in Powys. These are particularly welcome for collectors and curators alike. With so much knowledge about mineral localities shared among Society members, it seems a shame they wait until a new mineral is discovered (often in a small and unique occurrence) before publishing anything of the other minerals found at that site. Perhaps a less formal 'notes and news' approach might encourage more contributions of this kind?

Papers on the identification and curation of mineral specimens include the description of a computerised mineral identification package, notes on the storage of radioactive minerals, and the first three parts of a series by Bob King (who, incidentally, edits the Journal) on the cleaning and care of minerals. Part 1 covers the initial cleaning (i.e. washing) of newly collected specimens; it contains helpful lists of species easily damaged by water, with advice on alternative cleaning methods for these. Part 3 gives some excellent advice to those of a less curatorial disposition, on how to record field data, transport specimens and care for potentially metastable material. Again there are invaluable lists of species prone to deliquescence, efflorescence, heat and light damage, and other forms of instability, along with suggestions for preventative measures.

Part 2 of this series, devoted to the 'development' of minerals, fills me with considerable alarm. Some methods may be justified as the only means of exposing otherwise obscured minerals. For example, Californian benitoite can only be seen when the surrounding natrolite is removed. Techniques which endanger the existence of associated minerals by removal of coatings and encrustations - all to increase the aesthetic appeal of the specimen - are rightly condemned by the author. Indeed, he points out that these techniques may permanently damage the long-term chemical stability of the specimen, or leave it with an artificially etched appearance. Why, then, does he quote all manner of recipes to reach ends which he himself deems unethical? He says, for example, there can 'be no case for development of any kind' (no.2, p.63) for the removal of the typical associated secondary minerals coating native copper - and then gives a choice of four different recipes to remove the secondaries! These use sodium hydroxide/sodium tartrate, potassium cyanide, glacial acetic acid, and glacial acetic acid/concentrated sulphuric acid/sodium bichromate, respectively. Other recipes mentioned in passing use hydrofluoric acid! Furthermore, there is little tradition among amateur mineralogists, and certainly none among mineral dealers, for

recording the details of development processes as an essential part of specimen documentation. Surely it is irresponsible to give tacit approval to techniques which may both destroy the scientific value of the mineral specimen, and be very hazardous to an often ill-equipped amateur collector.

Still, perhaps this will not be a problem for most of us. If the advice given in the Editorial of no.3 is followed, our provincial and university museums are unlikely to receive the benefits of new mineral discoveries, or perhaps entire collections. They are attacked for their lack of a conservation tradition, for their vulnerability to the whims of directors and heads of departments, and for their all too human curators who cannot be trusted to hold and safely divulge the contents of mineral site records. Such records are, according to the editor, already held, and should only be held by the Nature Conservancy Council.

This attack (by a staff member of a well-respected national museum) should not go undefended. A 'letters to the Editor' column where inter alia such a defence could be mounted, would be a useful addition to a valuable and long overdue publication.

The Journal of the Russell Society is available free of charge to Society members, or for a non-member subscription of £5 per annum from: Dr R.J. King (Editor), National Museum of Wales, Cathays Park, Cardiff CF1 3NP. Prices of back issues available on request.

The Mineralogical Record is published by: Mineralogical Record Inc., 7413 N. Mowry Place, Tucson, Arizona 85741, USA. Price $27 per annum (6 issues).

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Impey, O. and MacGregor, A. (eds.). 1985. The origins of museums: the cabinet of curiosities in sixteenth- and seventeenth-century Europe. Oxford University Press, Oxford, 335pp. ISBN 0 19 952108 5. Price £60.00.

This stately and impressive volume contains thirty-three chapters, all except one being based on papers presented to a symposium held at the Ashmolean Museum, Oxford, in July 1983. The symposium was part of the celebrations which marked the tercentenary of the opening of the Ashmolean Museum to the public in May 1683.

Chapters in the book, like the papers in the symposium are arranged in three groups. Chs.1-20 deal with individual collections or with groups of collections in the principal cities of Europe; Chs. 21-26 consider the different categories of material which were included in the collections such as classical antiquities, scientific equipment, shells and skins; and Chs. 27-33 deal geographically with the materials from Africa, China, India and other exotic localities which found their way to Europe. The only major omission from the volume, which is noted in the Preface, is that there is no essay on any of the early collections in France.

