GCG THE GEOLOGICAL CURATOR

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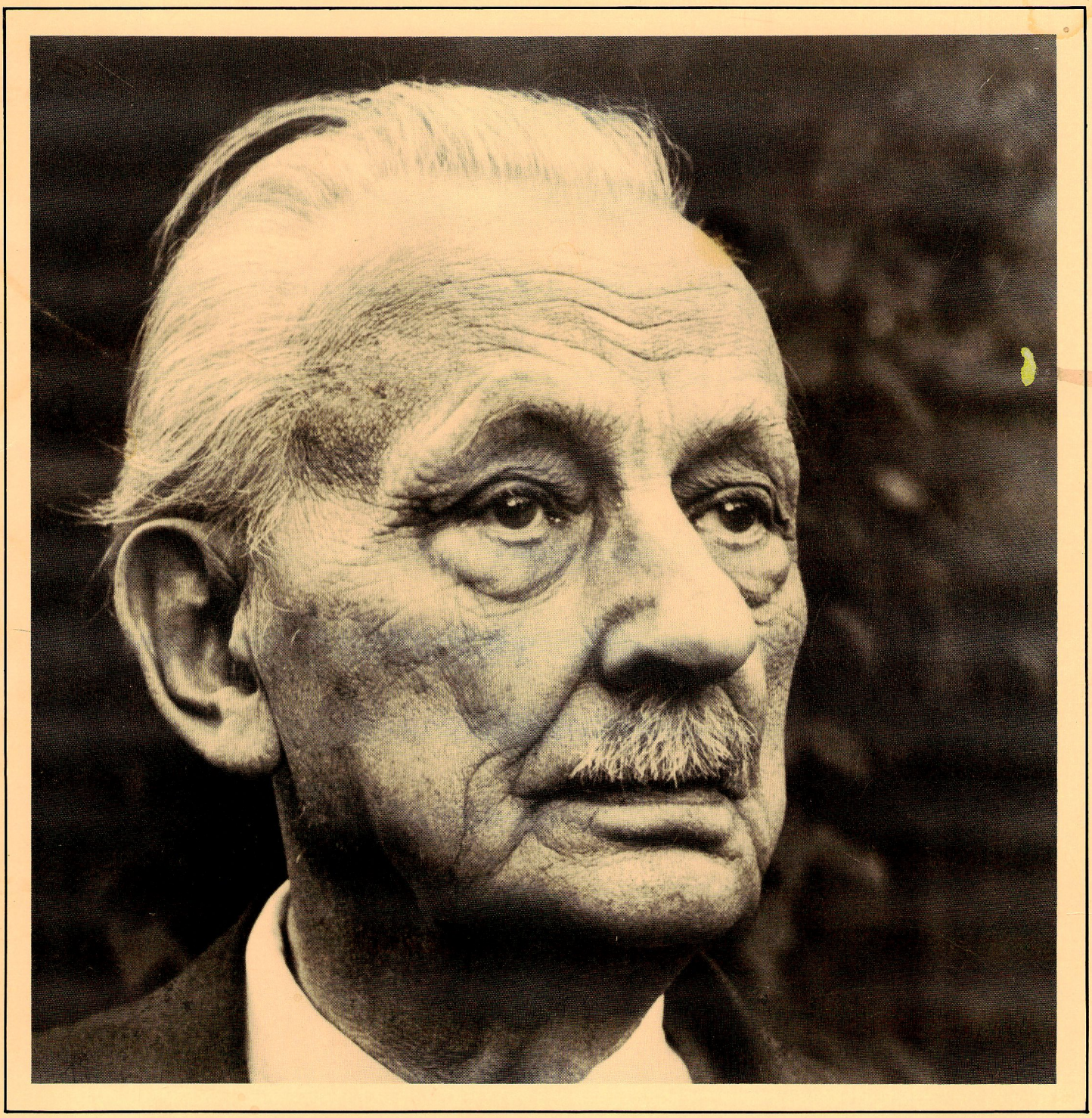

'BERTIE' BRIGHTON (1900-1988)

CURATOR OF THE SEDGWICK MUSEUM, CAMBRIDGE (1931-1968)

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 museum.
- 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.

1989 COMMITTEE

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COVER. Albert George Brighton (1900-1988), 'Bertie' to his friends, was Curator of the Sedgwick Museum, Cambridge University from 1931 to 1968. David Price summarises his career and achievements on pp.95-99. Photograph taken in 1978 by R. Barrie Rickards.

THE GEOLOGICAL CURATOR

VOLUME 5, NO.3

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GEOLOGICAL CURATORS' GROUP

July 1989

EDITORIAL

So what of the fate of British university Earth Science collections, in the wake of the University Grants Committee's (since renamed the Universities Funding Council) Earth Sciences Review? When I last ventured some thoughts on the subject in March 1988 (Editorial, Geol. Curator, vol.5, no.1), we were all digesting the news of what the word 'strengthening' meant in UGC-speak. Strengthening the Earth Sciences was the title of the Oxburgh Report of May 1987 (essentially Stage 1 of the Review process) from which the peer review of Stage 2, by Regional and National Committees, defined their criteria for assessing the worth and past achievements of each department and its staff. The result was to identify about fifteen universities whose large Earth Science departments ('Type M' in UGC-speak) could expect to get the bulk of teaching and research funding in future. This rationalisation has left other surviving departments effectively downgraded in terms of research support, while a number have been closed altogether. Most of the weakened and closed departments house collections of both scientific and historical importance.

Much of the wider university sector has long been unable to summon the will to adequately maintain its museum collections, primarily because the museum function must always give way to a university's primary responsibilities to teaching and research. In times of diminishing state funding the situation can only deteriorate further. This situation has been highlighted more than once by the Museums and Galleries Commission (to no great effect), while GCG has itself not been slow to criticise the poor standards of care enjoyed by important collections in some university geology departments. Such material is generally collected with the help of sizeable chunks of public money, yet all too often the material is left in departments ill equipped to maintain them for the future benefit of either science or society (which foots the bill). Such a situation is not tolerated in publicly funded archaeology, by contrast, where a suitably equipped repository for the total excavation 'archive' (artifacts and their associated data) is nominated before the work on site even begins. At a relatively late stage in the Earth Science Review the UGC got around to examining the needs of those collections put at risk by their 'strengthening' procedures. A Museums and Collections Committee was appointed under the chairmanship of the eminent palaeontologist Sir Alwyn Williams FRS (see previous Editorial). Unfortunately, the Williams Committee's Report not only failed to find much favour with the National Committee at its meetings last summer, but the findings have never been released. It is generally known that the Williams Committee canvassed opinion quite widely; they certainly received a detailed appraisal of the problems and potential solutions from GCG, for example. Perhaps the longstanding lack of support for proper collection care within many university departments, coupled with the immediate need to plan for dramatic relocations of large collections with complex histories - thanks to the Review itself - inevitably led the Williams Committee to recommend measures that went beyond anything the UGC had envisaged funding. Who knows?

To its credit, the National Committee didn't wash its hands of the problem entirely, but appointed one of its number, Professor Perce Allen of Reading University, to have another look at things. Now, although Prof. Allen would obviously have been faced with the problems already addressed by Williams, no doubt this time around the funding expectations were more 'realistically' spelt out by the UFC in advance.

Prof. Allen adopted one of the Williams Report's principal recommendations, that five major Collections Centres should be designated within the university system to deal with the material at risk, and that these should be the existing museums at Oxford, Cambridge, Birmingham, Manchester and Glasgow. Prof. Allen appointed a Steering Group of representatives from each of these museums, under the chairmanship of Dr W. J. Kennedy of Oxford University Museum. The Steering Group's deliberations and eventual recommendations to the Universities Funding Council (UFC) culminated in a letter circulated in April 1989 by the UFC to the Vice Chancellors of all universities with Earth Science departments - not just those with departments closed or downgraded by the Review. The letter referred to the need to rationalise provision for Earth Sciences museums and collections, and that such rationalisation, over a period of three years, would involve:

- all type, figured and cited material and 'certain other specimens' being transferred to Collections Centres or national or some (unspecified) local authority museums.

- the destination of 'other material' being decided by experienced curatorial staff from the Collections Centres in liaison with a nominated staff member from the university Earth Science department concerned.

In short it seems that all status material and probably research collections not actively being worked on or used for teaching is being encouraged to go to a Collections Centre. The letter includes a map on which each Collections Centre is allocated an area of the country to look after. The implication appears to be that future UFC support for museums and collections will be steered exclusively to the Collections Centres. And if so, this would provide a very powerful incentive for even those departments with a secure future to divest themselves of their museum function (beyond the immediate needs of teaching and active research) - since the UFC would not fund such collection care elsewhere.

How is all this likely to work in practice? Is the UFC committed to funding even this 'rationalisation' exercise? And crucially, will the university departments affected cooperate in the way envisaged by the UFC's April letter? More thoughts next issue.

Peter R. Crowther
15 July 1989

Geological Curator, Vol.5, No.3, 1989 (for 1987), pp.95-99.

A LIFE OF DEDICATION

A.G.BRIGHTON (1900-1988) AND THE SEDGWICK MUSEUM, CAMBRIDGE

BY DAVID PRICE

A. G. Brighton, curator of the Sedgwick Museum from 1931 to 1968, died on 9 April 1988 at the age of 87. A short obituary appeared in The Times on 12 April. In view of the decisive part played by Brighton in the development of one of our major geological museums and his role in the evolution of modern standards of specimen documentation, it seems important to give a fuller account of his life's work. For this, nowhere is more appropriate than the Geological Curator because Brighton was the epitome of the dedicated, professional, geological curator.

Albert George Brighton, known more familiarly to colleagues throughout his working life as 'Bertie', was born on 29 December 1900, the son of George Freeston Brighton, a gardener from Streatham in south London. He was educated at St Leonard's School, Streatham and then Westminster City School, from where in 1919 he won a Scholarship in Natural Sciences to Christ's College, Cambridge. He was placed in the first class in Part I of the Natural Sciences Tripos in 1921 and was joint winner of the Wiltshire Prize but obtained only a second class degree in Geology in 1922. In spite of that his mind was firmly set on a career in palaeontology and he decided to remain in Cambridge. For several years he worked there with no official post, supporting himself in part through college supervising. On the basis of research undertaken at this time he published his first paper, on Cretaceous Echinoids from Nigeria, in 1925. It was in this period too that he became involved with the palaeontological collections in the Sedgwick Museum.

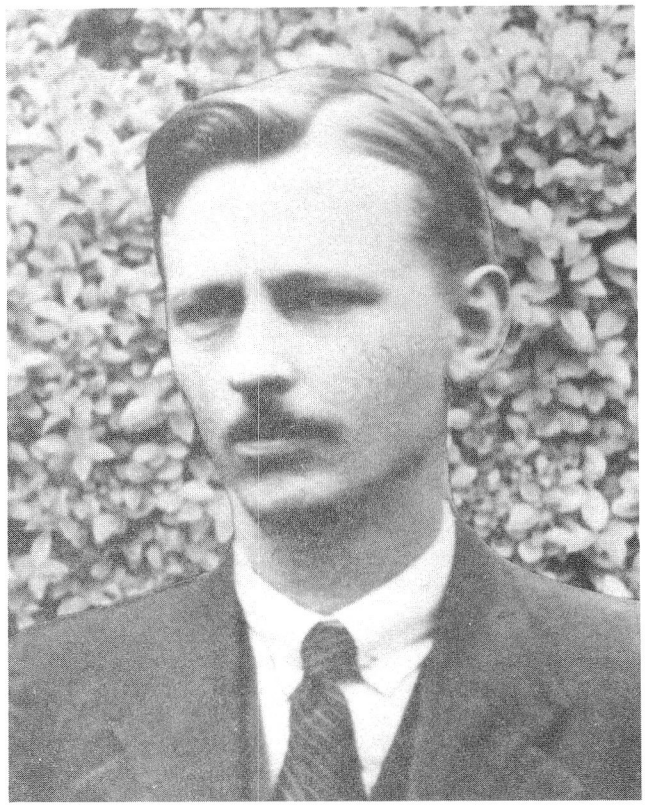

Fig.1. A. G. Brighton at the start of his curatorial career (from the Sedgwick Club photograph for 1931).

THE CURATOR

The Sedgwick Museum had come into being in the early 1900s, when the geological collections were moved from their earlier home, the 'Woodwardian Museum' in the Cockerell Building, to T. G. Jackson's new museum building in Downing Street. This gave much more space for the collections but led to little change in their overall condition. The old Woodwardian Museum had become choked with specimens stored unsorted in boxes and packing cases. Even after the transfer the bulk of these remained uncurated. The material that was curated was treated very much as it had been in the Woodwardian Museum. A specimen, or more commonly two or three specimens of the same taxon from the same horizon and locality, were stuck onto a wooden tablet which was labelled with genus, species, rock and locality data. The tablet was then put into its appropriate place within the overall stratigraphical arrangement of the collections. Tablets as well as cabinets and drawers were numbered. Most type and figured specimens were mounted on tablets with a distinctive blue background and many tablets were also marked with donor labels.

By the 1920s the job of identifying, labelling and arranging specimens in the Museum had fallen to W. B. R. King and Miss G. L. Elles who dealt particularly with lower Palaeozoic material. They had begun a comprehensive single Museum catalogue, recording all the material they dealt with. They also started a simple taxonomic card-index. Their 'official' curating, however, was in addition to their research and teaching duties and proceeded rather slowly. The Museum continued with an enormous backlog of material still unpacked and unsorted. In such circumstances curatorial progress was also heavily dependent upon the voluntary efforts of many others in the Department. Brighton began to help, in particular by sorting, identifying and arranging the Chalk fossils and ultimately incorporating a major batch of Jukes-Browne material into the arranged collections. He undertook this voluntary work in such a thoroughly systematic and effective way as gradually to make the Department and the

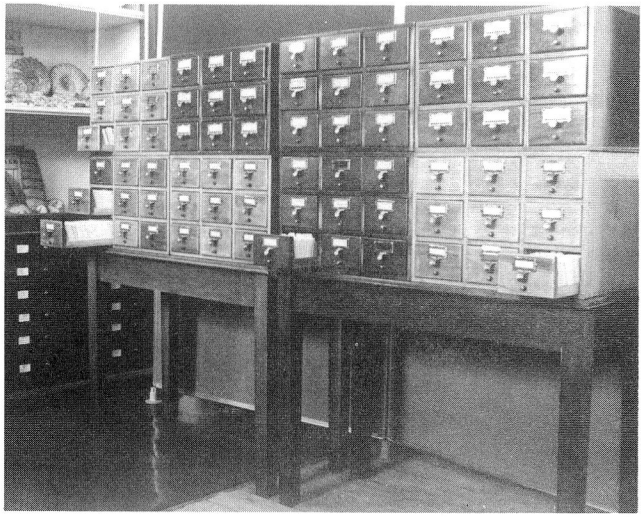

Fig.2. The taxonomically-based hierarchical card-index which Brighton built up throughout his career.

Woodwardian Professor aware of the amount of dedicated work that was necessary to the proper running of the Museum. By sheer example, in fact, he made an obvious and unanswerable case for a full-time curatorship, though it was not until 1931 that such a post was created for him.

In 1931 the tasks facing Brighton as the first designated Curator of the Sedgwick were daunting indeed. Uncurated palaeontological material was dispersed in trays and boxes in almost every room of the Sedgwick building, including cloakrooms and library (where one box reposed in the fire-grate!). Even the sorted and arranged specimens in the main gallery were, with the exception of those dealt with by King and Elles, documented only by tablet labels, many dating back well into the nineteenth century. By the end of his first year Brighton had estimated that the uncurated specimens amounted to around half a million. His initial response was to bring all the unsorted material together into a single storage area on the 'attic' floor where he could assess and gradually organise it stratigraphically and geographically. At the same time he began to select batches for cataloguing, with the aim of extending the single catalogue and card-index begun by King and Elles to cover the whole Museum. To do this he found it necessary to modify their cataloguing procedures considerably.

King and Elles had continued to number tablets rather than specimens; entries in their catalogue and index might thus refer to several specimens mounted on one tablet. Brighton saw the need for each individual specimen to have a unique number and even for distinguishing between its associated parts (e.g. internal and external moulds). He also realised the importance of determining the history of use of each specimen. King and Elles had failed to search systematically for specimens figured and described in the earlier literature and had missed many. Brighton's approach was to search both earlier literature and the collections themselves very thoroughly with the aim of recognising all type, figured and described material. (He never used the term 'cited' but came ultimately to make the much more precise distinction between specimens which had been 'described', those which had been merely 'mentioned' and those - 'listed' - which formed the basis of faunal lists.) Many of his determinations of specimens' histories were elaborate pieces of detective work from which he developed a remarkable ability in such skills as interpreting the source and meaning of old and often faded handwritten labels.

Occupying a newly created curatorship, which was very much a junior post, Brighton certainly faced 'political' difficulties over any attempt to re-think Museum procedures. With Gertrude Elles, in particular, he was to fight many battles over how things should be done. Probably because of the delicacy of his position vis-a-vis such established figures he felt unable to re-catalogue the specimens dealt with by King and Elles or some others such as a batch of Carboniferous corals catalogued in the same style by the young Dorothy Hill. After these early sections, however, the catalogue became truly Brighton's own and followed his much more rigorous standard. The taxonomic card-index initiated by King and Elles evolved too in his hands and became a sophisticated hierarchical index, with types and figured and described specimens distinguished by separately coloured cards, with abbreviated stratigraphical and locality information for each specimen, and with cross-references allowing for changes of name and status through a specimen's history.

Brighton built up his catalogue and card index by attempting to catalogue at the rate of 12,000 specimens a year. On the basis of his first three or four years this would have seemed a realistic figure (Table 1). It may also have been chosen because it was readily divisible to give monthly or termly targets. With time, the annual target became something of an obsession, but given the size of the uncurated 'backlog' he had to deal with, one can see why. It is the strength of Brighton's achievement that he never gave up his attack on that uncurated backlog. Even in his year of retirement he catalogued over 9,000 specimens and brought the total number of specimens catalogued during his thirty-seven years as Curator to almost 375,000 (Table 1).

