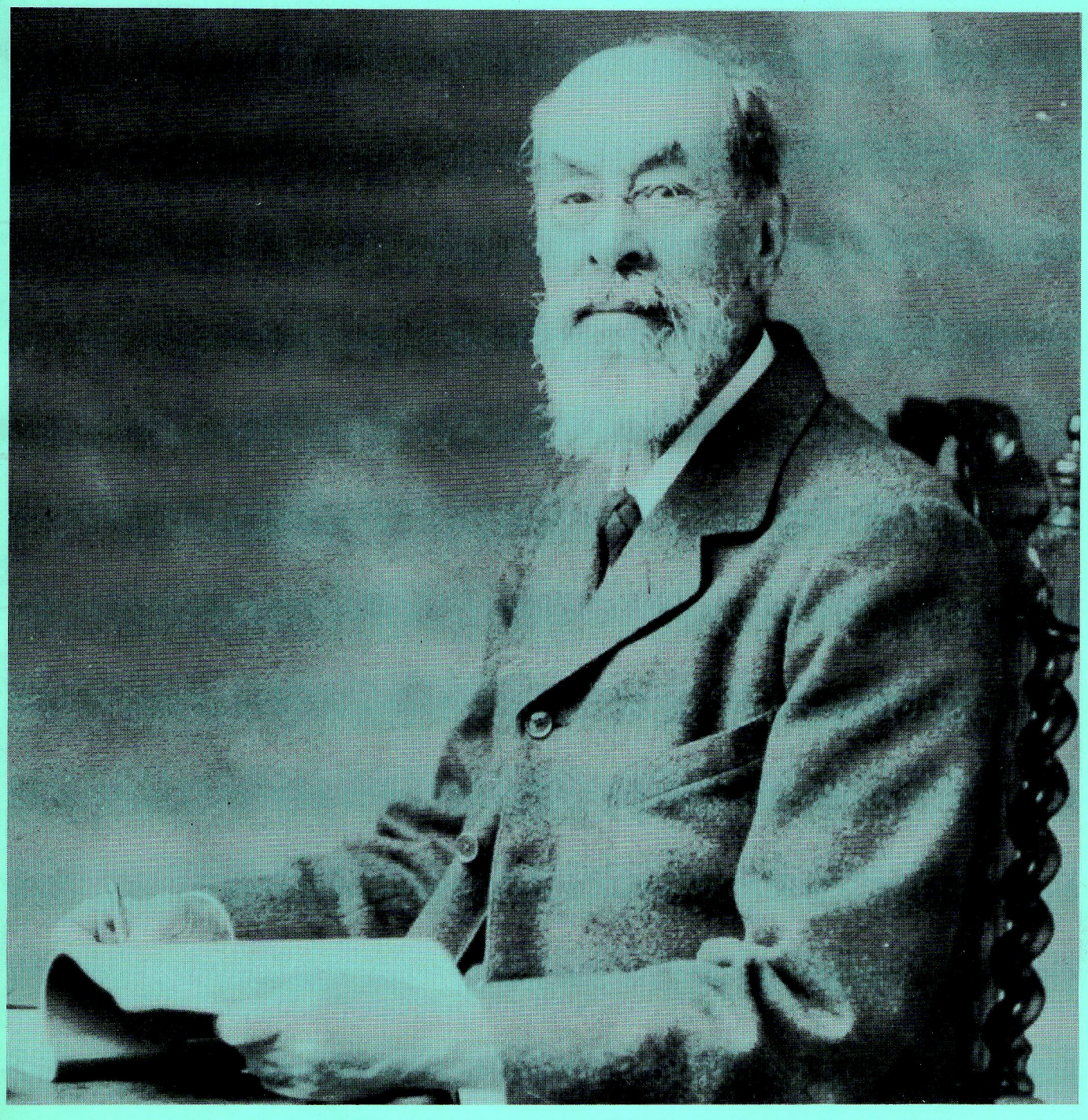
GCG

THE GEOLOGICAL CURATOR

VOLUME 5 No. 1 Issue 1 for 1987



GEORGE ABBOTT (1844-1925) OF TUNBRIDGE WELLS MUSEUM

GEOLOGICAL CURATORS' GROUP

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

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

1988 COMMITTEE

Typed by Mrs Judy Marvin, Leicestershire Museums Service.
Printed by Leicestershire County Council's Reprographics Unit, County Hall, Glenfield, Leicester.

ISSN 0144 - 5294

COVER. Dr George Abbott (1844-1925), founder and first Curator of Tunbridge Wells Museum. His work as geologist curator is chronicled herein by Margaret Gill and Simon Knell (pp.3-16). These authors also draw some lessons from Abbott's career, of wider relevance to our perception (and arrest) of the general decline of geological collections in British provincial museums this century.