There is much to interest geological curators in this volume. Most of the collections described in the first twenty chapters contained some geological materials among their natural wonders. A number of them are already familiar to geologists through references to their great contemporary catalogues in the classic histories of Zittel, Adams and Geikie. Writers in this volume give us a new and refreshingly broad perspective on the collections of Aldrovandus, the Vatican, Olaus Worm and others, by considering each collection as a whole and in its historical and geographical context. However, many of the geological references are quite new, at least to me. Ch.12, on the museum of the Hessian Landgraves in Kassel, for example, gives a fascinating account of a collection with an important geological element in its later years. Any mineral curator who is thinking of mounting a new display should read Ch.10, on the Munich Cabinet, where stones, minerals and corals were set out in elaborate 'arrangements' under tall glass domes.

In the one purely geological chapter, Hugh Torrens gives a pioneering account of early collecting in the field of geology. He begins his story with Georgius Agricola's De Natura Fossilium (1546), and shows how geological collections were established and also made use of in Germany, France, Italy, and Switzerland by the year 1600. Geological collecting in Britain did not get under way until about 1650, but thereafter progress was rapid, and a number of 17th century museums are described. Tucked in at the end of the paper are some comments on the development of curatorial techniques which are most welcome. The most telling comment on early curatorial techniques (or lack of them) comes in Michael Hunter's paper on the early Royal Society collections. He quotes from the journal of Von Uffenbach, a Dutchman travelling in England in 1710, on the subject of James Petiver's collection: 'Everything he had was kept in true English fashion in prodigious confusion in one wretched cabinet and in boxes.' Would that things were different today! It is a pity that Hugh was not given a little more space to develop his themes, but I expect all thirty-three authors could have written more with ease.

Quite apart from its actual geological content, the volume is full of historical points which are of interest and relevance to anyone working in museums today. Ch.6, for instance, touches on the various purposes behind early collections; Ch.8 on the emergence of publicly owned museums, Ch.14 on the social aspects of collections, and Ch.15 on the influence of political disturbance on museums. To counteract Von Uffenbach's 'English fashion', there is the account of

early North American artifacts in Sir Hans Sloane's collection in Ch.27. Here the emphasis is on documentation, not only using surviving labels and inventories, but by research into his correspondence, where many of the pieces in his collection are mentioned.

Individually every one of the thirty-three contributions to The origin of museums is interesting, and most are very readable. Many contain material which has never before been available in english. Taken together the contributions give a rich and many-faceted image of the treasures and collections of 16th and 17th century Europe. Some of the writers look up from their own allotted topic to draw comparisons or to put forward ideas of general relevance, but on the whole the reader is left to draw his or her own conclusions as to the ways in which museums did originate, the different forms which they took, and the ways in which they evolved through the centuries. A more substantial introduction could have drawn out some of these points and provided a valuable synthesis. The reader is left knowing a great deal about the history of individual museums and collections, but not much more on 'the origin of museums' as such. Indeed, in writing this review, I found myself using the word 'collection' rather than 'museum', perhaps because of a lingering uncertainty over exactly what museums are and how they did originate.

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24 May 1986

Wilson, H.E. 1985. Down to earth: one hundred and fifty years of the British Geological Survey. Scottish Academic Press, Edinburgh and London, (iv) + 189pp. ISBN 0 7073 0473 3. Price £9.75 (paperback).

The early history of the Geological Survey has been covered in two previous volumes by Flett (1937) and Bailey (1952). This book aims to bring the history up to date to coincide with the 150th anniversary of the Survey in 1985. This is not, however, an 'official' history, and there are some references to earlier years, a number of anecdotes about amusing incidents and eccentric members of staff, and a collection of Survey songs given at the annual geologists' dinners.

Up till about 1966 the Survey remained a primarily strategic force in British geology and its aims were clear-cut: the production of maps and memoirs with a very minor amount of consultative work. Hydrogeology had been taken in during the thirties and geophysics in the forties, but essentially the earlier traditions continued. Following the amalgamation with the Overseas Geological Surveys, the formation of the Institute of Geological Sciences, and the arrival of N.E.R.C. everything changed. With the enlargement of scope the aims of the Institute were no longer clear, and many departments did their own thing with little or no reference to a central objective. The story of the repeated reorganisations of the seventies and eighties, the increasing influence of N.E.R.C., and the decreasing influence of the Director is very revealing. Under the Rothschild proposals N.E.R.C. got the Survey into a position where over 80% of the staff were on contract work and the regular mapping programme almost ceased. It became indeed a consulting organisation rather more than a scientific institution. Moreover N.E.R.C. used the earning power of I.G.S. (now renamed B.G.S.) to subsidise its other (biological) activities. Symptomatic of the changes is the fact that the heads of units lost their scientific titles (e.g. Chief Petrographer, Chief Palaeontologist) and became simply 'managers', providing administrative support rather than scientific leadership.