OTHER DUTIES

It should not be thought that Brighton devoted his time in the Sedgwick exclusively to documentation. In his early years he also did a great deal of innovatory display work in the Museum. His first and major project, begun in 1932, was a display of various aspects of the morphology and evolution of the Chalk fauna. Then came displays on rudist bivalves, Triassic cephalopods, Carboniferous non-marine bivalves, morphology of rugose corals (in conjunction with Dorothy Hill) and many others. These displays were in addition to the frequent re-arrangement of

material in the Museum which became necessary as new catalogued material was incorporated and as new table-cases were purchased at irregular intervals until the 1950s. At the same time, he had of course to deal with such things as research enquiries, loans, exchanges and presentations to schools.

It should also be realised that Brighton was never a truly full-time curator. Throughout the 1930s and early 1940s his salary for curating was so meagre that he was heavily reliant on college supervision and on paid teaching within the Department to bring it up to a reasonable level. His Departmental work included responsibility for the series of lectures and local excursions which took place during the Long Vacation 'Term'. From 1930 he also took on compilation of the echinoderm section for the Zoological Record. Even after 1945, when the Sedgwick curatorship became attached to a University lectureship and he was at last paid reasonably, he continued with many of these non-curatorial duties, including the local field-classes. During this period he regularly lectured to Part II (Natural Sciences Tripos) students on the echinoderms. For a short while he was responsible for the whole of Part I palaeontology teaching and for some years also for practical classes of map-interpretation. He supervised several Research Students and between 1952 and 1968 was Departmental Librarian.

When these other demands upon his time are considered, it can be appreciated what an enormous effort of dedication and self-discipline it took for Brighton to identify, number, catalogue and index several thousand specimens, year-in, year-out, for thirty seven years. This was not bare cataloguing but cataloguing to what was, for the time, an

Fig.3. The Sedgwick Museum 'Shelf Catalogue'. This type-written, loose-leaf catalogue and its accompanying card-index (Fig.2) were the key features of Brighton's manual cataloguing system. By the end of his career Brighton had filled 170 of these catalogue binders.

Table 1. The numbers of specimens catalogued during each year of Brighton's curatorship of the Sedgwick Museum.

1931-32	14,827	1943-44	10,965	1956-57	14,539
1932-33	12,363	1944-45		1957-58	6,299
1933-34	10,032	1945-46	5,434	1958-59	12,189
1934-35	12,350	1946-47	9,948	1959-60	9,502
1935-36	12,000	1947-48	12,785	1960-61	23,987
1936-37	12,000	1948-49	12,560	1961-62	8,492
1937-38	11,229	1949-50	9,016	1962-63	12,189
1938-39	11,234	1950-51	6,794	1963-64	12,055
1939-40	9,620	1951-52	3,453	1964-65	8,857
1940-41	7,150	1952-53	4,608	1965-66	14,721
1941-42	7,982	1953-54	8,101	1966-67	8,190
1942-43	11,056	1954-55	6,193	1967-68	9,277
		1955-56	12,660	Total	347,657

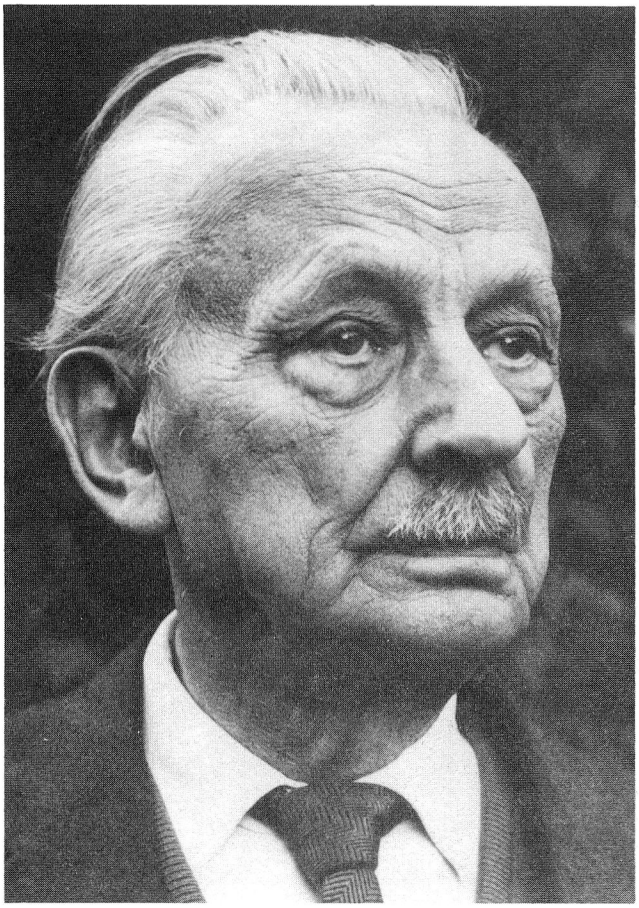

Fig.4. A. G. Brighton in 1978, ten years after retiring from his curatorship. Photograph by Dr R. B. Rickards.

unusually high standard. To get maximum documentation he made full use of old labels, earlier catalogues (including collectors' and donors' catalogues, all of which were carefully retained) and even notes scribbled by earlier research workers on specimen tablets. Where the information could be gleaned, his records included a collector and date, a donor or vendor and circumstances of acquisition, stratigraphic and locality information and a complete research history of the specimen with bibliographic references. These records were typed in a series of stout loose-leaf binders (the 'shelf catalogue', Fig.3) in a way which gave ample space for them to be updated as research continued. They were supplemented not only by the card-index but also by a supporting 'curator's library' of collectors' locality maps, field-notebooks and annotated monographs and papers.

Thus through the 1930s and the 1940s the Sedgwick emerged as an extremely well-ordered museum with an exceptionally high standard of specimen documentation. For researchers it was a joy to work in. Type, figured and cited specimens were readily to hand with full documentation and even most of the uncatalogued material was by then well-organised and accessible. All the many palaeontologists and stratigraphers who used the collections during the Brightonian era or have used them since will own their enormous indebtedness to Bertie Brighton.

LEGACY

But it is not only those who have worked directly on the Sedgwick collections who are thus indebted. The Sedgwick's unusually high standard of documentation ultimately paid dividends to the whole museum community when in the 1960s it became an important factor in the development there of J. L. Cutbill's work on computer-based museum documentation (which was initiated with Brighton's strong support). Cutbill's perceptive analysis of the structure inherent in Brighton's catalogue suggested many of the fields and data-groups into which museum records in general could be analysed, and the clear type-written shelf catalogue allowed direct and rapid transcription by typists to build-up a machine-readable catalogue on which to test new data-handling software. Brighton thus strongly influenced Cutbill, the Information Retrieval Group of the Museums Association, and ultimately, the Museum Documentation Association (MDA). Even now it is possible to see within the MDA's Museum Documentation System features (e.g. the use of square brackets around inferred information) which have their ancestry in Brightonian conventions.

It could thus be seen as ironic that the very success of this work on computer documentation led ultimately to the replacement in the Sedgwick itself of Brighton's cataloguing system. As the person finally responsible for the abandonment of that system, I was viewed by many at that time almost as an iconoclast. Yet as I have indicated, the new system in a sense evolved naturally out of its predecessor, and certainly one of the main reasons the Sedgwick's computer-based system became as practical and effective as it did is that it had a very practical and effective system to replace. Establishing that new system was by no means a betrayal, but rather an affirmation of the values of Brighton's curatorship.

Brighton saw his role as curator very much as one of advancing the science of Palaeontology. He tackled this partly through Museum teaching - for example, by mounting displays related to undergraduate courses. Mainly, however, the Museum was a repository of priceless research material and was organised for the convenience of research workers. He regarded the huge backlog of uncurated specimens of his early years as so much material 'in limbo' which it was necessary to sort, identify and catalogue in order to release it for research and teaching. This was the job he set himself to do. He knew that among the backlog was much material of great potential importance, including unrecognised type, figured and cited material. Anxious to meet the needs of researchers to refer to such specimens, he steadily incorporated them into a collection where they were clearly identified and easily retrievable. Working in a university department which had a constant appetite for teaching material he had a fear that, if important specimens were not clearly identified, they might inadvertently end up in teaching collections (as, indeed, they sometimes did).

Brighton worked continuously and determinedly at the task he had set himself. He had no romantic illusions about curating but knew exactly what it involved. 'The result of another year's drudgery' he wrote in his annual report for 1959 'is more satisfactory than that of last year, since we have achieved our aim of cataloguing 12,000 specimens.' Curating at such a rate, he went on to say, had been possible 'only by the curator ceasing in research and withdrawing from practically all outside geological activity.' In spite of his great interest in the echinoderms, he denied himself the time to publish more than a few short papers. He published nothing museological and even deliberately minimised the time taken in compiling his annual report - 'it was considered more important to do the work', he wrote in 1962, 'than to hold up the work by taking time to write about it'. To him this work was clearly necessary, urgent, and self-evidently worthwhile. He looked for no further reward. Indeed he felt that among his academic colleagues his efforts were little appreciated. He felt that they regarded curating as an unimportant, peripheral sort of activity which practically anyone could do. This saddened him but did not affect his conviction that the work was of basic importance or his relentless determination to pursue it. In the face of such lack of sympathy, Brighton's life's work becomes even more remarkable. It remains as an inspiration for all who continue the still often thankless struggle to bring order to our neglected geological heritage and thereby open the doors to new research.

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A NOTE ON THE GEOLOGICAL SOCIETY DONATION LIST

BY JOHN C. THACKRAY

One of the most useful sources of information on the activities of early collectors of geological specimens is the series of donations lists printed by the Geological Society from 1811 to the end of the century. They appeared in the Transactions of the Society from 1811 until 1842, in the Proceedings from 1826 until 1846, and in the Quarterly Journal from 1845 until they petered out in the 1880s.

Because these lists are so useful and are occasionally referred to in historical articles, it is worth noting that they are inaccurate in places, and that independent sources can be used to check them. These sources are the manuscript minutes of ordinary meetings of the Society (Society archives OM1 and OM19), the museum letterbooks (Society archives MUS1 and MUS2), the inventories known as 'waste books' in the Palaeontology Library of the British Museum (Natural History), and the specimens themselves in the BM(NH) and British Geological Survey, Keyworth.

The printed lists record the donation of books, maps, prints, manuscripts and objects such as models and busts, as well as museum specimens. Books make up one list, specimens another, and the remaining items are listed together. This means that a single donation of specimens, a map, manuscript section and a printed pamphlet will be divided among separate lists, even though they may all be related. In the Transactions, donations are given a date which, from 1808 to 1813, is the date of the ordinary meeting at which the gift was reported, and from 1814 onwards approximates to the actual date of receipt. Proceedings and Quarterly Journal give only an annual list, and do not list books.

A number of misprints occur in the dates of donation given in the Transactions, which are apparent when pages are read in sequence. They occur in Vol.2 (First Series), p.543 (1813 and 1814 should be 1812 and 1813) and p.546 (1812 should be 1814); Vol.3 (First Series), p.426 (1815 should be 1816); Vol.3 (Second Series), p.32 (1833 at top should be 1832); and Vol.6 (Second Series), p.32 (1841 should be 1842). A further, less serious dating error, in Vol.1 (First Series), p.406, is revealed by comparison with the minute book. Here the final item on the 3 March list came in on 5 May, and the two preceding items on 7 April.

There are numerous errors in the naming of donors. Some are simply due to carelessness on the part of the Curator. Early references to H.G. Bennett, Miss E. Bennett and the Rev. J. Gilding are replaced in later volumes by the more correct H.G. Bennet, Miss E. Benett and the Rev. J. Guilding. Other mistakes were caused by the misreading of difficult signatures. The Rev. Mr Hannah and the Rev. J.T. Lewis are cases in point, later corrected to the Rev. Mr Hennah and the Rev. T.T. Lewis. A misreading that caused some trouble was a record of the presentation of fossil bones from Bath by Dr D.H. Wilkinson. Hugh Torrens carried out an extensive search for information about this man, until the discovery of the letter of presentation in MUS1 revealed that the donor was in fact the better-known Joseph Wilkinson. Misprints in the description of items are usually easy to spot, such as the print of the fossil plant from 'cool strata' given by Joseph Townsend in April 1815.

In other cases the man listed as the donor was not much more than a postman. When Signor Monticelli sent specimens from Ischia to the Society in 1819, he asked Lord Compton, one of the vice presidents, to deliver it. This is clear from the minute book, but in the printed lists Compton's name is the only one to appear. In other cases the donor was not the original collector or artist. Sir Joseph Banks is correctly recorded as having given specimens from Sussex in 1812, but only in MUS1 does it become clear that they were given to Banks by William Holloway of Portsmouth, who had collected them himself.

In many cases the minute books give more information than the printed lists, by detailing what are simply recorded as 'other specimens' for example, adding localities and other details. The 'large slab of marble from Devonshire' given by W.H. Pepys in 1810, is described as 'illustrating the disturbance occuring in mineral veins' in the minute book, for example. In a few cases complete inventories of collections are preserved in MUS1 and 2 as well as in the BM(NH) Paleontology Library collection. The most puzzling discrepancy between the different sources is the large number of items which are recorded in the minute books but which do not appear in the Transactions. Were they accidentally omitted, or are they collections which, after further consideration, the Curator decided not to accept? Much work is needed on the surviving collections before this question can be answered.

The printed donation lists of the Geological Society are a very valuable source of information, and deserve to be more widely known and used. However, as with all early printed records, they must be used with care.

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THE FUTURE OF EARTH SCIENCES SITE CONSERVATION IN GREAT BRITAIN

BY P.ALLEN, M.J.BENTON, G.P.BLACK, C.J.CLEAL, K.M.EVANS, S.I.JUSYPIW, M.A.ROWLANDS AND T.S.WESTOLL

INTRODUCTION

The small area of Great Britain (c.230,000 km^2) shows a remarkable range of geology. All thirteen periods of geological history recognized by the IUGS Commission on Stratigraphy are recorded in a wide variety of sedimentary, igneous and metamorphic rocks, and there are many classic localities.

This crowding of great diversity into a restricted area produces major problems because there can be only a few sites for demonstrating any particular geological feature. Further, Britain's populace requires ample and convincing justification of the benefits of conservation if this is to gain acceptance as the preferred use of land for even the most important sites. Competitors are many - old mineral workings can provide prime sites for waste-disposal, coastal sites are often destroyed by sea defences designed to protect inland areas, large-scale extraction may damage or destroy small exposures, and 'aesthetic' landscaping can completely obliterate natural and man-made exposures. These economic and social pressures are the greatest threat to our resource of irreplaceable Earth science sites, and it is difficult to justify conservation if the price is a loss of jobs or a lower quality of life for local people. Great care has to be taken in selecting only those sites which are scientifically worth defending.

It is not surprising, therefore, that ours is one of the few countries which has a Government-funded body - the Nature Conservancy Council (NCC) - to devise a conservation strategy for sites, including Earth science localities, and to implement the resulting programmes. In 1977 NCC embarked on a thorough analysis of the resource of Earth science sites, an essential first step to framing a rational site-selection strategy. This was the responsibility of the Geological Conservation Review Unit and, although the GCR Unit has now been disbanded, its achievement must influence the development of Earth science for many years to come. This paper, based on the experience of ex-members of the GCR Unit, outlines the general philosophy and practice of Earth science site conservation in Great Britain.

DEVELOPMENT OF EARTH SCIENCE CONSERVATION IN GREAT BRITAIN

The roots of nature conservation undoubtedly extend back to the mid-nineteenth century, and even further if one includes the establishment of hunting sanctuaries by the Anglo-Saxon and Norman kings, and of the Abbotsbury Swannery in the fourteenth century (Stamp 1969; Sheail 1976; Black 1978a; Ratcliffe 1984)

Wildlife conservation originated in 1869 with the Sea Bird Protection Act, followed by the foundation of the Royal Society for the Protection of Birds twenty years later. In 1912, the more broadly based Society for the Promotion of Nature Reserves (now the Royal Society for Nature Conservation) began compiling a list of areas needing protection for their biological interest. Supported by several wealthy patrons, the SPNR began in 1888 purchasing land to manage as reserves.

Earth science conservation started about the same time. The Lepidodendron stumps in the Glasgow Fossil Grove have been attractively housed in situ by the city's Parks Department since 1887, and Edinburgh has cared for Agassiz Rock for much the same period. In Sheffield, another group of Lepidodendron stumps, discovered during building operations, was protected by two sheds after representations by Professor H. C. Sorby. A private benefactor bought Croham Hurst because of its geological interest and gave it to Croydon as a park. Unlike their biological contemporaries, geologists were content to let their sites remain the property of others and to manage them by mutual agreement. They usually acted independently, whereas the biologists preferred to take corporate action through their societies. Until quite recently, therefore, Earth science organizations have not taken conservation on board. This has seriously hindered the development of Earth science conservation.

The second phase in the development of nature conservation in Great Britain began during the Second World War. In the early 1940s, committees were set up to consider practically every aspect of human life that might be improved. The wildlife conservationists in the SPNR quickly grasped the opportunity, seeking official recognition of the needs of conservation by setting up the Nature Reserves Investigation Committee (NRIC). This body was drawn from biologically-orientated organizations; Earth scientists (still tending to act individually) were poorly represented. To its credit, however, the committee commissioned an Earth science report, and this became the basis of organized Earth science conservation in Great Britain. A resolution passed by the 1948 International Geological Congress recommended that other

countries should also adopt such a policy (Butler 1950), and it is clear that the actions of the NRIC met with general approval from the international Earth science community. Eventually the NRIC gained official status, becoming the Wild Life Conservation Special Committee. The reports of these committees have determined the Government's role in nature conservation up to the present day.

The resulting National Parks and Access to the Countryside Act (1949) went on to introduce conservation through planning control, supplementing the established technique of conservation through site purchase. In those days, effective national planning controls were something of a novelty and it was hoped that they could be used to attain a reasonable balance between conservation and the needs of competing interests. The Nature Conservancy (which later became the Nature Conservancy Council - NCC) was set up by Royal Charter to administer the new planning powers and it was apparently intended to treat Earth science and wildlife conservation on equal terms. Earth and biological scientists had rarely worked together on a conservation body, and it was soon found that the needs of the two disciplines were so different that their efforts could not be integrated. Consequently, a fundamentally distinct programme for Earth science conservation was developed and implemented successfully through the planning mechanisms. Details of how it worked (and still works) in practice are discussed later in this paper, and numerous case histories have appeared since 1967 in the journal Earth Science Conservation. It is worth noting, however, that the Earth scientists became quite proficient, both in running public inquiries and in negotiating informal agreements (e.g. over access) where the planning laws did not apply.

Selecting localities for conservation must always be somewhat subjective, but Earth scientists have sought a rational and objective system. Its successful operation depends on combining the views of those who have the relevant scientific knowledge with a set of realistic criteria. First conceived in 1962, this developed into the practices used by the authors and others in the Geological Conservation Review (GCR) Unit and has constituted the sole basis of Earth science site selection within the NCC since 1977 (Black 1978b, 1978c).

While these developments were underway, the biologists were experiencing difficulties because some potentially damaging operations (e.g. farming, forestry) were not controllable through the planning procedures. Eventually, new legislation was enacted to overcome these problems: the 1981 Wild Life and Countryside Act (amended twice in 1985). This geatly expanded NCC's powers, particularly by enabling it to prohibit damage to conserved sites (e.g. draining wetlands, ploughing meadowlands), subject to compensation for any resulting loss of profit. For each site, the NCC must now provide a list of 'Potentially Damaging Operations' (PDOs), for which landowners must give four months written notice if they intend to carry out one or more of them (Richards 1986). This allows NCC time to negotiate with the landowner, to try to minimize the damage. If no agreement is reached, NCC can ask the Secretary of State for a Nature Conservation Order prohibiting the operation. This change was framed almost exclusively for the benefit of wildlife conservation. As noted below, few of the PDOs are specifically relevant to Earth science sites or likely to benefit them. Successful Earth science conservation must continue to depend on operating mainly through the provisions of the planning laws and through consensus between the scientific community and the lay public (Black 1985).

In recent years, the organization of Earth science within the NCC has undergone dramatic changes, causing considerable disquiet among the outside scientific community. Many of the developments have already been documented in this journal (Crowther 1985) and need not be repeated here.

SITE SELECTION AS PRACTISED BY THE GCR UNIT

The coverage of Earth science 'Sites of Special Scientific Interest' (SSSI) was recently reviewed by the NCC's Geological Conservation Review Unit. For reasons explained below, site selection was based exclusively on scientific criteria. This resulted in two basic categories: internationally important sites, to which geologists from all over the world might need to refer; and nationally important sites. Those of purely local significance were not included. The two categories are further subdivided, as outlined in the Appendix to this paper.

Sites were selected after discussions with relevant experts and receipt of both lay and scientific opinions. Three further guide-lines were also used. First, each site had to make an important contribution to our understanding of the geological interval, fossil fauna or flora, mineralogical assemblage, or other topic represented. Second, preferance was given to sites regarded as fully representative of a particular feature, or occupying a significant location (e.g. linking separate core-areas of research) or showing significant lateral or vertical variations compared with standard sections. Third, efforts were made to minimize duplication of interest between sites. In principle, the difficulty of conserving a site was not used as a criterion during selection, although sites which would be impossible to conserve (e.g. a working quarry with a 'back-fill order') were usually rejected.

CONSERVATION OF EARTH SCIENCE SITES IN PRACTICE

Until recently, the only way to safeguard a site was by purchase, and turning it into a 'Geologcal Monument' or 'Geological Park'.

Fig. 1. Spittal Quarry, Caithness. A world famous Devonian fish sites, recently threatened by infilling with domestic refuse. The site was saved, however, following a concerted campaign of protest by the geological community.

This is probably still the most effective means of conservation. Examples are the 'Fossil Grove' in Glasgow and the Achanarras fossil fish site in Caithness. However, the cost of purchasing and managing such sites can be considerable, especially in urban areas, and it cannot be used to provide a comprehensive basis for conservation.

A cheaper means of protecting sites is through agreements with their owners. Management of a site is then taken over by an independent body (usually the NCC) without whose permission nothing scientifically detrimental can be undertaken. The site still belongs to the original owner, who is usually compensated for loss of rights. Such management agreements can of course be costly (though still cheaper than purchase) and are therefore made only for the most important and sensitive sites.

Most of the conserved Earth science sites are now protected through the planning laws. Proposed development, which would be detrimental to a site, normally requires permission from the Local Planning Authority. When the NCC designates an SSSI, the Authority is required to notify it of any application for development in the designated area. If the NCC judges that the development will damage the site, it then negotiates with the developer to see if there is any way in which the plans might be modified to avert this. Should no agreement be reached, the NCC makes representations to the Planning Authority, pleading that the development should not be allowed. If faced with failure again, the NCC can, as an ultimate step, ask for a Public Inquiry to decide the matter. At each stage, the NCC can only rely on its powers of persuasion, and must therefore have a water-tight case based on the best scientific evidence. The GCR Unit was originally established to provide this evidence, and over the years has proved an effective means of protecting sites.

The protection of SSSIs from developments not requiring planning permission was strengthened by the 1981 Wild Life and Countryside Act. This was introduced mainly for wildlife sites, covering such activities as agriculture and forestry. Relatively few PDOs are relevant to Earth science sites, and of those that are, most apply to geomorphological sites. Notable exceptions are the dumping of agricultural waste (which does not normally cause irreparable damage because it is usually easily removable) and the collecting of specimens. Nevertheless, the NCC usually nominates up to eight PDOs per site (sometimes over twenty if there is a wildlife interest also), but few would in practice affect Earth science interests. Many landowners regard PDOs with some suspicion, if not hostility, because they appear to restrict ownership rights. As a result, some landowners have become directly antagonistic to conservation and Earth scientists in general. Cases are known where, as a protest, all geologists have been barred from a site. If the use of PDOs had major advantages for protecting Earth science sites, then this sort of thing could be regarded as regrettable but unavoidable. However, PDOs seem to have few real advantages.

Fig.2. Bearsden, Glasgow. One of the most important Lower Carboniferous fish sites to be discovered in recent years. It represents an example of close co-operation between geologists (in this case the site's discoverer, Stan Wood) and NCC's Geological Conservation Review Unit, who sponsored the excavation.

RATIONALE BEHIND EARTH SCIENCE CONSERVATION

The importance of nature conservation is now widely accepted, and it should be 'an essential concern of civilized society in general and of governments in particular' (Stamp 1969, p.61). During times of national prosperity this might be sufficient to justify the financial outlay for pursuing realistic conservation policies. When the economic climate is less favourable more cogent arguments are needed.

One of the earliest cases for Earth science conservation was made by Stamp (1969, p.42), who noted its importance for maintaining the habitats of plants and animals. He was aware that such conservation also had an intrinsic value, and that the issues concerned were distinct from those of wildlife conservation. However, he did not attempt to analyse these issues, seeming content to rely on the same type of consensus-based rationale with which he justified wildlife conservation.

Stamp's clear-sighted realization that the problems of Earth science and wildlife conservation are different was reflected in the names given to conserved areas by the various founding bodies: 'nature reserves' for wildlife sites and 'Geological Parks' or 'Geological Monuments' for the Earth science sites (Sheail 1976). Official conservation bodies in this country have, however, tended to regard the two types of conservation as essentially similar. Seeking an improved and more acceptable rationale, Ratcliffe (1984, p.75) argued that both should be practised in an essentially 'cultural' way, so that 'the conservation of wild flora and fauna, geological and physiographic features' should be 'for their scientific, educational, recreational, aesthetic and inspirational value'. This was little advance on Stamp, being based mainly on the problems of wildlife conservation. Earth science received scant attention, beyond a brief statement that the conservation of its sites was largely for their scientific and educational value. Nevertheless, Ratcliffe's conclusions provide a starting-point for developing a more meaningful rationale for Earth science conservation.

The importance of Earth science is indisputable. In addition to its values as a 'pure' and applied science, it occupies a key position in linking many of the other sciences (Holmes 1965, p.9). Being essentially field-based (however sophisticated the laboratory follow-up) it is often bedevilled by difficulties of testing and reviewing hypotheses. In most sciences this is done experimentally, but Earth science hypotheses are often only testable or reviewable through 'static' observations in the field. Site conservation is thus vital for the two basic activities in Earth science.

Ratcliffe's second reason for nature conservation is the site's educational value. Earth science education must of course always involve a high content of fieldwork. However, it does not necessarily follow that formal conservation measures should normally be used to protect terrains for this purpose. The requirements of an educational site are generally less demanding than for a research site. To teach students about types of unconformity, the examples visited are unimportant, so long as the feature is clearly displayed. Students can work on a variety of sites yielding fossil plant compressions to learn how to collect. Generally, too, alternatives are available when an educational site is lost. When they are not, then the original site may have been unique enough to have made it inappropriate as a training ground, anyway. There can be few cases where it is justifiable to use formal conservation powers (which could be detrimental to the landowner) for saving a purely educational site.

The recreational role, given by Ratcliffe as a reason for conserving sites, has no really independent validity. Like professionals, most amateur Earth scientists are interested in investigating a site and learning from it. Only a minority will want to collect fossils or minerals without an interest in their scientific significance. The importance of amateur Earth scientists is

Fig.3. Doe Lea, Derbyshire. The international stratotype for the Westphalian B - Westphalian C boundary, which was recently covered over by a weir. The left picture shows the site after the construction of the weir, the right the results of the excavations made to recover the site.

high and their needs are no different from the professionals' when it comes to site conservation. They have the same moral right to site access (Duff 1979).

Ratcliffe's remaining justifications for site conservation, the aesthetic and inspirational, raise interesting matters mostly beyond the remit of Earth science. As some geologically sensitive artists have shown, quarries and muddy streams can have aesthetic qualities, which might be deemed to justify their conservation. The subjective judgement needed to assess such qualities, however, is quite different from that needed to assess the scientific merit of a site, and is quite outside of the remit of Earth science site conservation as it would normally be interpreted. There can also be inspiration in these sites, but not necessarily in the way meant by Ratcliffe. An Earth science site can inspire anyone making the effort to read it. Such inspiration may come from an understanding of the vastness of geological time or details of the evolutionary story. There may also be inspiration in contemplating historically important sites (e.g. Fingal's Cave, Hutton's unconformity at Siccar Point). Except for some geomorphological sites, which may have scenic qualities, the inspiration from 'contact with nature' and with 'scenic beauty' which Ratcliffe discusses also seems to be outside of the remit of Earth science conservation, as normally interpreted.

In summary, the essential reason for conserving Earth science sites is their intrinsic scientific interest. Conservation allows professional and amateur scientists to consult and investigate exposures, and to test, re-test and re-frame their hypotheses or interpretations. This has three major consequences for conservation.

First, the conserved sites must be scientifically very important (details of the categories are discussed in the Appendix). They should preferably be sites at which original researches were made. If these are no longer available, then the closest comparable British site should be conserved. New sites must also be considered. A stagnant list of 'important' sites has progressively less relevance to an expanding subject like Earth science (Benton et al. 1985).

Second, bona fide scientists should not be denied access to a conserved site, so long as they have permission from the landowner. It has been proposed that access be restricted in some cases, in order to extend a site's life-expectancy (e.g. Duff 1985). Pressure on sites within areas popular for student instruction (e.g. Devon, Cornwall, Dorset, Arran, South Wales) can be considerable (Black 1966, 1971; Walton 1979), but very few have been seriously damaged by over-collecting (Benton and Wimbledon 1985; Benton et al. 1985). Far better to encourage a more constructive approach to collecting amongst geologists (Robinson 1987). The provision of guides to alternative educational sites (e.g. Lawson 1977; Duff et al. 1985) can also help to relieve the pressure on particularly vulnerable areas. Commercial collectors are alleged to have damaged the interests of some sites (Gittins 1977; Duff 1979), but no figures are available to prove significant deterioration, let alone loss, of any such sites. In our view, the extent of the damage on a national scale caused by commercial collectors has been exaggerated, and there are few cases that we know of where the scientific interest of a site has been seriously damaged by their activities. It has become increasingly accepted that some commercial collectors may have a significant role to play in the subject, and that they should not unnecessarily be hampered by conservation bureaucracy (Benton et al. 1985; Wood 1985; Durant et al. 1986; Fowles 1986).

Barring access to scientists (amateur and professional) would divest sites of their only real significance, so there would be no point in conserving them. Imposing selective restrictions (e.g. by allowing in only 'reputable' scientists) is invidious, and amounts to scientific censorship. Who would be able to control such censorship objectively? An independent body, such as the NCC, woud rarely be competent (see comments by Wimbledon 1986). Restricting access to sites will rarely have practical benefit and is scientifically undesirable.

Third, great care must be taken when 'site-cleaning'. This always causes some physical damage to the site as well as deepening the weathering of the rock. 'Cleaning' can only be justified if it results in major scientific benefit; for example by combining it with organized and concurrent studies of the new exposure. Many such projects were undertaken by the GCR Unit (described in various issues of Earth Science Conservation). Cleaning a site just for the sake of it should be avoided.

FUTURE OF EARTH SCIENCE CONSERVATION IN GREAT BRITAIN

We believe that the above provides clear guide-lines for future policy on Earth science conservation. Future policy must make provision for the following interdependent tasks.

1. Systematic and comprehensive recording of Britain's resource of geologically significant localities.
2. Identification of all localities which are nationally and internationally significant.
3. Continuous updating of documentation to incorporate new data produced by scientific research and non-scientific developments (e.g. new exposures created through civil engineering works).
4. Presentation of the cases for maintaining the scientific interest of all nationally and internationally significant localities, whenever threatened by adverse development proposals.
5. Ongoing analysis of the cases for maintaining or improving the scientific localities subject to natural or man-made deterioration.
6. Realization of the scientific potential of each nationally and locally significant locality by ensuring that it is used most appropriately (e.g. avoiding over-use and neglect, matching users' scientific skills to its particular interest), thus maximizing the scientific return.
7. Adding, as opportunities arise, new localities to Britain's stock of geological assets.
8. Rationalization of policies on site and museum conservation, to assist in the development of an integrated national approach to Earth science data-storage.

The guiding principle behind the above is that Earth science conservation should be for the promotion of Earth science research, its justification being based solely on the importance of Earth science itself. There is no independent conservation community to whom it is relevant.

At present, the responsibility for Earth science conservation lies principally with the NCC. Several other organizations, including the Geological Society, Geologists' Association, Geological Curators' Group and Palaeontological Association, have sections concerned with Earth science conservation, but with little real power to implement policy. The new British Institute for Geological Conservation (Allen in press) may have a co-ordinating and advisory role to play. The situation is unlikely to change and the NCC will remain responsible. The NCC is, however, principally concerned with wildlife conservation. It is therefore essential that the Earth science community as a whole participates in monitoring potentially damaging developments on sites, and actively campaigns to save them. This is the only effective way to conserve Britain's rich heritage of Earth science sites.

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APPENDIX: CONSERVATION BASED CLASSIFICATION OF EARTH SCIENCE SITES

I, internationally significant sites.

1, internationally recognized stratotypes.

a, IUGS-approved interval and boundary stratotypes.
Perhaps the most important sites for conservation, being keystones to the stability of stratigraphy.
b, stratotypes currently used regionally or globally.
Sites widely used to define stratigraphical intervals and boundaries before the IUGS subcommissions have formally chosen a stratotype.
c, historical type sections.
Sites where rock and time unit were first described and characterized, but which were not selected by the IUGS subcommissions as formal stratotypes (i.e. the remains of category I.1.b after I.1.a sites have been removed).

2, internationally recognized classic landforms.

a, classic 'landform landmarks'.
Geomorphological features recognized internationally as classics of their kind.
b, unique sites.
Landforms known nowhere else in the world; may also include unique superficial deposits, fossil floras and faunas.

3, internationally recognized palaeontological sites.

a, type localities for species recognized as important.
Applies only to species which have played a key role in understanding organic evolution or palaeoecology.
b, sites yielding unique assemblages.
As with category I.3.a, it is only possible to conserve sites yielding assemblages of key scientific importance.
c, sites showing unusual or unique preservational states.
Sites where the fossils show unusual or unique morphological features.

4, internationally recognized sites for rocks or minerals.

a, sites yielding unique rock-types.
b, sites yielding unique minerals.

II, nationally significant sites.

1, sites demonstrating major geological events in Britain.

a, stratigraphical sites.
Network of sites for each chronostratigraphical interval, reflecting the main environments, sediments, landforms, faunas and floras.
b, tectonic sites.
Sites for each orogenic phase, showing the tectonic development of Britain.
c, igneous, metamorphic and mineralogy sites.
Networks of sites, representing principal phases of igneous activity, metamorphism and mineral genesis.

2, sites demonstrating the geomorphological evolution of Britain.

a, stratigraphical sites.
Network of sites showing variation in time and space of Pleistocene climates, geomorphological processes, sedimentary environments, faunas and floras.
b, sites showing contemporary processes.
Network of sites demonstrating contemporary geomorphological processes and their spatial variation in Britain.

3, sites demonstrating primary fossil occurrences in Britain.

a, sites showing significant assemblages.
Mainly assemblages of taxonomic groups (e.g. vertebrates, arthropods, plants) which are unusual and poorly represented in the stratigraphical sites.
b, sites showing unusual preservational states.
Sites showing unusually fine preservation (e.g. soft-body preservation).

4, sites yielding the principal rock- and mineral-types in Britain.

a, sites yielding the principal rock-types.
b, sites yielding the principal mineral-types.

III, locally significant sites.

1, sites demonstrating the geological development of an area.

a, stratigraphical sites.
Best sites in a particular area for demonstrating a stratigraphical interval, but better seen elsewhere.
b, tectonic sites.
Best sites in a particular area for demonstrating a tectonic event, but better seen elsewhere.
c, igneous, metamorphic and mineralogy sites.
Best sites in a particular area for demonstrating a phase of igneous activity, metamorphism or mineral genesis, but better seen elsewhere.

2, sites demonstrating the geomorphological evolution of an area.

a, stratigraphical sites.
Best sites for demonstrating the Pleistocene stratigraphy of a particular area, but better seen elsewhere.
b, sites showing contemporary processes.
Best sites for demonstrating contemporary geomorphological processes in a particular area, but better seen elsewhere.

3, locally significant fossil localities.

a, sites yielding best assemblages in a particular area, but better represented eleswhere.

4, locally significant rock and mineral localities.

a, sites yielding principal rock-types in an area.
b, sites yielding principal mineral-types in an area.

IV, duplicate sites.

1, geological sites.

a, stratigraphical sites.
b, tectonic sites.
c, igneous, metamorphic and mineralogy sites.

2, Pleistocene and geomorphology sites.

a, Pleistocene stratigraphy and palaeontology sites.
b, sites showing current geomorphological processes.