From a curatorial point of view there is no mention in the book of the Survey's collections or of the way they are organised. The book is nevertheless very readable, meticulously researched, and is to be recommended as a way of understanding how the present situation with the Survey has come about. There is no index, which seems reprehensible from an academic publisher.

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26 June 1986

Paine, C. 1986. The local museum - notes for amateur curators (2nd edition). Area Museum Service for South Eastern England, Milton Keynes. ISBN 0 904752 03 8. Price £4.00 (+ £1 postage and packing).

This publication is clearly a response to the situation in which new museums continue to be set up at an alarming rate, often at the initiative of enthusiastic amateurs and with insufficient thought and forward planning. Its two stated aims are: to make the museum's proposers think long and hard about the responsibilities they are taking on before the final decision to set up the museum is taken; and to point to sources of advice and help when it is taken.

These objectives are admirably achieved. The book is attractively designed, well organised with clear headings and adopts a sensible and practical approach without too much detail, but with suggestions for further reading and where to get help. Although intended primarily for museums in the AMSSEE area, it is clear that this book will also be of use (and will be used) by museums in other areas and by professional and established museums as well as amateurs and new museums. In fact, the main text could be adopted without alteration by all Area Councils and an appendix added to take into account regional variations.

The text is divided into ten sections: Introduction, Thinking and Planning, Museum Management, Collecting and Documenting, The enemies and how to defeat them, Conservation, Displays, Reserve Collections, Exhibitions and Events, and The Visitor. There are three appendices: Countywide cooperation in the AMSSEE area, Code of Practice for Museum Authorities, and Code of Conduct for Museum Curators. The latter two are reproduced from the Museums Yearbook with the permission of the Museums Association.

The structure of the text does not follow the usual conventions, but is nevertheless easy to follow. Chapter 5 'The enemies and how to defeat them' covers Fire, Rot, Pests, Humidity, Light, Flood, Air Pollution, The Thief and the Vandal, and Careless handling. Chapter 6 'Conservation' is subdivided into Inspecting the collection, Getting conservation work done, Documenting conservation work, and Recognising problems; it might have been more logical to include Pest Control, Light, and Humidity here, leaving Chapter 5 to cover other aspects of Security. As with any publication for non-specialists it is difficult to get the balance right and I would question the assumption that the non-specialist would be able to identify insect pests. Life histories of closely related insects are so different that the need for expert help should be stressed.

This is a general publication and it is not appropriate to make more than passing mention of the special needs of natural history collections. Under 'Natural History Records' reference is made to Cooper et al. (1980) and the National Scheme for Geological Site Documentation, while under 'Conservation' there is a heading 'Fossils, minerals and rocks' with references to Howie (1984), Cornish and Doyle (1984) and Brunton et al. (1985). One could not reasonably expect very much more, except perhaps for a reference to the Geological Curators' Group and a reference under 'Storage' to the special needs of geological collections.

Chapter 3 'Museum Management' with its references to the management of charitable organisations, sources of grants, and tax concessions is perhaps the most concise introduction to the subject which exists and may well be of direct relevance and use to many curators of geological collections.

The Local Museum can be recommended with confidence to amateur groups and societies. Some parts of it (particularly prices) will quickly become out of date, so we can look forward to further updated editions. I am glad to note that errors in the first edition (1984), particularly the specific names of pest insects, have now been corrected. The spelling of my name on p.20, however, has not!

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1 July 1986

Robinson, E. 1985. London: illustrated geological walks. Book two. Scottish Academic Press, Edinburgh and London, vi + 142pp. ISBN 7073 0416 4. Price £4.95.

This, Eric Robinson's second guide to the building stones of London, is more than a pocket guide to be taken around London with you - it's a good read wherever you are. Besides the expected descriptions of a large variety of natural stones, roofing slates, paving slabs and cobbles (which make London a living petrological museum), Dr Robinson has included artificial materials like brick and terra cotta. What makes it such a readable book is the way he relates the stones to the architecture and history of the buildings which they grace, emphasising his points with many apt illustrations.