3, fossil sites.

4, rock and mineral sites.

a, sites yielding particular rock-types.
b, sites yielding particular mineral-types.

COLLECTIONS INFORMATION NETWORK, GEOLOGY

COMPILED BY MICHAEL A. TAYLOR

This first edition of my tenure of the post of recorder gives me the opportunity to thank Don Steward for his hard work in setting up CING on the basis of the Doughty Report's survey data, and the various regional recorders for their help. Revised sheets continue to come in slowly from all over the country, so far this year mainly Wales, thanks to Tom Sharpe.

Change of Recorder offers the chance of a reappraisal but CING will continue just as Don started it, as a basic catalogue of British museums with geological collections and their associated services. There is little point in extending its range or detail (even had we the time and effort to spare). Systematic compilation of data on the content of collections remains the province of the regional Collections Research Units. We are unable to make more specific comments on the storage, documentation and condition of collections while we remain dependent on a questionnaire filled in by respondents who are mostly not geological curators.

Presently (February 1989) about half the existing CING database is on computer disc and it will not be long before we can sort and extract our data. It is thus urgent to bring our records up to date, and I hope to go some way towards this later in the year, with the cooperation of the regional Recorders, who have themselves seen some changes in their numbers: Peter Crowther (Bristol) is (at least temporarily) the Recorder for the south west, Simon Timberlake (AMSSEE) in the south east, Simon Knell (Scunthorpe) is now the Recorder for Yorkshire and Humberside, and David Bertie (Peterhead) deals with Scotland.

CING 88 CARMARTHEN Museum, Abergwili, Carmarthen, Dyfed

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

Geological collections: c.1000-5000 specimens, including rocks, fossils and minerals; condition fair, stored in boxes with basic arrangement; 25% catalogued. August 1987

CING 89 CEREDIGION Museum, ABERYSTWYTH

Geological public service: no display; no specialist curator; not a NSGSD record centre.

Geological collections: c.20-30 specimens, mostly metalliferous ores.

CING 90 CYFARTHFA CASTLE Museum, MERTHYR TYDFIL

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

Geological collections: just over 1000 specimens; rocks, fossils and minerals; condition good, systematically stored in trayed boxes on racking; all collection documented but little old documentation survives; major strengths in local Coal Measures fossils and iron ores; includes material from Guest Memorial Hall and Mechanics' Institute, Dowlais and Warrington Museum; cited coal specimens loaned to museum. December 1987.

CING 91 LEEDS City Museum

Geological public service: permanent display; access to reserve collection; specialist curator; identification service; NSGSD record centre for Leeds district.

Geological collections: c.10,000+ specimens, with good general collections of rocks and minerals and general and local collection of fossils; maps and photographs; condition of 60% of specimens good; minerals and rocks systematically stored, fossils under arrangement; 50% registered; major strengths in igneous rocks and minerals; type and figured fossils. December 1987.

CING 92 NEWPORT Museum and Art Gallery, Gwent

Geological public service: permanent display; access to reserve collection by appointment to students and researchers; part-time specialist curator; identification service; not a NSGSD record centre.

Geological collections: c.1000-5000 specimens; 90% local fossils with some local rocks and minerals; condition of 90% of collection good; unsystematically stored in drawers and cardboard boxes; mostly registered. 1987.

CING 93 PEMBROKESHIRE Museums, HAVERFORDWEST, Dyfed

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

Geological collections: c.1000-5000 specimens, good local and general coverage of rocks and fossils, few minerals; maps; condition of 50% of specimens good; systematically stored; most of collection registered. November 1987.

CING 94 SHROPSHIRE County Museum Service: LUDLOW Museum, Ludlow, Shropshire

Geological public service: permanent display; access to reserve collection by appointment; specialist curator; identification service; NSGSD record centre for Shropshire.

Geological collections: c.32,500 specimens, approximately 1000 rocks, 1500 minerals and 30,000 fossils; maps and books; condition of specimens generally good; systematically stored; work progressing on recording on MDA cards; major strengths Palaeozoic fossils from Welsh Borderland, especially important Old Red Sandstone fishes. May 1988.

CING 95 TENBY Museum, TENBY, Dyfed

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

Geological collections: rocks, minerals and fossils; good condition; catalogued; variable extent of records; a small collection illustrating the geology of Pembrokeshire. August 1987.

CING 96 DEPARTMENT OF BIOCHEMISTRY AND SOIL SCIENCE, UNIVERSITY COLLEGE OF NORTH WALES, BANGOR

Geological public service: small permanent display; access to reserve collection; occasional specialist curator (lecturer); informal identification service; not a NSGSD record centre.

Geological collections: c.1000 rocks, 1500 minerals, and 1200 fossils; condition variable; ease of location moderate; records poor; a small teaching museum. January 1988.

LOST AND FOUND

COMPILED BY MICHAEL A. TAYLOR

Enquiries and information, please, to Michael Taylor (Leicestershire Museums, 96 New Walk, Leicester LE1 6TD). Please give full personal and institutional names and addresses, full biographical details of any publications mentioned, and credits of any illustrations submitted.

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

Abbreviations

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,

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

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

51 'Challenger' Collections

GCG, 1(2), 124

Paul Ensom (Dorset County Museum, Dorchester, Dorset) has discovered that six slides of specimens from the 'Challenger' dredgings were bequeathed to the Museum in September 1902 by Mr T. B. Groves whose widow then lived at Broadley, Weymouth. Unfortunately the slides have not yet turned up at the museum.

55 Francis DOWNING (1777-1857) and Mrs May Ann DOWNING (c.1785-1874)

GCG,2(3), 125-126; 2(6), 252; 2(9 & 10), 614; 3(4), 238-241; 4(8), 505

A little more has come to light about these collectors of specimens figured in Murchison's Silurian System. Hugh Torrens (Lower Mill Cottage, Furnace Lane, Madeley, Crewe CW3 9EU) has located an obituary in The Times (8 June 1874, p.1) for May Ann Downing who is shown to have died on 31 May 1874 at Red Hill, Stourbridge, widow of Francis Downing Esq. of Dudley.

129 George William COLENUTT (c.1862-1944)

GCG, 3(5), 311-313, 324-325; 3(6), 397; 3(8), 492; 4(1), 15-16
CLEEVELEY, p.85

Colenutt was the first to notice fossil fishes and prawns in the Upper Eocene Osborne beds of the Isle of Wight. J. Gaudant (17 Rue du Docteur Magnan, 75013 Paris, France) and W. J. Quayle (51 Whites Road, Bitterne, Southampton SO2 7NR) previously published an appeal for help in tracing his collection from these beds, seeking lost figured specimens of fish Clupea vectensis and prawns Propalaemon osborniensis and P. minor in connection with their restudy of the fauna.

Previous LF entries were unable to find these specimens but did show that Colenutt material went to a wide range of museums. Guadant and Quayle have now published their study (Gaudant and Quayle 1988), which records the fate of some more specimens (p.17).

'In a letter to the senior author, Dr G. F. Elliott writes that the late A. G. Davis, who died in 1957, had told him that, when looking for specimens which belonged formerly to Colenutt (who died in 1944), he had succeeded in locating Colenutt's cabinet in Ryde (Isle of Wight). However, the landlord of the house informed Davis that the fossils had been thrown away as they seemed to be devoid of commercial value.'

Gaudant, J. and Quayle, W. J. 1988. New palaeontological studies on the Chapelcorner Fish Bed (Upper Eocene, Isle of Wight). Bull. Br. Mus. nat. Hist. (Geol.), 44, 15-39.

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

GCG, 4(6), 347; 4(8), 507-508

J. D. D. Smith (International Commission on Zoological Nomenclature, BM(NH)) reports a possible success in his hunt for Murchison's type specimens. Stephanie Etchells-Butler of the Sedgwick Museum, Cambridge, reports that they hold an example of Cyathocrinities pyriformis marked as the type specimen. Andrew Smith (Department of Palaeontology, BM(NH)) has now examined it and considers it possible that the specimen is indeed Murchison's figured original, although there remain significant differences.

193 The Naturalists' Directory (1895-1907)

GCG, 4(9), 573

To Hugh Torrens' list of known copies John Cooper (121 Hayes Chase, West Wickham, Kent BR4 OHY) adds details of his personal copy of the 10th edition for 1906-7, dated 1906, published by L. Upcott Hill, Drury

Fig.1. Sir Edward Coey of Larne (original owned by Nora McMillan; copy photograph courtesy of Liverpool Museum).

Lane, with iii [or more] + 188pp., followed by 15pp. of a catalogue of practical handbooks and 5pp. more of advertisements. It includes a full-page advertisement for James Lomax of Bolton, Petrologist, Geologist and Palaeo-Botanist, with a figure of a polished section of Lyginodendron oldhamium.

194 Photographs of Irish naturalists

GCG, 4(9), 574

Nora McMillan (The Nook, Uplands Road, Bromborough, Merseyside L62 2BZ) originally appealed for information on the Sir Edward Coey featured in one of a number of photos of Irish naturalists in her possession (Fig.1). Hugh Torrens (Lower Mill Cottage, Furnace Lane, Madeley, Crewe CW3 9EU) has found that Coey was a shareholder from 1859 in the Belfast Natural History and Philosophical Society, according to its Centenary History 1821-1921, p.185. F. Boase's Modern English Biography, vol.1, 1965, p.666, records that Coey was born in Larne 1805, the son of James Coey of Larne; mayor of Belfast and alderman, 1861; knighted by Earl of Carlisle, Lord Lieutenant of Ireland 1861; sheriff of Antrim 1867; died at Merville, Belfast, on 26 June 1887.

195 Suppliers of geological specimens c.1895

CLEEVELY p.136
GCG, 4(9), 574

Monica Price (University Museum, Parks Road, Oxford OX1 3PW) has identified the style and handwriting on the labels on specimen sets acquired from Glenalmond College by Perth City Museum and previously published in this column by Michael Taylor (Perth). They match those on specimens sold to Oxford by the dealer James Gregory (1832-1899). There are many in the Oxford collection, with only a few having his name and address printed on them. Oxford have no catalogues or ready-made collections from Gregory, so that the 'no.' on all labels is blank. So Michael Taylor's original request for information on sets of specimens still stands.

200 Thomas HAWKINS FGS (22 July 1810 - 15 October 1889)

Michael Taylor (Leicestershire Museums, Arts and Records Service, 96 New Walk, Leicester LE1 6TD) writes:

'Thomas Hawkins of Glastonbury has generally been regarded as an archetypal eccentric collector, who accumulated one of the finest collections of Liassic fossil marine reptiles from around Street and Glastonbury in Somerset, with a smaller proportion from Lyme Regis and Charmouth in Dorset. Although by no means forgotten (e.g. Blanford 1890; Owen 1894; Howe et al.1981; McGowan 1983; McGarvie 1987), he has been the subject of little if any primary research since the biograpohy of Bulleid (1943), which is itself vague as to the existence of any original documents.

Hawkins deserves at least a brief reappraisal in time for 1989, the centenary of his death, and the year of Bristol City Museum's major temporary exhibition on the 'Great Sea Dragons' of the area. This brief article reviews the published, and some unpublished, information and argues that Hawkins was in fact an even more important collector than previously realised. He may have secured many of the now unnamed Street specimens in museums. Conversely, his habit of modifying and falsifying specimens led to a scandal involving the British Museum and William Buckland, and warns us to examine the surviving material for possible composites or rearrangements.

Hawkins' three main prose publications are his autobiography of 1887, and the famous pair of scientifically negligible but sumptuously illustrated folio volumes Memoirs of Ichthyosauri and Plesiosauri ... (1834) and The Great Sea Dragons) ... (1840). His true significance is as a collector. Born in the Glastonbury area and living there for much of his life with time and money to spare, he systematically cultivated the quarrymen working many small pits scattered across the outcrop of the Pre-planorbis Beds and the lower parts of the Lias. Hawkins thus accumulated several major collections of

marine reptiles, mostly from the Street area but also including a few specimens from elsewhere, mainly the Lyme Regis district.

The reptiles of the Street area are of Rhaetian-Hettangian boundary age, rather older than that of Lyme Regis, and better known than those from any coeval locality. The oldest known articulated skeletons of plesiosaurs come from this area. The sedimentology of the quarries, unstudied since before 1910, appears to record the progress of a marine transgression from inshore, estuarine or even subaerial conditions to a fully marine habitat, presumably controlled by the proximity of the Mendip Island (itself inhabited by small reptiles and mammals). However, virtually all the quarries are now closed and filled in, and a research excavation would be needed to study most of the sequence. This would in any case recover few if any reptiles, for which museum collections remain our sole source.

Hawkins clearly collected more Street reptiles than anyone else, perhaps more than all other collectors combined. The dispersal of his collection is not, however, as well known as it might seem. The Bristol Institution (now the Bristol City Museum and Art Gallery) wrote to him on 1 June 1829 declining his offer of sale on the grounds of lack of funds and 'cabinets' (Bristol Records Office 32079 (42) 79). Just what the offer comprised is not known (his letter has not yet been traced) but it is as well that the offer was turned down in view of the wartime destruction of most of Bristol's collection (24 November 1940). He certainly sold two large collections to the British Museum (now the British Museum (Natural History)) in 1834 and 1840, chiefly comprising specimens figured in Hawkins (1834, 1840) (BMNH, 1904, I, 198, 204-205, 297; Cleevely, p.147; Miller 1973). However, one ichthyosaur figured by Hawkins (1834, pl.4) was sold privately beforehand (Charlesworth 1840). In 1856 he gave a collection to Cambridge University (now the Sedgwick Museum) (Clark and Hughes 1856, II, 320-321); and in 1874 he gave a further collection to Oxford University Museum, which had been made between 1858 and 1868 (according to the MS catalogue of the collection).

The major problem in tracing Hawkins' specimens remains the auction sale of 25 July 1844, at which Hawkins put up for sale several hundred specimens of vertebrates and invertebrates in 118 lots, including several 'fine', 'magnificent' and even 'capital' specimens of marine reptiles, notably 'a magnificent specimen of the Plesiosaurus, presumed to be the finest known. The only known copy of the sale catalogue (Anon. 1844) is Richard Owen's, in the library of the Royal College of Surgeons (Chalmers-Hunt, p.88). This may just have been auctioneer's hyperbole, as the plesiosaur would have to have been very fine indeed to surpass specimens such as BMNH R2018, the holotype of Plesiosaurus hawkinsi Owen. At any rate none of the fine reptiles were sold at the sale. Gideon Mantell's diary notes:

'Attended Stevens' auction rooms ... some very splendid specimens; a plesiosaurus as good as the one in the British Museum. Not more than 25 persons present, and none of the valuable specimens were bid for. Small mutilated skulls, bones etc. - the highest value not reaching £5 [-] alone met with purchasers!' (Curwen 1940, p.187). Owen's catalogue is annotated to the effect that the fine plesiosaur was bought in for 48 guineas, but sadly bears no other markings.

What happened to these specimens? The catalogue gives brief details of dimensions and it may be possible to link entries to surviving specimens. Some specimens may have been kept by Hawkins, later to pass to Cambridge or (less probably) Oxford. Alternatively Hawkins sold some or all of them privately in or shortly after 1844. They may have been bought by the three other major collectors of Street reptiles: Charles Moore (1815-1881; collections now at Bath Geology Museum and Somerset County Museum, Taunton); J. Chaning Pearce (1811-1847; collections now at Bristol City Museum whence some ichthyosaurs passed to other museums and much of the rest was destroyed in 1940); and, rather less probably, Alfred Gillett (c.1814-1904; apparently started serious collecting in c.1866 or soon after, according to records with his collection, now held by the Alfred Gillett Trust and housed at C. & J. Clark Ltd., Street). Alternatively they were bought by other collectors and museums. I would be very interested to hear of any Street (or other Somerset Lias) reptiles, ichthyosaurs or plesiosaurs, in museum collections. Brief details, overall dimensions, and a sketch or photograph would be useful in checking them against the sale catalogue. Please remember that if Hawkins sold the specimens to the ultimate donor or vendor, he may not be listed in any surviving documentation.

Hawkins may thus have collected even more of the surviving reptiles from Street and its vicinity than he is commonly given credit for. On the other hand, it is now quite clear that he restored incomplete skeletons with plaster bones and even with bones from other specimens. This habit, ascribed by Bulleid (1943) to a perhaps misguided enthusiasm, was well known to his contemporaries such as Gideon Mantell, who commented adversely on it in 1832 (Curwen 1940, p.111). According to Charlesworth (1840), Hawkins sold his first collection to the British Museum in 1834 without making it clear that some of the specimens were partly restored, and that one of those figured by Hawkins (1834) had already been sold elsewhere and substituted by a much inferior specimen. This led to critical comment by the Parliamentary Commission of Inquiry into the British Museum, whose questioning showed the Museum's staff and advisors in an unfavourable light. Soon after this, Edward Charlesworth (1813-1893), the polemical editor of the Magazine of Natural History, criticised Hawkins' conduct at a dinner party and Hawkins consequently threatened to sue him for criminal libel. Charlesworth purportedly refused to back down

and Willian Buckland became involved in the matter, trying to persuade Hawkins not to withdraw the suit. Without going into the details of this particular case - and Hawkins may well have been free of blame, given Charlesworth's tendency to intemperate comment - it is clear that any specimen of Hawkins, known or suspected, should be approached with caution. Any remounting or conservation work should be used as an opportunity to assess the specimen.

I have not discussed Hawkins' personal life in this note but he was certainly unpleasant, litigous and possibly mentally ill; I already have several good stories for possible future publication in this column! As well as information on possible Hawkins specimens, I am now searching for any documents or mentions, published or unpublished, of or about Hawkins and his work. Any information relating to Street quarrying would also be very welcome.

Anon. 1844. A catalogue of the valuable Ichthyosaurian and Plesiosaurian remains, from Street in Somersetshire; and general collection of fossils, from the several formations, consisting of Fish, Belemnites, from Whitby; Bradford Encrinites, Echinites, Pentacrinites Ammonites, Nautili, Madreporites, &c. of Mr Hawkins; which will be sold by auction, by Messrs. J. C. & S. Stevens, at their Great Room, 38 King Street, Covent Garden, on Thursday the 25th day of July, 1844, at twelve for one o'clock precisely. Stevens, London.

Blanford, W. T. 1890. [Obituary: T. Hawkins.] Proc. geol. Soc. Lond. 46, 48.

British Museum (Natural History), 1904. The history of the collections contained in the natural history departments of the British Museum. Vol.1. British Museum (Natural History), London.

Bulleid, A. 1943. Notes on the life and work of Thomas Hawkins, F. G. S. Proc. Somersetshire arch. nat. Hist. Soc. 86, 59-71.

Charlesworth, E. 1834. Catalogue of works on natural history lately published, with some notice of those considered the most interesting to British naturalists. Mag. nat.Hist. 7, 476-479.

————1840. [Hawkins' sale to the British Museum and his criminal libel case against Charlesworth.] Mag. nat. Hist., N. S., 4, Appendix, 11-44.

Clark, J. W. and Hughes, T. M. 1890. The life and letters of the Reverend A. Sedgwick (2 vols.). University Press, Cambridge.

Curwen, E. C. (ed.).1940. The journal of Gideon Mantell, surgeon and geologist, covering the years 1818-1852. Oxford University Press, Oxford.

Hawkins, T. 1834. Memoirs on ichthyosauri and plesiosauri. Privately published, London.

————1840. The book of the great sea-dragons, Ichthyosauri and Plesiosauri, Gedolim Taninim of Moses. Extinct monsters of the ancient earth. W. Pickering, London.

————1887. My life and works. (Block-Plan.) [bound with] Prometheus (second edition). Vol.1. Privately published, London.

Howe, S. R., Sharpe, T. and Torrens, H. S. 1981. Ichthyosaurs: a history of fossil 'sea-dragons'. National Museum of Wales, Cardiff.

McGarvie, M. 1987. The book of Street. A history from the earliest times to 1925. Barracuda Press, Buckingham, and C. & J. Clark Ltd., Street.

McGowan, C. 1983. The successful dragons. Samual Stevens, Toronto.

Miller, E. 1973. That noble cabinet. Andre Deutsch, London.

Owen, R. 1894. The life of Richard Owen (2 vols.). Murray, London.

201 Dr Robert LAING (1843-1912)

Dr R. M. Jacobi (Dept. of Classics and Archaeology, University of Lancaster, Lonsdale College, Bailrigg, Lancaster LA1 4YN; tel. 0524 65201) writes:

'For the last years I have been attempting to reconstruct the Pleistocene archaeology of the bone caves at Creswell Crags, North Derbyshire. A number of loose ends do, however, remain.

One of these is tracking down material collected during the 1880s by Dr Robert Laing (1843-1912), a physician who practised at Newcastle and at Cowpen, County Durham, and who died at Blyth in Northumberland. He appears to have had connections with both Durham and Newcastle Universities.

Laing is believed to have excavated in Dog Hole, Mother (Nanny) Grundy's Parlour and the Robin Hood Caves at Creswell. Previous searches by others for his finds of animal bones and possibly stone artefacts have failed, but it is unknown to whom their enquiries were addressed. It could well be that his collection was unmarked. There may, however, be one clue to its recognition: this is that Laing, in a very brief published note, recorded the discovery of human fossils as well as of narrow-nosed rhinoceros and hippopotamus - the latter pair rare by British standards. Unfortunately, Laing gave no information as to the number of specimens recovered or the anatomical parts involved.

May I thank you for any help you can give me.'

CONFERENCE REPORTS

LIFELINES FOR A SMALL MUSEUM

Geological Curators' Group
1-2 July 1988, Whitby, North Yorkshire.

'Lifelines' were certainly needed at Whitby, not so much for the museum (which appears to be flourishing) but to help non-local participants negotiate the town's numerous steps and vertiginous slopes (particularly after a couple of pints of 'Ammonite', the local brew). Even our hotel had seventy steps. This was definitely not a meeting for the unfit.

The small band of members who attended were welcomed by Alan Berends (Keeper of Whitby Museum) on behalf of Whitby Literary and Philosophical Society, to whom the Museum belongs. Geoff Tresise introduced the day's programme which commenced with a highly entertaining account of the early history of society museums in Yorkshire by Peter Brears, Director of Leeds City Museum. Details of his talk can be found in his paper in Museums Journal, 84 (1), pp.3-19. He regaled us with an early published description in the vernacular of a visitor from 'alifax to a museum in 'uddersfield (or was it the other way around?) complete with 'ee ba gums' and 'ekky thumps', and amused us with the tale of a curator taken on a world tour by an industrialist member of his society, only to be buried at sea off Gibraltar. Whitby, he pointed out, is one of the few nineteenth century society museums to remain, intact, in the care of the founding society. How much is its survival due to the absence of professional curators?

Brian Hayton (Director, Yorkshire Museum), then spoke on the role of the North Yorkshire County Museum Service. Comprising two museums with a small staff, it is a county service in name only and is not in a position to expand. He was happy to offer what assistance he could, should a small local museum find itself in difficulties, but he would expect the district council to step in and help out. He outlined some of the problems facing the Yorkshire Museum, the least of which is a ghost and latest of which was lightening damage caused by a storm the night before the meeting, necessitating his early return to York.

After lunch (what else but roast beef and Yorkshire pudding?), Peter Thornton (Honorary Curator of Whitby Museum's geological collections) described the wealth of material available in the local rocks - the stamping ground of Young and Bird, Martin Simpson, John Phillips and, latterly, Hemingway and Howarth. With a magnificent set of colour slides, he took us through the Jurassic succession exposed along the coast and explained how some superb fossils, particularly of large saurians, had been discovered during the working of jet, ironstone and alum.

Since it opened in 1823, Whitby Museum has been run by volunteers; Shaun Lofthouse is the latest of these. A geologist initially appointed on a Manpower Services Commission scheme to catalogue the museum's pictures, he is now assisting with the setting up of a documentation project, based on the MDA standard. He commented frankly on the problems of setting up and maintaining such a system in a voluntary organisation: the limited time each Honorary Curator can offer; the lack of communication between them; the possessiveness of some, in the past, towards the collections in their care; and a reluctance to seek help from professional curators. These difficulties are gradually being overcome and a standardised documentation system is being established. An early catalogue produced by Martin Simpson in the 1830s exists for the geological material, but in other collections the link between specimens and their data has become strained. Plans for the geology collections include the preparation of a basic inventory as a first step, with the eventual goal of a computerised system to allow the generation of indexes. A catalogue of type and figured specimens (which comprise about 8% of the geological holdings) is also planned.

A small museum like Whitby has, of course, access to advice and finance through the Area Museum Council and Barbara Woroncow (Director, Yorkshire and Humberside Museums Council) described what help her AMC can offer. She began by explaining that the AMC's financial base differs from those of other publicly-funded bodies in receiving only half of its approved expenditure from the Government via the Museums and Galleries Commission. For every pound spent, the AMC must get fifty pence back, and it is for this reason that AMCs cannot provide all the services they would like. What they can offer is advice and information on, for example, storage methods, environmental monitoring and control, materials and equipment suppliers, documentation methods and so on. She also described the sort of projects which would be eligible for AMC grant aid, such as the implementation of district curator schemes. Ryedale District has appointed a curator whose sole brief is to support independent museums. Although grants are given for 43% of project costs, a fund does exist to offer a higher proportion to help small independent museums. The AMC also holds seminars on Saturdays, aimed particularly at the volunteers who man independent museums. Barbara also explained that grants for conservation work on specimens are not given if the material is to be returned to an inadequate storage environment. It emerged in discussion that the AMC is running down some aspects of conservation work not because of lack of demand from member museums but because the museums cannot afford to have the work done - a point to be borne in mind when GCG tries to

persuade AMCs to appoint geological conservators.

The final speaker was Alan Berends (Keeper of Whitby Museum) who began, diplomatically, by heaping praise on Yorkshire and Humberside AMC (thus ensuring the success of his grant application this year). The Literary and Philosophical Society is still going strong, with a membership of over 600 and growing at a rate of twenty five per year. Whitby, like many seaside resorts, is a popular retirement town and there is no shortage of people to help out at the museum. The average age of the Committee is eighty and this can present certain difficulties, such as lack of energy and drive to push new projects and, as with all volunteers, when they have outlived their usefulness it can be difficult to explain that their services may no longer be required. Although the present museum was built by the Society, it belongs to the Town Council which is committed to maintaining the fabric of the building. A peppercorn rent is paid by the society on a 999 year lease, and 60% of the admission fee goes to the Council.

Throughout his talk, it was evident that the Keeper is perfectly aware of the problems facing a small museum and the means with which to deal with them. This sprightly, enlightened, septuagenarian, amateur curator is, in attitude, more professional than many younger full-time curators.

We then had an opportunity to look around the galleries - a real gem of a museum with an enormous variety of material on display, ranging from Captain Cook manuscripts to a witch's hand, from large marine reptiles to all manner of things in bottles (as well as ships). But the highlight for me was a chessboard of Whitby jet and sectioned ammonites on a base of carved jet inlaid with ammonites: one can imagine Arthur Negus' ecstasy.

The following day, a small group was led along the coast from Whitby to Saltwick by Peter Thornton, a mining engineer from the potash mine at Boulby and a keen geologist. His detailed knowledge of the section was evident and his enthusiasm made this a particularly enjoyable field trip. Some good specimens were collected, including a rather nice Ovaticeras pseudovatum which was subsequently stolen from the back of a car in Cardiff (along with the car) - later recovered in Pontypridd (with the car). A vacant post was almost created at Cromer Museum when the present incumbent was narrowly missed by a hefty gull chick which, having left its cliff nest, discovered that while it hadn't yet learned to fly, it had learned to plummet.

All in all, an excellent meeting and field trip. It is a pity that it was so poorly attended.

Tom Sharpe
National Museum of Wales

MINERALOGY AND MUSEUMS

5-6 July 1988, British Museum (Natural History)

This international conference sought to address the many issues facing mineral curators and administrators in museums, and attracted over 100 delegates from eighteen countries.

Many museums are going through a period of unprecedented and particularly rapid change as their functions are challenged and their resources are coming under increasing pressure. Dr Clive Bishop (British Museum (Natural History), London) in his opening address pointed out that in the UK alone, the number of museums had increased annually by 10% every year since the 1950s. This stiffens the competition both for resources, and customers. Museums must, he said, decide what kind of business they are in, define their mission, identify the needs of their customers and decide priorities concerning the use of their finite resources. Museums must display and encourage imagination and curiousity - otherwise they would become merely warehouses.

The conference was separated into four discrete sessions - Acquisition and Curation, Communication and Displays, Research Directions and Needs, and an Open Session.

Each session was introduced by a Keynote Speaker, and the first of these was Mr John S. White (Smithsonian Institution, Washington). His paper, entitled 'Some aspects of modern mineral collection curation', highlighted the many pressures on curators, in particular the conflict that can occur between one curatorial activity (e.g. training and education) and the perceived importance of others (e.g. collection building or research). Curators in the USA have experienced an explosion of interest from collectors and dealers and this has altered the perception of the curator's job. Previously he was concerned to satisfy his boss within the museum organisation, but now the emphasis has shifted towards satisfying the customer. This change has in general been welcomed by curators.

Specimen security represents a major headache and many museums are now adopting control procedures for accessioning and de-accessioning material similar to those used by art museums.

The role of volunteer workers, and the growing importance of computers in collection management were explored. Collection utilisation by non-museum staff (e.g. collectors) has been shown to offer many benefits such as the recognition of gaps in the collection, wrongly labelled specimens, or has resulted in donations of material which the museum would not otherwise have had the opportunity to obtain.

Dr Tony Kampf (Natural History Museum of Los Angeles County) described the establishment of a public support group to provide supplementary resources and funding for the mineralogy department. This involved providing a wide range of activities for members to participate in, on a 'privileged' basis, e.g. visits to working mines, viewing of private collections not normally available to the public, exhibit openings within the museum, and lectures. Membership costs $100 US per annum, and has grown to 150 in three years. The group now has surplus capital of $US30,000 and supports the museum through provision of equipment, sponsoring travel fees, specimen purchases and exhibitions.

Dr Bill Birch (Museum of Victoria, Australia) gave an entertaining account of 'Australian Museums and Mineralogy' against the background of the Australian bicentenary. He hinted that he was looking for some birthday gifts at the museum level! Mineralogy got off to a poor start in Australia and it was not until 1869 that a valid new mineral species, maldonite, was described from the country. Periods of classical mineralogical studies on Australian specimens in museum collections were few and shortlived, but perhaps exemplified by the contributions of George Ulrich in Victoria in the 1860s, and Charles Anderson in New South Wales in the early 1900s. In 1985 the Museum of Victoria was formed by the merger of the Sydney, Melbourne and Geological Survey collections, but in other states mineralogical collections are in a depressing condition. It is surprising that a country so rich in mineral deposits and mining history is so poorly documented or researched. Ulrichite, a calcium-copper-uranium-phosphate, has recently been described from a granite quarry in New South Wales - the first new mineral species from Australia for eighty years.

Dr Lydie Touret (Teyler Museum, Netherlands) gave a fascinating insight into mineralogy in the late eighteenth century. Her paper described the remarkable collections of the Teylerian Museum, dating from 1783, where specimen material and associated records have been preserved in their original state. The first Director of the Museum, Martinus Van Marum (1750-1837) assembled over 12,000 specimens and since his death these have lain untouched and unattended to the present day. At that time the records show that the average price of a mineral specimen was 100 Guilders, much more than a small Michaelangelo painting. The situation is rather different today!

Mr Paul Hicks, formerly of the British Museum (Natural History), gave an over-view of the problems resulting from the decision to merge the collections of the BM(NH) and the Geological Museum. The simple logistics of how to accomplish such a massive task led to the use of computer-based systems for cataloguing and mapping the collections. Over 250,000 specimens are involved, stored in 6000 drawers. The whole project is likely to take twenty years to complete. In the course of this work much useful experience has been gained using PC software, and also concerning paper and ink types with regard to permanence of records and labels.

The afternoon session entitled 'Communications and Displays' opened with a second Keynote Speaker - Mr Hubert Bari (Musée de Mineralogie, Strasbourg). Mr Bari introduced his talk by explaining that Strasbourg was in the Alsace district, and that the history of the area was rather like toilets - always occupied! His paper, 'Bijoux Cailloux Fous', described how a project which began as an idea for 'winning a lot of money with crystals' became a major touring exhibition attracting over 400,000 visitors so far, being viewed in Strasbourg, Bourg d'Oisans, Lille and Paris. All of the finance required for the exhibits has been raised through bank loans and at the end of the operation £400,000 will be available for the purchase of minerals and gems by the museum. A special collection of visually stunning specimens was assembled, together with spectacular visual effects and display areas. The aims of the project were to examine mineralogy in three ways: What is a Crystal?; Crystals and Science Fiction; and Crystals in Nature. It is hoped that the exhibits will be seen in London in 1989.

Mr Ian Mercer (Geological Museum, London) delivered a paper entitled 'Communications and Treasures'. This was a detailed account explaining the technical issues addressed when designing museum exhibits, with particular reference to the new 'Treasures of the Earth' exhibition at the Geological Museum.

Dr Graham Durant (Hunterian Museum, Glasgow) described his ambitious project to design, construct and fund the Crystal Pavilion for the Glasgow Garden Festival. The theme of the exhibit, 'we live on a crystal ball', is brought to life through a variety of exciting and novel displays. The pavilion seems likely to attract over one million visitors and provides a major opportunity for the public to investigate the way in which minerals influence the way we live.

Dr Peter Keller (Natural History Museum of Los Angeles County) gave an interesting account of how his museum had approached 'Teaching the natural history of gemstones through exhibitions'. Darkened galleries, large location maps, thematic divisions within the displays and dramatic lighting had all been used to good effect. In order to convey the pressures within the earth's crust a new unit, the 'elephant' had been introduced, and by this means a visual appreciation of increasing pressure with depth had been achieved. Seating had been incorporated into the display areas to combat the physical fatigue of visitors. Future developments include a laser-disc, touch-screen video presentation detailing the properties of twenty common gemstones, and allowing interactive interrogation by visitors.

Dr Jacques Deferne and N. Engel (Museum d'Histoire Naturelle, Geneva) described three examples of original animations for explaining mineralogy. The first, using mirrors and fluorescent balls, provided a striking impression of the infinite dimensions of atomic structure. Mirrors positioned to represent planes of symmetry within the crystal structure replicated, again and again, images of the balls within the model. A second model illustrated the double refraction of calcite using a rotating crystal section and polariser. The final model used an array of six modified slide projectors and polished thin sections of rocks to simulate the operation of a polarising microscope. The controls are operated by the visitor who may rotate the stage, insert or remove the analyser, or select a new thin section. Design drawings of the various models are available from Dr Deferne upon request.

The afternoon session was concluded with a general discussion chaired by Mr F. W. Dunning (Geological Museum, London). Dr Joe Mandarino (Royal Ontario Museum, Canada) advised curators not to be afraid of gadgetry in the gallery. He recounted thirteen years experience of such animated designs in the ROM and suggested that the secret of success was to anticipate and protect against every possible abuse by the public. Surveys of visitors to assess what they think about displays may be useful, and he also questioned the purpose of the systematic display. There was general agreement that curators should go for aesthetic displays and reduce the systematic content. Dr Hubert Baru (Musée de Mineralogie, Strasbourg) suggested that the first thing the public thinks about is 'how much does it cost to get it?'. Provision for short-term private collector displays was discussed and both the Geological Museum, London and the Royal Museum of Scotland, Edinburgh, have space available for this. In the first instance amateurs are encouraged to display recent fossil finds as part of the British Fossils exhibition, and the latter is for varied mineralogical topics.

It was suggested that with around fifty major mineralogical museums in Europe, each might prepare a touring exhibition to fit a standard display area, and these could then circulate around the institutions to provide an element of change and variety at low cost. The question of how best to measure the effectiveness of a display prompted considerable debate, but it was agreed that 'numbers through the door', alone, was not an adequate measure. Other factors such as educational impact, re-visits, entertainment, etc. must be addressed. Visitor surveys should also incorporate 'non-visitors' and 'potential visitors', both within the immediate environs of the institution and also those further away but within travelling distance. Such investigations should ask 'have you ever been?' and 'if you did visit, what would you like to see?'.