Take for example what he writes about a prominent building not many metres from the Geological Society but not often patronised by the impecunious geologist - the Ritz Hotel. 'For several reasons' he says 'other than its unquestioned status as an hotel, The Ritz has considerable reputation. We have already seen some of the custom-built hotels in Northumberland Avenue ..., and can recognise that between 1880 and 1906 when the Ritz was completed, a total revolution had taken place in the increased size of floors and room space but especially in the provision of ground floor lounges, salons and dining rooms ... The Ritz was architect designed throughout by Mewes and Davis from its innovatory steel-framed core and its French external detail, through to the decoration and furnishing of its rooms. Geologically, the rather anonymous grey, axe-dressed granite of the street front arcading is the same Iddefjord Granite from Oslo Fjord which we have already seen in Norway House in Cockspur Street'.

Even nearer to the Geological Society is the Norwich Union Insurance building at the head of St. James's Street, where the author has unearthed (if that is the right word) three fascinating stones of widely differing origins: Precambrian jasper from the Lleyn

Peninsula, North Wales; Pentelikon marble from Greece (keep quiet about this, or the Greeks might want it back for the Parthenon!); and Cretaceous limestones from Spain containing rudistids, which are thick-shelled bivalves 'showing as ring-shapes in creamy white calcite standing out boldly against the dull red background of lime mud'. It is this capacity of Dr Robinson - already seen in Book 1 of London Walks - to identify with conviction (or doubt, as he'll readily admit) all manner of building stones, locate their source and describe them simply but vividly, which makes this guide so useful and interesting to the amateur and professional geologist alike. Anyone who has tried to do this will appreciate the enormous task Dr Robinson has taken on - and is doing so effectively.

This guide covers the Royal Exchange, Moorgate, The Barbican, Ludgate Circus, Holborn Viaduct, Fleet Street, The Strand, Trafalgar Square (look down at the paving slabs as well as up to Nelson's Column), St. James's, Bloomsbury and St. Pancras (where I for one can now enjoy more fully arriving in the capital). There are five Walks, each set out on clear maps with the described buildings numbered to match the text and illustrations, twenty-nine helpful references, a glossary, and indexes of stone names and the principal buildings referred to. This is a book that everyone should read on the train to London and carry in pocket or handbag for constant use within the capital, thankful to Eric Robinson for his labour of love which we can all share.

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18 August 1986

Landscape Models. 1985. Pterosaur model. Landscape Models, 3 Westmoreland Road, Southport PR8 6NX. Retail price £1 - £1.50 (wholesale 60p each, with discount of 10% or free postage on orders of 100 or more).

Hordes of plastic construction kits of mammoths, dinosaurs and cavemen have swept through model and museum shops and their producers have mostly passed into extinction without even the modest memorial of a notice in the Geological Curator. Now, at last, this journal reviews a model saurian - a lifesize card kit of the Jurassic pterosaur Pterodactylus kochi from the lithographic limestone of Solnhofen, whence came Archaeopteryx.

This model is obviously for the museum to sell rather than display. It's a cheap and cheerful beastie aimed, say the manufacturers, at 'educationally aware and supportive adults who have responsibility for children of school age'. We must therefore ask: is the model saleable? Can it be made up as the instructions claim, using only as much skill and experience as may reasonably be expected? And is the result an adequate reproduction of the original animal?

The shop manager will find the model acceptably priced at normal trade terms. The presentation is basic but sufficient: a folded sheet of card and a page of instructions and text in a clear plastic envelope, about A3 size, which has the essential virtue of letting the buyer see the goods and judge the prospective results versus the effort involved. The obvious comparison is with its ecological rivals in the shop habitat, 'Birdmobile' colour card kits of birds. Pterodactylus is good value in terms of beastie-for-money, twice as big as birds of the same price, with a wingspan of some 50cm, but it is only printed in brown and black. While pterosaurs presumably had colour vision and were often gaudy, by no means all need have been brightly coloured (cf. Sordes pilosus Mash, 1983). Or perhaps she's a nesting female! The old 'Airfix' plastic Pteranodon had to be painted and was half the size for twice the money (if a lot quicker to assemble).

The model maker will find most of the basic information on how to assemble card models in the instructions (but not the old trick of brown and black felt-tips to colour the exposed white edges of card). The instructions claim, perhaps rather optimistically, that 'this model is suitable for construction by 11 year olds and above or by younger children with supervision', and, I would add, adult help where necessary. So much depends on the individual's patience and skills. For my part, I took some four hours to assemble the model, using a slow-drying glue. A child armed with scissors and 'UHU' could probably cut that time in half.