The second day of the conference began with a Keynote Address by Dr Joe Mandarino (Royal Ontario Museum, Canada) entitled 'Mineralogical Research in Museums'. Dr Mandarino outlined the need for clear research policy documents, and compared this to the current situation where few museums have written guidelines. The need is not only to guide curators, but also as a protection measure against research funds being redirected to other needs. He went on to explain Manarino's Law of Ethics, which is, that when faced with a question of whether something is ethical or not, if it takes you more than thirty seconds to reach a decision, it is not ethical. If the museum mineralogist is to be considered equal to his peers in industry, universities, and Survey workers, he must show the ability to carry out research and publish the results. Other workers, and museum administrators tend to see the life-sciences as being more important, and therefore good, high-profile research could help to raise the image of mineralogy. When one considers that there are only around 3300 known mineral species, compared to the number of insects or plants, the description of 60-80 new mineral species per annum is very significant. Also, only in mineralogy are new species subject to internationally agreed approval procedures prior to publication. Dr Mandarino then went on to suggest areas for research appropriate to the role of museums, e.g. conservation and preservation techniques, production and improvement of data for non-silicate minerals, taxonomic works and topographical mineralogy publications.

Dr Peter Williams (University College Cardiff), in his paper 'Museum collections - varied and valuable research resources', enumerated the many ways in which museum collections can be of value to the mineralogist. The 'comprehensive' nature of collections, both in terms of different species, and the range of variation within a given species is invaluable. Museum collections often provide access to material which can no longer be obtained <u>in situ</u>, and also allows the opportunity to re-study material which was described perhaps 100 or 200 years ago.

Specimen labels and associated data can allow the piecing together of the 3-dimensional relationships within an orebody or mine, and this is of great importance in paragenetic and chemical studies. Perhaps the most valuable resource, however, is the people looking after the curated material - a curator who knows his collections well can guide the research worker to specimens or data in answer to specific requests or needs.

Dr Paul Henderson of the BM(NH) went on to discuss 'Mineralogical research in national museums' and, following Dr Mandarino's lead, expressed the view that museums are primarily centres of scholarship, and that when they cease to fulfil this function, they cease to be museums. A number of different forces act upon museums - both internal and external. The BM(NH) is used as a centre for advice, and this must therefore be of the very highest scientific quality. It is in fact the principal national research and advisory

centre for mineralogy in the UK. Dr Henderson then described the great diversity of activities within the BM(NH). Amongst these, collaboration with other institutions (including universities) is seen as very important. Dr Henderson pointed out that governments are unlikely to create the right climate for national and international collaboration. It is therefore up to all of us to ensure that such collaboration flourishes for our mutual benefit and the benefit of mineralogy.

Dr Ian Freestone (British Museum) described 'Applied mineralogy in an archaeological museum' where physical and chemical techniques are used to investigate the collections. For example, problems of classification sometimes arise, such as Egyptian 'alabaster', which is in fact calcite. The petrology of stone implements or building facades can be used to trace the origin of the material, either for demographic studies or repair work.

Dr David Smith (Musée National d'Histoire Naturelle, Paris) gave a detailed account of 'Museological applications of Raman micro-spectrometry: mineralogical characterisations'. This technique utilises visible radiation generated by a laser to investigate, non-destructively, transparent mineral materials. Reflected and refracted radiation is detected and analysed using a spectroscope, where the position of a peak is diagnostic for an element or compound and the intensity of the peak is roughly proportional to the quantity present. No vacuum or specimen coating is required for operation, unlike the electron microprobe or most scanning electron microscopes. The laser beam can be focussed at different depths in the sample, and can even be directed through the sample (e.g. at a fluid inclusion, to provide an analysis of the solution). Spectra are calibrated against EMP analyses, but no software is yet available for processing spectra. This technique is clearly ideally suited to museum studies where removal of specimen material for analysis may be undesirable or impracticable.

Dr Werner Quellmalz (Staatliches Museum fur Mineralogie und Geologie zu Dresden, East Germany) in his paper 'Mineralogy and art - tradition and the future of mineralogical research in Dresden, GDR' described various new X-ray techniques which have been developed to 'fingerprint' precious stones. This enables a particular diamond for example to be recognised even after re-cutting. Other techniques using inclusion studies have enabled tracing of materials to their original source, and this ability is invaluable when faced with problems of replacement or repair work on artefacts.

The final session of the conference had been designated as an 'Open Session', and this began with a brief review of the IMA Museums Commission by Professor Hans Stalder (Natural History Museum, Berne, Switzerland). A current project of great importance is the preparation of a computerised index of type mineral specimens and the museums or institutes where they are preserved. This should be complete by the end of 1988.

Next, Mr Roy Starkey (Redditch, UK) presented a paper entitled 'The role of museums and the amateur mineralogist'. This explored the relationship which exists between the professional and the amateur communities and reviewed the relative strengths and weaknesses of the amateur collector. The policies followed by museums were compared to the needs of the collector from the 'customer viewpoint'. Proposals put forward for consideration and possible future development included improving accessibility to reference material, making provision for temporary displays from amateurs, and encouraging curators (particularly in provincial museums) to enlist the help of knowledgeable amateurs. It was clear from the general response that most museum curators do appreciate the worth of the contribution made by amateur collectors, and that in some countries this has been developed to a very considerable extent.

Dr Andrew Clark of the BM(NH) reviewed the progress made on a new edition of Hey's Index of Mineral Species and explained how a computer-based classification had been developed which will allow interrogation of a computer file to provide indices sorted in various different field categories, e.g. by chemical composition, localities, structure etc.

The file currently holds around 15,000 records, of which some 3,000 refer to valid mineral species. Publication is envisaged in about three years' time.

The establishment of a national topographical mineralogy database in Hungary was described by Dr Tamas Weiszberg (Eotvos Lorand University, Budapest). Work began in 1984 with a thorough review of published literature and national museum collections. It has become clear that many records are erroneous, and that specimens of some described species do not exist in national collections.

A fascinating account of the discovery, protection and subsequent conservation of an alpine fissure at the Grimsel, Ct. Berne was given by Professor Hans Stalder. The occurrence was discovered during the construction of a pumped storage, hydro-electric scheme, and the mineralized cavity, measuring 1.5m x 1.5m x c.13m has now been permanently preserved. Quartz crystals up to 70cm occur together with chlorite, large calcite plates and pink fluorite octahedra up to 1cm on edge.

The final contribution of the conference was an interesting pair of films depicting the minerals of Minas Gerais, Brazil and the Gem Gravels of the Far East by Professor H. J. Schubnel (Musée National d'Histoire Naturelle, Paris).

Professor David Vaughan (President, Mineralogical Society) brought the conference to a close by thanking the supporters,

sponsors and organising committee for making this a worthwhile amd memorable occasion. He reminded delegates of the important role which museums have in providing what is for many young people their first contact with mineralogy. With regard to research activities he believed that museums must enhance their performance in this area, making full use of the collections in their care, to provide databases, characterizatons of new species and so on. As for the UK, the re-structuring of our university Earth science departments is forcing radical change in the way we approach geology and mineralogy, and this too will demand determination and commitment if collaborative projects are to succeed.

This had, he said, been the first international conference on mineralogy and museums, but there was enthusiasm for more, and it was clear, from comments already made, that it would not be the last.

Roy Starkey
[This report appeared first in the Journal of the Russell Society.]

THE EYLES SYMPOSIUM

Society for the History of Natural History
29-30 September 1988, Bristol University

The Eyles Symposium was an important event on a number of counts: firstly it provided an opportunity to commemorate the significant contribution to research in the history of geology made by the late Victor and Joan Eyles; secondly it gave delegates a chance to examine at first hand the superb archive of seventeenth, eighteenth and nineteenth century geological texts, prints and maps bequeathed by them to the University; and last but not least, it gave an opportunity for the presentation of papers on the development of geology as a science in Britain, from the seventeenth century to the death of William Smith in 1839.

Not surprisingly, the work of Smith featured prominently. One of the highlights of the meeting for many of the delegates was the excursion led by Hugh Torrens to some localities around Bath associated with Smith between the years 1791 and 1804. Visiting these sites today, with the knowledge of their unconformable geology, one could not help but admire Smith's totally pragmatic approach to stratigraphy and problem solving: the detailed and methodical observations that required the continual revision of his 'standard' and which led to his matter-of-fact realization that fossils could be used as a tool to identify such sequences. One was left wondering how often such quantum leaps in understanding can be induced by what might be considered as 'peripheral' circumstances. Certainly in retracing his steps from the farmhouse which he apparently used as a haven from his debtors, to the town house at Cottage (now Bloomfield) Crescent in Bath, one was made acutely aware of how much of Smith's life was steered by fluctuating personal fortune. A fact that might perhaps help to explain his inability later in life to properly capitalize upon his discoveries.

If the work of William Smith represented the end or turning point of this initial era of enlightenment in geology, then perhaps that of Dr John Woodward represented the beginning. David Price (Sedgwick Museum) gave an account of the observational exactitude of Woodward in his collecting and in his theories, ranging from categorization of fossils, to modes of preservation and even to a basic understanding of their stratigraphical relevance as early as the beginning of the eighteenth century.

Eleven papers were read over the two days, all varied and interesting in their own right and on topics as diverse as 'Religion and geological methodology in the early nineteenth century' to 'Mountaineering and mineralogy on the La Pérouse Expedition 1785-1788 (- the latter account being one of the shorter papers presented as unfortunately the subject of the expedition perished without trace somewhere off the Australian coast!).

Talks were interspersed with inspections of the Eyles archives within the Department and University Library. There was also a chance to see the Adam Sedgwick exhibition at the City Museum next door (on loan from the Sedgwick Museum, Cambridge), and their recently acquired giant Ichthyosaur from the Lias cliffs at Charmouth, Dorset.

Overnight accommodation for delegates was at the University's Goldney Hall. The symposium dinner was held in the Orangery of Goldney House and there was an opportunity beforehand to examine the quite superb eighteenth century grotto within its grounds. Atmospherically restored, complete with river gods, working fountains, and adorned with myriad shells and Mendip minerals, this proved a sight well worth stumbling through the darkness for.

Many thanks to Peter Crowther for organizing, and the Geology Department of Bristol University for hosting such a successful conference - one that hopefully will be repeated in future years.

Simon Timberlake
Area Museum Service for South Eastern England
c/o Geological Museum, London

NOTES AND NEWS

COMPILED BY MICHAEL A. TAYLOR

NEW GEOLOGY GALLERY AT PETERBOROUGH MUSEUM

Gordon Chancellor (Assistant Curator, Peterborough Museum) reports:

'A new Geology Gallery will open at Peterborough Museum in June 1989. The gallery is being funded mainly by Peterborough City Council and by the Nature Conservancy Council (which has its national headquarters in Peterborough) and has been described in the NCC journal Earth Science Conservation issue no.24.

The gallery begins with a small introductory lobby, which leads into a Jurassic seascape display. A 150,000,000 year old 'snap shot' shows marine life in Peterborough while the Oxford Clay was being deposited (Callovian Stage: Jason Zone). An almost complete Steneosaurus has been mounted with help from AMSSEE, alongside a partial skeleton of Ophthalmosaurus and a fine specimen of Cryptoclidus, excavated complete with skull in September 1987. The Cryptoclidus has been donated by the London Brick Company and its skull developed by Dr Arthur Cruickshank, using the facilities of Leicestershire Museums Service and with financial assistance from the Geologists' Association. There are also displays of fish, dinosaurs and other fossils from the local brick pits.

The visitor then enters the Ice Age section of the Gallery where some of the large mammal remains from the local gravel pits are displayed. This section of the Gallery brings the story up to mid-Flandrian times, when the 'fen clay' was deposited.

It is hoped that additional finance will be available to continue the gallery into two adjoining rooms during the financial year 1990-1991. This will allow the story of Peterborough's natural environment to be brought up to the present day, with pointers for the future. The gallery as a whole will then become a unified 'Geology and Wildlife' Gallery, and it is hoped that the link between these two sections of the gallery will feature a killer whale skeleton, found when Whittlesey Mere was drained in 1851. This skeleton was donated by the famous geologist Alfred Leeds, and probably dates from the Bronze Age.'

BRUYNZEEL AT THE BL

Bruynzeel Storage Systems (Pembroke Road, Stocklake Industrial Estate, Aylesbury, Bucks. HP20 1DG) are known to most of us as providers of roller racking, and sponsors of Vol.4, No.9 of this journal. They announce that:

'The problem of how to store efficiently ten million books at the new British Library, project-managed by the Government's Property Services Agency, has been solved using Bruynzeel closing aisle shelving. The £6.4 million contract is to design, manufacture and install a closing aisle storage system for the books, including the rare books, music and fine arts collections. The contract is part of the first phase of the new library which is under construction next to St Pancras Station in London.

Based on Bruynzeel's Monta Mobile storage system, the British Library facility will comprise 283 kilometres (176 miles) of shelving on four levels, reaching 96 feet below ground. The layout for the shelving was designed by the architects for the Library, Colin St John Wilson and Partners. An important part of Bruynzeel's contract is the design of an adjustable floor system, which will compensate for deflections from the weight of the books and enable the floors to be levelled after loading. The system for the British Library is being specifically designed for their purpose. Protecting the books (some of them priceless) against damage while in store is a prime consideration, and in this respect Bruynzeel is working closely with the Production Engineering Research Assocation on the design of the shelving. Commissioning of the completed system is scheduled for early 1992.'

RESEARCH AT THE BM(NH)

An investigation into research at the BM(NH) by the Progamme of Policy Research in Engineering, Science and Technology based at the University of Manchester was referred to in the last issue (Geol. Curator, 5, p.34). During the PREST investigation the Museum was suddenly transferred from the ABRC/Department of Science and Education to the Office of Arts and Libraries. A summary of the PREST evaluation was passed to Museum staff in April 1988. It concentrated on three areas:

1, structure, organisation and performance of research
2, impact and effect of research
3, rationale and alternatives.

Under 1, the report noted the different proportions of research time assigned within different departments (52% in Botany to 33% in Zoology), and commented upon the staff shortages - particularly at junior levels, with the result that senior staff were having to perform more basic duties at the expense of research. It as also noted that travel funding is generally considered inadequate, especially for conferences or visits to other institutions. This has been because funds

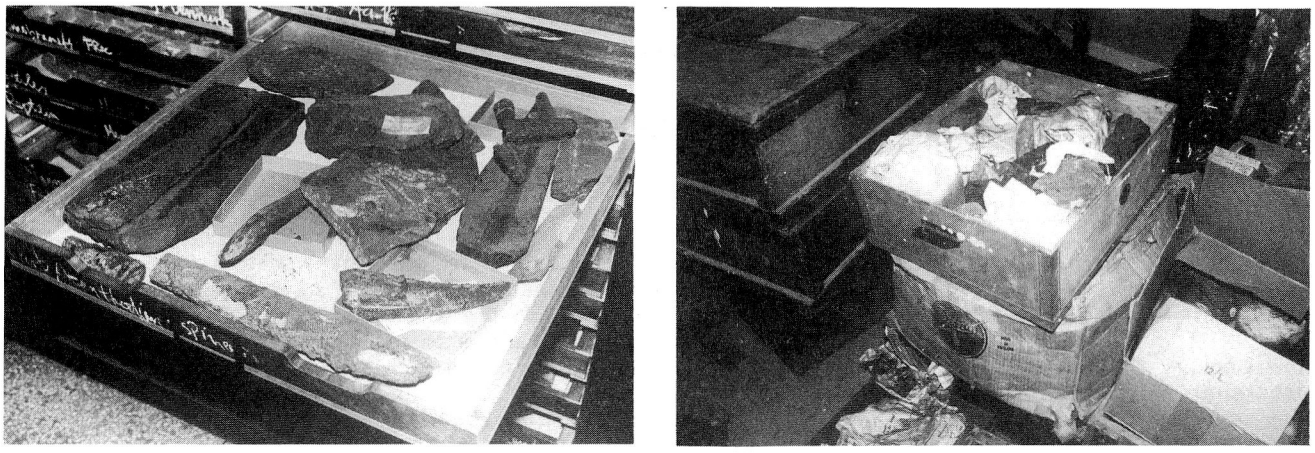

Fig.1. Two examples of poor geological storage in Scottish museums surveyed by Christopher J. Collins and Michael A. Taylor (Leicestershire Museums) for the Scottish Museums Council (see Geol. Curator 5, pp. 86-87).

were more generous for 'purchase', which included collecting. The report recognised that many of the research activities are unique within the U.K. and that senior staff gave more weight in subject selection to scientific importance, expertise and the collections than to meeting external criteria. Particularly staff shortages, and the consequences, were leading to a declining morale.

Under 2, the PREST investigators recognised the importance of training provided by the Museum, but suggested the establishment of more formal collaborative links with externally-funded research. Other U.K. scientific organisations reported that the Museum's research is highly regarded, but doubts were expressed as to whether this can be maintained without substantial investment to keep up with the demands of modern techniques. 77% of individual palaeontologists rated the Museum as essential to their work, but throughout, concern was expressed about lack of staffing and deterioration of the collections! Internationally the Museum was given a high rating, with 80% of scientists regarding it as essential. While the Museum's research was highly rated there was some criticism concerning low productivity but this must be gauged against the one-third to two-thirds time able to be used for research in the Departments. Commercial users rated the service highly and some thought that rates charged were too low; but local authorities were seen as resistant to the charging schedules.

The survey selected a surprisingly small sample of users: 308 members of learned societies; 86 scientific visitors; and 73 overseas scientists.

The transfer to the Office of Arts and Libraries means assured level-funding for the coming three years at £21.7 - 22 million. These figures include extra costs of superannuation and repairs to the Waterhouse building but do not allow for inflation, so an annual deficit is expected - amounting to £2m by 1992/3. This has to be met from charges, revenue generation (e.g. shops, functions, etc.) and by reductions in manpower - said to be restricted to non-scientific areas but we shall see.

THE FUTURE OF NATURAL SCIENCE COLLECTIONS IN SCOTLAND

Michael Taylor (Perth) reports on this important and long-awaited meeting, organised by the Scottish Museums Council and the Royal Museum of Scotland, which took place at the Museum on 5 May 1988. The matters raised are highly relevant to other parts of the UK!

'Scottish natural science curators do not have many opportunities to meet and over fifty delegates turned out to discuss the recommendations of the Miles Report (Museums in Scotland, HMSO 1986) and the subsequent response from the Secretary of State for Scotland. In brief, the report recommended the develpment of a series of unidentified collections centres which would take in the unwanted collections of the smaller museums in their areas, curate them effectively and in return offer specialist advice and specimens for display - in short a 'network' of museums for Scotland. The government said "OK, nice idea; get on with it, but no extra resources."