The pterosaurian body beautiful must be the most difficult thing to model in card, with compound curves everywhere, and one just cannot expect a perfect model to result. What does emerge from the hours with glue, knife and rule is a model whose breakdown is frankly simple, even crude, compared to the quick and subtle 'Birdmobiles'. Many small parts and a somewhat laborious construction give an alarming arthropodan effect, like the segmented armour of a Roman legionary; but when the model is hung from the ceiling this disappears into the general ambience of scruffy saurian. (I completely ignored the instructions to slit the back edges of the body segments to produce 'fur', as being unsuccessful and irrelevant on such a 'stand-off scale' model.)

Is the model accurate? Minor subtleties are beyond the capabilities of the card medium and the gross outline is all that one can usefully discuss. 'Didi', the Bristol Dimorphodon (Johnson 1986), was most helpful on the latest fashions for flying reptiles. Like women's skirts of the 'sixties and 'seventies, she says, the pterosaurian hemline (the posterior edge of the wing membrane) has oscillated in recent years. The current height of fashion, as Didi herself models so charmingly, is the miniskirt, leaving the legs practically free (Cox 1980; Padian 1983).

Those well-known couturiers Dino Frey and Jurgen Riess combine the miniskirt and halter neck in their creations: the wing membrane extends forward of the wing finger, held out by a bony strut (Frey and Riess 1983). But our card model goes for the traditional maxiskirt, with the wing membrane extending down bat-like around and between the legs. The several hundred words of information and the welcome list of further reading on the instruction sheet also tend to go for the 'bat-like pterosaur' model. At least one can easily chop off the excess wing if so minded! The real reason why I mention this is not to criticise the kit, but to point up the real problems which popular writers have in gaining access to the very latest thinking in palaeontology. There is less excuse for the model's omission of eardrums.

I justify this review not just by the fruits of my efforts, and my anticipation of Landscape Models' promised Quetzalcoatlus (surely not 1:1 scale, this!). Three-dimensional models are valuable sources of information and enjoyment, whether a mobile hanging from the schoolroom ceiling, or Little Willie happily spending a wet Saturday with the Pterodactylus kit and Drs Benton, Charig, Halstead and Norman. They also bring much-needed money to the museum.

Models are thus subjects for review in this journal as much as any 2-D book or poster. At their best, they are good enough to put on display. What we need are more high-quality, accurate models of fossil animals in the flesh and (especially) in skeleton form. Only a large vacuum-formed plastic kit would do justice to that thin, compoundly curved wing membrane, which could (like the VW Beetle I once saw) be sprayed with glue and dyed flock for that hairy effect. It would be good if someone resurrected one of the vacuum-forming machines sitting in museum basements!

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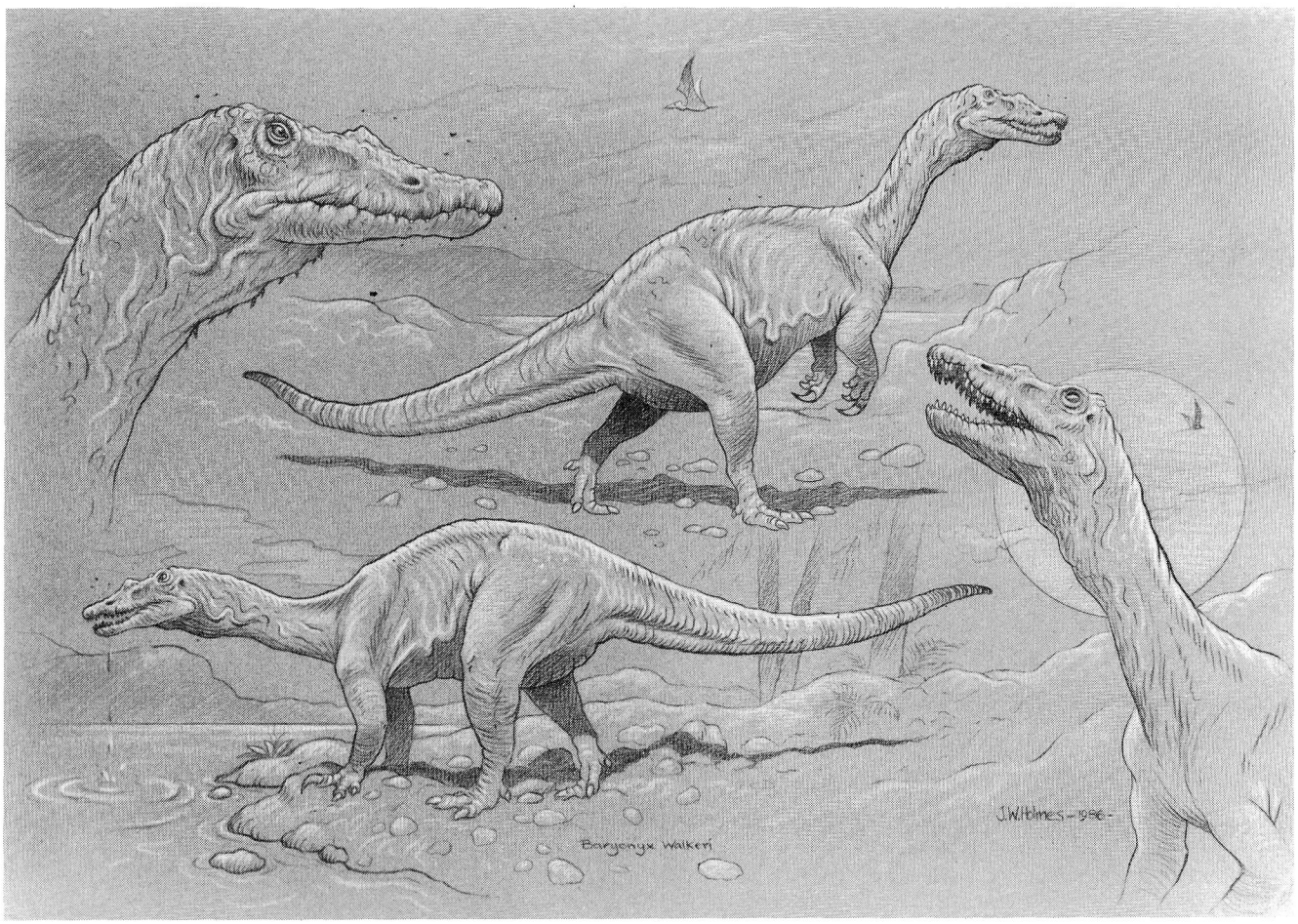
26 November 1986



An artist's impression of the new British carnivorous dinosaur Baryonyx walkeri, by John Holmes (1986). See 'Notes and News'. Copyright BM(NH).

WANTED

AN INDEXER
FOR GEOLOGICAL CURATOR VOLS.2 & 3

The utility of Geol. Curator back issues is presently limited by the absence of an index, after Vol.1. GCG Committee seeks a volunteer to remedy this omission - and is offering an honorarium, of negotiable size. The index compiled by Brian Page, the Group's first editor, and Hugh Torrens at Keele University gives an idea of what is required. Details will have to be worked out with the present editor, and the work supervised by a member of Committee. Those with access to a microcomputer will be at an advantage, but this is not essential. A methodical approach to what will inevitably be a time consuming job is essential, as is accuracy and the ability to complete the task by the end of 1987. Any offers to Peter R. Crowther, GCG Editor, City of Bristol Museum and Art Gallery, Queen's Road, Bristol BS8 1RL (Tel. 0272 299771).

THE GEOLOGICAL CURATOR

PUBLICATION SCHEME

Three issues of the Geological Curator are published each year; a complete volume consists of nine issues (covering three years) and an index. Because of recent delays in publishing, four issues will be published in both 1987 and 1988, approximately quarterly, to make up the deficit to members.

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Articles should be submitted typed on good quality paper (A4 size) double spaced, with wide margin. Two copies should be sent to the Editor, Peter Crowther, City of Bristol Museum and Art Gallery, Queen's Road, Bristol BS8 1RL (Tel. 0272 299771). Line drawings should be prepared in black ink at twice desired publication size. Photographs for halftone reproduction should be printed on glossy paper and submitted at approximately final size. Both drawings and photographs should be proportioned to utilise either the full width of one column (85mm) or two (175mm). References in the text follow the Harvard system i.e. name and date '(Jones 1980)' or 'Jones (1980)'. All references are listed alphabetically at the end of the article and journal abbreviations should follow the World List of Scientific Periodicals where appropriate. Authors will normally receive proofs of text for correction. 50 reprints can be purchased at cost (details from the Editor). Major articles are refereed. Copyright is retained by authors.

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 Don Steward, Department of Natural History, City Museum and Art Gallery, Hanley, Stoke-on-Trent ST1 3DW (Tel. 0782 273173).

NOTES AND NEWS contains short pieces of topical interest. Please send contributions to Michael Taylor, Leicestershire Museums, Art Galleries and Records Service, 96 New Walk, Leicester LE1 6TD (Tel. 0533 554100).

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