Unfortunately only eight institutions in Scotland have designated posts for natural science curators and a further handful have naturalists in curator or assistant curator posts. These are unevenly distributed, with a concentration in the populous Midland Valley.

The morning session concentrated on the idea of special collections centres and a national network. This would have to include the national institutions, the Royal Museum of Scotland (part of the National Museums) and the Royal Botanic Garden, and their policy statements were eagerly awaited. Of course, such a complex issue could not be debated in full and the discussions continued at the end of the afternoon session, which was devoted to the results of the Natural Science Collections Research Unit. This work has now been published as Natural Science Collections

in Scotland (HMSO, £25), officially launched at the meeting. The concept of providing good curatorial care of collections is closely connected with knowing what is where. At the end of a very interesting session it was decided to ask the Scottish Museums Council to consider the formation of a committee/panel/forum to consider the matters of a network of museums and the further upkeep of the CRU database.

If Scotland is to have a coordinated network of natural science museums, and if anything useful is to come out of the Miles Report, the following points must be answered: where is the existing museum provision? at what level? how can the collections be best cared for? how can advice be best provided? who pays? what is the role of the national museums? have all museums defined their role? etc. etc. The debate will continue. The most positive thing to come from the day was the sight of the RMS Geology Department's collecting policy. This document is the first of its type, to my knowledge, emanating from a national museum which clearly identifies the need to build on relationships with the local museums. We all look for more of the same from other institutions.'

NEW MUSEUM

Stuart Baldwin (Fossil Hall, Boars Tye Road, Silver End, near Witham, Essex) writes:

'My new museum of palaeontology was officially opened on 14 September by well-known botanist, conservationist and TV personality Dr David Bellamy, in the presence of an invited audience which included museum curators, academics, palaeontologists and representatives of scientific societies. The museum, at Silver End in Essex, is open most Saturdays 9.30 - 4.30, and weekdays by appointment (tel. 0376 83502). It includes a permanent exhibition of 2,000 items dating fom 680 million years ago to the last Ice Age. It is open to all but is intended primarily for geology and biology teachers and lecturers, museum curators and shop managers, and members of scientific societies.

On show are fossil replicas representing the pick of Europe's museums. Highlights include Archaeopteryx, a complete ichthyosaur, a modern coelacanth, the earliest-known octopus, a complete Carboniferous spider, complete Eocene bats, rodents, carnivores, frogs and snakes, several hundred ammonites and trilobites (including many type and figured specimens), and evolutionary series featuring Micraster, Gryphaea, Homo, the horse and the ammonite family Cardioceratidae.

I developed the business initially from my own collection of 100,000 fossils collected in southern England and it now meets a growing demand for replicas for teaching, research, examinations, museum display and museum shop sales throughout the world. Associated with the museum and opened at the same time is a new bookshop housing some 40,000 printed items - books, maps, journals and reprints - on all aspects of Earth science, palaeontology, natural history and archaeology.

Access: one hour by rail from London to Witham, 30 minutes by car from the M25 (exit 28), 3.5 miles off the A12 or A120 approximately half way between Chelmsford and Colchester.

NEW DIRECTOR FOR STONE CENTRE AS WORK STARTS

The National Stone Centre Site (Ravenstor Road, Wirksworth, Derbyshire DE4 4FR: 062982 4833) announces that civil engineering work valued at about £0.25 million is being carried out by Derbyshire County Council as part of a Derelict Reclamation Scheme, 100% grant aided by the Department of the Environment. Access roads, parking areas and a firm base for the Centre's exciting new visitor reception and exhibition building will be prepared. Work on the first phase of building and displays, themselves costing just over £0.25 million was due to begin before the end of 1988, to enable the first visitors to be received in mid-1989.

Ian Thomas, appointed as the Centre's Director in September 1988, has the task of coordinating the design work and development, and raising the finance needed to progress the scheme. Ian, an economic geologist with twenty years experience in industrial minerals, has family connections with the quarrying industry in Nottinghamshire and the Bath area dating back to the 1870s.

The 50 acre (20 hectare) site, with its quarries, tips and kilns, is regarded as having the best limestone fossil reefs in Britain; great care will be taken in landscaping the site and making faces safe to preserve these features.

The Centre itself is also unique - it will tell the story of stone from prehistoric cave dwellers to modern hi-tech processing and from single sculptures to the 300 million tonnes of rock and gravel quarried annually for our roads, schools, homes, pollution control, sugar, glass and a thousand other uses. Interpretation of the geology of the area, with its ancient tropical lagoons, volcanoes, deltas and deserts, will be a key feature:

Later phases will include the rebuilding of quarry cottages to tell the social history, a simulated 'Blast Experience', and reconstructed stone craft workshops. Eventually the site will also house two related schemes, one for industrial training and the National Stone Trade Centre - a shop window for the industry.

The centre, an educational charity under the patronage of the Duchess of Devonshire, enjoys much support from the quarry industry nationally, from the County, District and Town Councils and from a wide range of government and educational organisations.

BOOK REVIEWS

Gamlin, L. and Vines, G. (eds). 1987. The evolution of life. Collins, London, 256pp. ISBN 0 00 219837 1. Price £14.95.

This beautifully illustrated and colourful volume instils an immediate desire to delve deeper into its pages, and the reader is not disappointed. The evolution of life is packed with information from cover to cover in an easily readable form, yet it is written at a level sufficient to keep one absorbed throughout.

The first part of the book describes the main forms of life, whilst the second part is concerned with the achievements of biologists in relating living processes to underlying chemical changes. The twenty-seven chapters are grouped into four sections: 'Cornerstones of modern biology'; 'The diversity of life'; 'Inside the cell'; and 'The mechanics of life'. At the end of the book is a useful 'Glossary of biological terms', and a list of 'word stems' commonly used in biology. The contributors and advisors are well-qualified, being drawn from universities, museums and scientific journals.

The beginning of each chapter, marked by a coloured page, gives a brief summary of its contents, including what is termed a 'Perspective' section. The main text is easily readable, flowing, and although containing quite complex ideas and information on modern advances, is sufficiently clearly explained to be comprehensible to a 'hard rocker' like myself who is essentially ignorant of matters biological or biochemical. Throughout the text, the reader is guided to other pages and sections which elaborate more on any specific terms and ideas just referred to. In this way, the book can be 'dipped into' readily. The main text is accompanied by 'Perspective' text (distinguished by the use of a different type face) which may give biographical details of a famous scientist associated with a particular topic, or additional information on a particularly interesting plant or animal. However, it is the illustrations which immediately catch the eye, with 120 full colour diagrams, and 300 photographs, presented in a variety of ways which are both imaginative and informative. I particularly like the colour plates on pages 208 and 209, of a frog leaping from its pond, and the triple exposure of a lacewing taking off.

'Cornerstones of modern biology' opens the book, with three chapters introducing evolution, genetics and classification. These deal with essential background information, such as Darwin's The origin of species or Mendel's famous pea experiments, and provide a valuable introduction to the development of current ideas.

'The diversity of life' covers, in thirteen chapters, bacteria, viruses and protozoa through to mammals. Of necessity, the number of pages which can be devoted to each topic is few, and so the chapter on Echinoderms, for instance, is restricted to four pages. Thus, while there are useful diagrams illustrating the workings of tube-feet, there is no mention of Micraster. Indeed, geology is rather thin on the ground throughout, although in all fairness, the book is clearly not aimed at the geological curator. On the other hand, the chapters on vertebrates include some delightfully clear illustrations of the evolution of bone structures in fossils.

'Inside the cell' discusses 'The chemistry of life', 'The origin of life', and 'Cell structure and evolution'. This section is again packed with information. The few mistakes spotted are unlikely to seriously mislead the reader: for example, there is confusion in the interpretation of the Second Law of Thermodynamics (p.138), and about C and H being '..... relatively rich in electrons and so are in a reduced form' (p.146).

'The mechanics of life' covers in the final eight chapters aspects of daily challenges, such as development, co-ordination and reproduction. Here are more abundant information and excellent illustrations. The chapter discussing 'Development', for instance, includes a fascinating aside 'A triumph of miniaturization', which describes the old idea that '... all development was simply a matter of growth, and that inside every egg cell lay a tiny but complete organism, ready to grow into an adult'.

The evolution of life is not designed as a manual for the shelves of geological curators. Rather, it is a delightful volume which should appeal to lay person and scientist alike, is packed with information and provides a balance between old ideas and modern advances. It is beautifully illustrated, eminently readable, and gives an excellent overview of evolution. Who could ask for more at £14.95?

Wendy Kirk
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London WC1E 6BT

19 January 1988

Mineral Planning 29 (December 1986) and 33 (December 1987). ISSN 0267 - 1409. Published quarterly and edited by Milford Harrison and Steven Machin (Mineral Officers of North Yorkshire County Council).

'Mineral Planning is circulated to local authorities, consultants, the minerals extractive industry, waste disposal operators, government departments and numerous other organisations. Specialists

working in these organisations contribute articles and information which enables Mineral Planning to examine, on a regular basis, current developments. Among matters regularly featured are: planning law; agricultural restoration and aftercare; landscaping; the environmental problems of dust, noise and traffic; government guidelines; mineral plans; and details of planning applications and appeals. Other specialist topics, such as restoration bonds, demand forecasting and compensation, are covered as the need arises, and the minerals covered range from the commonplace to the unusual.'

So begins the flyer for Mineral Planning, which costs £22.50 for the four issues per year, and the two I have seen certainly live up to the above description. I read with great interest the article on 'Flue gas desulphurisation' (FGD to planners), as the Peak District's limestone quarries will provide the raw material for the limestone-gypsum method in addition to the twenty million tonnes it already supplies to industry each year. Two Yorkshire Power Stations, Drax (4000mw) and Fiddler's Ferry (2000mw), provide 15% of the country's electricity and the introduction of FGD will reduce SO_2 emission by the same amount. What the consumption of limestone will be is not mentioned but one million tons of gypsum will be produced in one year. My worry is that all the extra gypsum may not only close mines at Fauld (Staffordshire) and Gotham (Nottinghamshire) but will, no doubt, be used as landfill and more exposures will be lost.

Issue 33 also looks at two very different conservation topics (I will not refer to them as issues, as that word is heavily and incorrectly used to refer to unresolved problems with differing viewpoints). 'Mineral Policies in National Parks' is reviewed by the Assistant Director of the Countryside Commission; the policy revolves around the merits of quarrying or not in national parks. Dr John Bramley, the manager of Laporte's vein mineral extraction and processing operation in the Peak District, argues that mineral extraction can happily co-exist with and within a National Park.

The second topic is the very successful removal of part of a biological SSSI at Thrislington Quarry, County Durham. David Bellamy (who else?) is pictured on the front cover standing in a specially designed excavator bucket which lifts $9m^2$ of turf (Magnesian Limestone grassland) from land to be worked in a quarry extension to an adjacent site safeguarded from quarry working. The text outlines the problem and its elegant solution.

However, perhaps the most interesting part of No.33 is the detail of Mineral Plans for the county areas of Cheshire, Lincolnshire, Avon and Humberside. Mind you, your book budget would have to be very healthy: to acquire the Cheshire Plan would set you back £17! It probably is worth it to read such gems as 'Gritstone and sandstone is quarried in Cheshire' and 'the clay found in Cheshire is boulder clay'. Avon's Plan usefully defines the preferred areas for future mineral workings, twelve in all, including horizons for Cromhall Sandstone, Fullers' Earth and Bath Stone.

Mineral Planning is edited, in their spare time, by Milford Harrison and Steven Machin, who are Mineral Officers for North Yorkshire County Council. I am reliably informed that the publication is a family affair as wives are employed as part-time typists. The families are to be congratulated for producing such an informative, well researched and lively publication. Mineral Planning can be contacted at 2, The Greenways, Little Fencote, Northallerton, North Yorkshire DL7 OTS.

Michael F. Stanley
Derbyshire Museums Service
Parkway, Darley Dale
Matlock, Derbs. DE4 2FW

17 February 1988

GEOLOGICAL CURATORS' GROUP

14TH ANNUAL GENERAL MEETING 1987

Friday 4 December 1987 at Liverpool Museum.
40 members present

1. Apologies for absence

Alison Armstrong, Mike Benton, Tristram Besterman, Howard Brunton, Tony Cross, David Devenish, Bob King, Mike Taylor (Perth), Mike Taylor (Leicester), Don Steward, Hugh Torrens, Wendy Kirk, Rosina Down, Alun Thomas and Mike Bishop.

2. Minutes of the 13th Annual General Meeting 1986

They were approved and signed by the Chairman.

3. Matters arising

There were none.

4. Chairman's Report - from Mick Stanley

The involvement of the Group in matters of concern to geological curators specifically, and museums in general, does not lessen. The Committtee, on your behalf, has commented on five major documents: the University Grants Committee's Earth Science Review; the MGC's Registration of Museums; Museums in Scotland; the Hale Report (alias Museum professional training and career structure); and the Museums Association's consultative paper on training. Geoff Tresise and myself have been busy distilling committee members' comments into repeatable prose.

Training initiatives started three years ago and subsequent progress has solicited a reaction in that the Hale Report specifically mentions GCG and the training of geological conservators. The Leicester - Bristol lobbyists are to be congratulated on a successful campaign. Replying to the Hale report was easy as only the suggested geographical division of training panels solicited an adverse comment. We whole-heartedly supported the many other recommendations in Hale. The Association's paper received a very different approach as we could not share the Education Executive's enthusiasm for distance curation. The Group will continue to press for a practical element as an essential part of curatorial training and, with that in mind, we are joining with BCG to run a curatorial course at Losehill Hall, Derbyshire, in October 1988.

The UGC's Earth Science Review will have a major effect on university geological collections whatever happens and the Group has been and will remain in close touch with events as they occur.

Conservation in its broadest sense was foremost in mind when we published 'A heritage on the rocks'. The press launch at our Mason Conference at the British Association meeting in Belfast during late August was abortive and a full press launch at the offices of the Museums and Galleries Commission early next year should give this policy statement the coverage it rightly deserves. Chris Collins, David Price, Hugh Torrens and Mike Tyalor are to be congratulated for all the heart searching and hard work during its gestation period and also Peter Crowther for its birth.

The Group has increased its representation on the Geological Society's Conservation Committee with Simon Knell taking a place and another committee member, Mike Benton, being invited in his own right. That committee continues to support the National Scheme for Geological Site Documentation and has recently supported our efforts to establish a Geological Record Centre to coordinate data input to a computerised data bank, validated to nationally agreed standards. This initiative will further aid the conservation of geological and geomorphological sites, the identification of 'alternative' sites and the dissemination of data relating to those sites for research, monitoring, education and general information. Further full details will appear in future issues of the Geological Curator. Many members of the Group will also have contributed directly to the NCC's commissioned project on Earth Science fieldwork for GCSE which should see an increased use of Record Centres.

'Geology in the Local Museum' is planned to be a concise, pictorial, practical and user-friendly guide to enable any curator to take care of geological collections. It compliments the 'Guidelines' and is aimed at persons not trained as geological curators; it should be published next year. It is written by Simon Knell and Mike Taylor, sponsored by AMSSEE and AMCSW and part funded by a grant from the Museums and Galleries Commission. We also hope to publish the second 'Thumbs Up' guide on observational geology next year.

Finally, and not least, the Group has now achieved charitable status due to Tom Sharpe's hard work and persistence. We do not now pay tax and it also gives a golden opportunity to obtain funding from other grant-aiding bodies. Any suggestions for new projects and suggested sources of funding would be welcome.

5. Secretary's Report - from Geoff Tresise

Group meetings in 1987 comprised a visit to the Chinese Dinosaur exhibition at the National Museum of Wales in March, a two-day meeting on the 'Geology of Dorset' in April, a Mason meeting on the 'Geological Heritage' at the British Association for the Advancement of Science's meeting in Belfast in August, a two-day conference on 'The use

and conservation of palaeontological sites' (arranged jointly with the Palaeontological Association and the Geological Society) at Burlington House in October and the AGM at Liverpool in December.

Meetings planned for 1988 include a visit to the British Geological Survey in Keyworth in April, a two-day meeting at Whitby in June and the AGM at Shrewsbury. A joint meeting with the Geo-Technology Group at the Royal Museum of Scotland in September is being organised in conjunction with BCG. Visits to Oxford and Bristol are planned for 1989.

Committee meetings during the year have been visited by Graeme Farnell (Director General of the Museums Association), Chris Newbery (Deputy Secretary of the Museums and Galleries Commission) and David Leigh (the MGC's newly-appointed Conservation Officer). Closer links with both bodies were discussed.

In 1986 GCG presented a written submission to the MGC's working party reviewing museum training. Their report was published in July; paragraphs 3.52 and 3.53 highlighted the need for trained geological conservators and recommended that GCG liaise on the provision of short courses and practical attachments. The Group has sent comments on the Report's recommendations to both the Office of Arts and Libraries and the Museums Association. Comments on the Commission's earlier report on Museums in Scotland and on the MA's training consultation paper were also submitted.

Relations with the MA remain uneasy. A welcome innovation this year was the MA's offer of 200 free places at the Bournemouth Conference to members who had not previously attended Conference. Federations and Specialist Groups were invited to nominate such delegates. The scheme is to be extended in 1988 when the Conference venue is Belfast; it is likely that the 1988 offer will include free accommodation. The Committee would be pleased to hear from Group members who would like their names put forward.

Less satisfactory was the Association's refusal to review the Conservation issue of the Geological Curator (Vol.4, No.7) and the loss without trace of their review copy of Guidelines for the curation of geological material. A joint review of the Guidelines and of Geology in the local museum is, however, promised once the latter is published.

1987 saw the publication of the Group's new leaflet 'A Heritage on the rocks' on the care of geological collections. Our next publication will be Geology in the local museum.

The Committee have expressed grave concern over the future of geological collections held by Universities if the recommendations made in the Oxburgh Report to the University Grants Committee are implemented. The situation is being closely monitored on the Group's behalf by well-placed moles.

GCG Committee members continue to contribute to the Group's activities. Thanks to Wendy Kirk and Rosina Down we were represented at the Geological Society's open day for students in November. Simon Knell has joined Roy Clements as a Group representative on the Geological Society's Conservation Committee. The Institute of Archaeology invited Chris Collins to organise a course on 'The conservation of geological specimens' in July - a most welcome extension of the Institute's activities.

1988 will see changes in both officers and committee. Don Steward retires as Recorder and Hugh Torrens as Public Relations Officer, while Wendy Kirk and Chris Collins complete their term of office on the Committee. All will be missed. Hugh's resignation came too late for a replacement to be appointed at the AGM. Cooptees to the 1988 Committee will be sought to undertake the public relations work and also to provide expertise on geological conservation matters.

My thanks are again due to all the officers and committee for their continued support throughout another active year.

6. Treasurer's Report - from Tom Sharpe

(i) Membership

The Group welcomed 43 new subscribers this year (22 UK Personal Members; 8 UK Institutions; 6 Overseas Personal Members; and 7 Overseas Institutions), bringing our total membership to 462 as follows:

UK Personal Members: (including 2 Honorary Members)	257
Overseas Personal Members:	46
UK Institutions:	103
Overseas Institutions:	56

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

(ii) Finance

The accounts for the period 4.11.86 - 16.11.87 are attached.

Income. Subscription income was £3229.00 compared with £2862.24 last year. Income from the sale of backnumbers was down on 1986 (£344.55 compared with £502.49) as was that from the sale of authors' reprints (£15.90 compared with £106.06). As the launch of 'Thumbs-Up' took place last year, orders for stickers this year came to only £10.00 compared with £196.92 for stickers and leaflets last year. However, advertisement income (mostly the inclusion of flyers with the journal) brought in £170.00 compared with £105.00 in 1986. Meetings fees this year totalled £432.50 compared with £164.41 last year (although this latter figure included only the balance from the Cornwall meeting plus all the income from the Bath Meeting). Total income for the year was £5089.71 compared with £4356.50 in 1986.

Annual Accounts 1987 Period 4.11.86 - 16.11.87

Current Account

Income		Expenditure	
Subscriptions	3229.00	Printing 4(8)	881.00
Sales of backnumbers	344.55	Printing meetings card	38.87
Advertisements	170.00	Postage	602.11
Thumbs-up orders	10.00	Stationery	115.68
Sale of reprints	15.90	Typing	126.00
Meetings fees	432.50	Committee meetings expenses	113.70
From Conservation Conf. Acc.	349.28	Ordinary meetings expenses	462.86
		Rescue leaflet design	130.00
		Rescue leaflet printing	194.46
		Corporation Tax 1986	103.07
		Returned cheque	6.00
	4551.23		2773.75
Transfer from HICA	400.00	Transfer to HICA	1900.00
	4951.23		4673.75
Balance 3.11.86	555.11	Balance 16.11.87	832.59
	£5506.34		£5506.34

Deposit Account

Interest (estimate)	5.68	nil	
Balance 3.11.86	101.71	Balance 16.11.87	107.39
	£107.39		£107.39

High Interest Cheque Account

Transfer from Current Acc.	1900.00	Transfer to Current Acc.	400.00
Interest (estimate)	532.80	Balance 16.11.87	6464.29
	2432.80		
Balance 3.11.86	4431.49		
	£6864.29		£6864.29

Income due		Committed expenditure	
Unpaid subscriptions	460.00	Geol. Curator 4(9)-5(3)	c.5000.00
Outstanding invoices	32.50	Index	c. 900.00
Bruynzeel 4(9)	700.00	Mason conference fee	c. 200.00
Advertisements	35.00	Committee meeting expenses	c. 25.00
From Conservation Conf. Ass.	400.12		
	1627.62		c.6125.00
Stocks of Geol. Curator	c.7400.00	Advance subscriptions	141.50
	c.£9027.62		c.£6266.50

T. Sharpe, GCG Treasurer

16.11.87 T. Sharpe

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

R.C. S.R. Howe

Expenditure. As usual, most of our expenditure was on the production and distribution of the journal (Vol.4, No.8). The printing of Vol.4, No.7 (the proceedings of the conservation conference) was paid from the Conference Account. The postage bill of £602.11 includes distribution of both parts, the costs for 4(7) being recouped from the Conference Account. The costs of committee and ordinary meetings figure prominently in our expenditure this year (totalling £576.56), as I forecast in my report last year. The expenditure on ordinary meetings is largely balanced by income from fees for those meetings. The production of our policy statement 'A heritage on the rocks' cost £324.46. Corporation Tax for 1986 amounted to £103.07.

Total expenditure for 1987 is £2773.75 compared with £2588.93 last year. The surplus of income over expenditure for 1987 is therefore £2315.96

The total cash in the bank at present is £7407.27; however, we have not yet paid for any 1987 issues of the Geol. Curator (Vol.5, Nos.1, 2 and 3). The printing costs of Vol.4, No.9 (the last issue for 1986) will largely be met by sponsorship from Bruynzeel Storage Systems Ltd. Once our committee expenditure on the journal, the production of an index, and meetings fees are taken into account, along with income due to us, about £2906.00 (including £141.50 of advance subscriptions) will be carried forward into 1988.

Thanks are due to Bob Owens and Steve Howe for auditing the accounts.

Charitable status. The changes made to our Constitution at last year's AGM were accepted by the Charity Commissioners, and the Group was registered as a charity on 16 February 1987, registration number 296050.

7. Editor's Report - from Peter Crowther

(i) 1987

Three issues of Geol. Curator (totalling 208 pages) have been published this year:

Vol.4, No.7 (Issue 1 for 1986), 'The Conservation of Geological Materials', pp.375-474, published 6 March 1987
Vol.4, No.8 (Issue 2 for 1986), pp.475-538, published 14 July 1987
Vol.4, No.9 (Issue 3 for 1986), pp.539-582, published 13 November 1987.

Although I have failed (again) to get four issues out this year (we are still therefore running three issues behind schedule), you have received over 200 published pages since the last AGM. This has only proved possible through substantial sponsorship of printing costs by ICCROM (Vol.4, No.7) and Bruynzeel Storage Systems Ltd. (Vol.4, No.9). Our print run has been increased to 550 to take account of a continually growing membership.

(ii) 1988

Another attempt will be made to produce four, rather than the normal three, issues next year, i.e. Vol.5, Nos.1-3 (Issues 1-3 for 1987) and Vol.5, No.4 (Issue 1 for 1988). 1988 should also see the publication of Indexes for Vols.2 (1977-1980) and 3 (1981-1984), thanks to work currently under way by Justin Delair. These will be published as separates, outside the normal numerical run of the Geological Curator, so they can be simply bound in with each volume (they will also include a Title Page). Mike Taylor (Leicestershire Museums Service) will become responsible for both 'Lost and Found' and CING from Vol.5, No.2.

(iii) Thanks

A host of people contribute to the regular content and production of the journal. Sadly, Don Steward (Stoke Museums) is relinquishing the Recorder's post, and with it his responsibility for the CING column (which he instigated) and his collaboration with Hugh Torrens (Keele University) over 'Lost and Found'. What you read in the journal is of course only the refined product of much hard slog by Don and Hugh, compiling, investigating, and checking information on behalf of GCG, maintaining the data-base which members have come to take for granted. 'Lost and Found' receives a double blow with the departure of Hugh Torrens, who has looked after this crucial element of the Group's activities since he championed the format in 1974 (with Don since Vol.4, No.5). As Editor, I am indebted to them both for their contributions (always on time) and look forward to their continuing involvement as contributors.

Back in Leicester, the County Council's Reprographics Unit continues to provide a quick, quality printing service; distribution is admirably carried out by members of the Earth Sciences Section at Leicestershire Museums Service (principally Chris Collins and Kate Pontin, with Gill Weightman, John Martin and Arthur Cruickshank); and, crucially, word processing remains in Judy Marvin's most capable hands. The Group is indebted to all, and especially to Dr Patrick Boylan (Director, Leicestershire Museums Service) for supporting GCG's activities in this way. In Cambridge, major headings are set at the Sedgwick Museum by Mike Dorling and David Price.

Substantial sponsorship from two sources has eased the Editor's conscience this year, so I take this opportunity to thank both the sponsors - ICCROM and Bruynzeel Storage Systems Ltd. - and the Committee members most involved in negotiating with them - Chris Collins and Tom Sharpe respectively - for their efforts.

Justin Delair has the indexes for Vols.2 and 3 well in hand, and we should see the fruits of his labours next year - when librarians

all over the world will be gleefully looking forward to having said volumes bound, at last!

Finally, I am pleased to say that quality articles on a wide range of topics continue to be submitted by members. Many thanks to all contributors. Do keep the articles coming in, long or short - how about a few more quarry sites for 'Now and Then', for instance?

Steve Howe asked why double issues were not produced to try and catch up. Peter replied that he does not want to do this. There is a publication policy and we should stick to it. Committee decision taken yesterday to keep to single issues but to produce four in 1988 and to try and catch up.

8. Recorder's Report - from Don Steward

(i) State and Status

The up-date of information concerning the geological material held at British museums and institutions continues. To date, 262 entries have been received compared with 295 noted in the 'Doughty Report'. By area the coverage is as follows (Doughty returns in brackets): - SE 173 (97); SW 9 (44), WM 7 (24); Wales 0 (11); NW 31 (31); EM 13 (17); Y&H 16 (21); N 12 (10); Scotland 1 (35); and Ulster 0 (5). Simon Knell (Scunthorpe Museum) and David Bertie (N. E. of Scotland Museum Service, Peterhead) are now coordinating for Yorkshire and Humberside and Scotland respectively.

Relevant data from the records has been passed on to the following: Brian Hayton (NWM & AG Service) for a proposed geological conservation project in the NW; David Price (Sedgwick Museum) for use in the UGC Earth Science Review; and Graham Whalley (Wollaton Hall Museum, Nottingham) for cross-checking with All Midlands Collection Research Unit data.

FENSCORE: the annual meeting took place at Manchester Museum on 22 October 1987. Discussions centred on the closer involvement of MDA as the search, update and editing centre for the data with Manchester holding a non-active security copy. The YHCRU have recently published their database, a Scottish database should be published in 1988, and the All Midlands edition should be ready to go to the printers in 1989/90. Type status reports will now be prepared by the regional CRU's with the suggestion that BCG and GCG should be involved with their publication in a standardised format: as loose-leaf information sheets that will build up to make a uniform reference work.

(ii) CING

Summaries of the 'state and status' information have started to appear regularly in the Geol. Curator. At present, information for 87 institutions has been passed on to the editor and will appear when space is available.

Members of GCG have helped Judith Clarke (Penrith Museum) in evaluating a previously unrecorded geological collection at Penrith and work is now in hand to display some of the items in a 'local geology' display. Rosemary Roden (formerly peripatetic geological curator for the West Midlands Area Museum Service) has set up in business for herself in 'Geological Curation Services' and is fulfilling a need amongst museums without trained geologists on their staff. Chris Pellant (author of Earthscope) is preparing a new publication for Pan Books (along the lines of Roger Phillips' wildlife photographic books) about geological specimens and has been given the addresses of museums to contact for particular items that he wishes to photograph.

(iii) Lost and Found

The running total for individual entries prepared for publication in the Geological Curator now stands at 199. As always Hugh Torrens has proved to be the driving force that keeps the information and requests so varied and interesting; his participation is gratefully acknowledged.

After three years I am not standing for re-selection to the post of Recorder. It has been a very interesting period for me and I appreciate the immense amount of help and encouragement I have received from my colleagues. Perhaps conceitedly, I believe that the Recorder now plays an integral role in the broader aspect of GCG's work as a communication network for geologists in museums and I hope my successor enjoys the work as much as I have.

9. Public Relations Officer's Report - from Hugh Torrens

When accepting this post at the outset, I asked that my job should be to attempt to bring to public attention matters brought to me by the Group.

I was first asked to publicise the rehabilitation of the Royal Geological Society of Cornwall's premises and museum. The fund raising for this was being organised by an employee of Rentokil (the Property Care experts). I was asked to write to this fundraiser to enquire how the appeal was progressing and for the names of those organisations which had contributed financially to the appeal fund. I was then to write to each of these, thanking them on behalf of the Group. I duly wrote in May but have received no reply to my letter. It is possible that Rentokil, who stood to gain financially from the success of any such fundraising exercise, did not want this connection publicised. Whatever the cause, my first approach as your PRO was a complete failure!

Things improved in August when the Group's successful, if not well publicised, Mason conference at the British Association meeting was held in Belfast. This went very well and

all thanks are due to those who organised it on our behalf. The scheduled launch of the Group's Collection Rescue leaflet at the same event, which Peter Crowther had so effectively produced for us, was less successful. The British Association grants special press facilities to accredited Press and PRO's present at their meetings. This was something we discovered too late to make effective use of on this occasion. We hope that the Rescue leaflet will have an effective Press Launch in 1988, perhaps via the good offices of the Museums and Galleries Commission.

I was then asked in September to take on the possibility of establishing a national Scientific Heritage Fund. This would be to help acquire scientific objects, and perhaps manuscripts, for our museums. We hope it would also help to affirm, and counter balance, the vital place of science in our culture against that already enjoyed by the Arts with their existing and effective networks of funding for 'Arts objects'. I duly wrote to Dr Neil Cossens, the Director of the Science Museum in London, on 4 September, asking for his opinion and advice on this. Again I have received no reply!

I think my clear failure to achieve anything as your PRO stems from the simple fact that I have no obvious or professional connection with the work of museums. For this reason, if no other, I do not think it appropriate that I should continue to act as the Group's PRO in 1988. Although I will, of course, be only too happy to help with, and contribute to, the Group's efforts in the future. In my opinion, the best way for the Group to acquire a higher 'public profile' is by using its Chairman, who must therefore be someone with effective and public Museum connections, for the role of PRO for the Group. This would perhaps mean offloading some of the duties presently 'enjoyed' by the Chairman onto other officers, so that he, and in future she, can devote more time to publicising the Group's efforts and aspirations.

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

This report, as questionnaires are now biennial, does not include the holdings and uses of site records for the period 1 January 1986 to 31 December 1987 which will be reported next year.

(i) New Record Centres. Five new centres have been recruited to the National Scheme since the 1986 Annual Report:-

45 Banff and Buchan
Peterhead Arbuthnot Museum
(Dr D. M. Bertie), St Peter Street,
Peterhead, Scotland A44 6QD

46 Nottinghamshire
Wollaton Hall Natural History Museum
(Mr N. Turner), Wollaton Hall,
Nottingham NG8 2AE

47 Suffolk
Ipswich Museum, High Street, Ipswich,
Suffolk IP1 3QH.

48 Renfrewshire
Paisley Museum and Art Gallery
(Mr D. G. Mellor), High Street, Paisley,
Scotland PA1 2BA.

49 Dudley MBC
Dudley Museum and Art Gallery
(Mr C. Reid), St James's Road, Dudley,
West Midlands DY1 1HU.

(ii) Geological Record Centre. This initiative to greatly enhance site recording and the use of the data will be progressed this coming year and Record Centres and members will be appraised of the details early next year.

(iii) Call for a new co-ordinator. I have been involved in this important aspect of the Group's work for eleven years and the time is over ripe for a change. Would members who are interested in this work please contact me as soon as possible, at Derbyshire Museum Service, John Turner House, The Parkway, Darley Dale, Matlock, Derbyshire DE4 2FW (Tel. 0629 733226).

11. Election of Officers

The Committee's nomination for Recorder is Mike Taylor (Assistant Keeper of Earth Sciences, Leicestershire Museums); there being no other nomination Mike was declared elected. Hugh Torrens had resigned as PRO after the deadline for nominations so this post will have to be vacant for a year; however, it was agreed to co-opt Phil Doughty (Keeper of Geology, Ulster Museum) onto Committee to cover PRO. All the other Officers were willing to stand again and there being no other nominations they were declared re-elected.

The Committee's nominations for the two vacancies for Ordinary Committee Members are Howard Brunton (BMNH) and Paul Selden (University of Manchester) and there being no other nominations they were declared elected. It was pointed out that nominations can be made by any member, but nominations have never been received so they have to come from the Committee.

John Cooper (Booth Museum, Brighton) asked if Committee had considered Hugh Torrens' point that the Chairman already covers PR work. Mick Stanley agreed but felt that it is useful having an officer specifically to cover other PR activities.

12. Nomination of Auditors

Steve Howe and Bob Owens are willing to be auditors for next year and there being no other nominations they were declared re-elected.

13. Any other business

Mick Stanley reported on the dismissal and reinstatement of Tony Cross from Hampshire Museums Service.

Tim Riley asked if GCG was concerned that there was no geology category in any of the Museum of the Year awards. Committee will liaise with BCG.

14. Date and venue of 15th AGM

To be Friday 2 December 1988 in Shrewsbury.

The meeting closed at 4.40pm.

FORTHCOMING MEETINGS

Thu. 7 September 1989
GCG
University collections - What price the 1990 Orogeny?
The Hancock Museum, Newcastle upon Tyne

The fate of university geology collections following the Earth Science Review by the University Grants Committee (now the University Funding Council).

Contacts: Andrew Newman, The Hancock Museum, The University, Newcastle upon Tyne NE1 7RU (tel. 0632 328511)

Thu. 14 December 1989
GCG
Facets of our Glittering Heritage and Annual General Meeting
Oxford University Museum

Collecting, curating and conserving minerals.

Contact: Monica Price, Mineralogy Dept., University Museum, Parks Road, Oxford OX1 3PW (tel. 0865 272590)

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, issues will appear approximately quarterly, to make up the deficit to members.

NOTES TO AUTHORS

Articles should be submitted typed on good quality paper (A4 size) double spaced, with wide margins. Two copies should be sent to the Editor, Peter Crowther, City of Bristol Museum and Art Gallery, Queen's Road, Bristol BS8 1RL (Tel. 0272 223592). 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 are supplied at cost. 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 Michael Taylor, Leicestershire Museums, Arts and Records Service, 96 New Walk, Leicester LE1 6TD (Tel. 0533 554100).

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

CONSERVATION FORUM helps keep you up to date with developments in specimen conservation. Information on techniques, publications, courses, conferences etc. to Christopher Collins, Leicestershire Museums, Arts and Records Service, 96 New Walk, Leicester LE1 6TD (Tel. 0533 554100).

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

INFORMATION SERIES ON GEOLOGICAL COLLECTION LABELS consists of loose A4 size sheets, issued irregularly, which carry reproductions of specimen labels usually written by a collector of historic importance. The aim of the series is to aid recognition of specimens originating from historically important collections. Contact Ron Cleevely, Department of Palaeontology, British Museum (Natural History, London SW7 5BD.

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