THE GEOLOGICAL CURATOR

VOLUME 5, NO.1

CONTENTS

GEOLOGICAL CURATORS' GROUP

March 1988

EDITORIAL

Few British members of GCG can be unaware of the impending major reorganisation of university Earth Science departments. Stage 1 of this process involved the establishment by the University Grants Committee (UGC) of an Earth Sciences Review committee, under the chairmanship of Prof. Ronald Oxburgh FRS (Cambridge University), and culminated in May 1987 with the publication of this body's conclusions, under the title Strengthening the Earth Sciences - better known as 'The Oxburgh Report'. To his credit, Oxburgh made some pertinent comments on the implications for geology collections following any rationalisation of the thirty or so university departments involved, stressing the need to seek specialist advice and make additional resources available for any necessary relocation of material. Hailed at the time as setting the likely pattern for the inevitable reorganisation of other university based sciences, Oxburgh envisaged a 3-level system: Level 1 - about a dozen large (30+ staff) centres for research and the full range of post-graduate, Honours and general Earth Science teaching, with a substantial research base in both equipment and technical support; Level 2 - about a dozen medium (15+ staff) centres offering Honours, general and taught MSc courses, with research being essentially limited to less costly projects undertaken by teaching staff; and Level 3 - small (6 or less staff) centres providing 1st and 2nd year service teaching generally within other departments. By implication the bulk of NERC funded research (equipment, staff and students) would go to Level 1 centres. The Report found no favour with the Committee of Heads of University Geology Departments.

Stage 2 of the review process consisted of: consultation by the UGC over Oxburgh's recommendations, with not only the universities but also a wide range of interested parties (including GCG); a data gathering exercise aimed at compiling performance profiles for departments and their individual members of staff; and the submission of 'bids' from departments to the UGC justifying their chosen future status in the new structure. These 'bids' were subjected to peer review by three regionally based committees appointed by the UGC: the Western (chaired by Prof. R.K. O'Nions FRS, Cambridge University), Eastern (chaired by Prof. J.D.C. McConnell FRS, Oxford University) and Scottish (chaired by Prof. P. Allen FRS, Reading University) Regional Committees. These groups considered 'bids' in the light of the performance profiles, consulted directly with the departments involved, and reported their recommendations to a UGC appointed National Committee (chaired by Prof. M.J. O'Hara FRS, Aberystwyth University). The decisions of the National Committee were circulated on 4 March 1988.

During the Stage 2 process, the 'Levels' envisaged by Oxburgh (or Type A and B, as 1 and 2 had then become) underwent a subtle metamorphosis. The Regional Committees were apparently impressed by the extent of existing and proposed interdisciplinary working, as set out in the 'bids' received, and this led to a redefinition of types of department in the proposed new order of things. Out went A and B, and in came: Type M - medium to large departments providing teaching and research in mainstream Earth Sciences, including substantial single Honours courses, and running major items of equipment as a 'community service' (i.e. 'black box centres' which by implication would soak up the lion's share of research funding) (Cambridge, Edinburgh, Leeds, Liverpool, Manchester, Oxford, Birmingham, Cardiff, Durham, Glasgow, Leicester, RHBNC, UCL/Birkbeck); Type I - medium to large departments in which Earth Science staff contribute to interdisciplinary as well as main stream studies, which are to be reviewed as equivalent in academic status to Type M centres (E. Anglia, Lancaster, Aberystwyth, Imperial, Southampton); and Type J - smaller departments offering joint honours and service teaching, without expensive research equipment on site (Aberdeen, Keele, St Andrews). Other universities would lose their department as an independent entity, but might still provide some teaching in another appropriate department (Exeter, Hull, Newcastle, Nottingham, Sheffield). Following transfer of staff and students elsewhere, no further Earth Science teaching will take place at Aston, Dundee, Strathclyde and Swansea. Restructuring is to begin this year with relocation of staff and resources, and must be up and running to take undergraduates from October 1989. The consultation process continues with Bristol and Reading's future still unclear, and further information on management plans being requested by UGC from all departments.

Whatever the overall merits of the reorganisation, clearly any such major unheaval of university Earth Science departments will affect the museum community, since university based geologists are a major user group for museum collections generally, and all existing university departments have their own teaching and research material whose future must be a cause for collective concern. The UGC have recently faced up to the needs and vulnerability of collections in this exercise by appointing a five strong Museums and Collections Committee to assess the situation. Chaired by Sir Alwyn Williams FRS, with Dr C. Bishop (BMNH), Sir Malcolm Brown FRS, Dr L.R.M. Cocks (BMNH) and Prof. M. House (Hull University), the Committee's brief is to examine the distribution and resources of collections, consider their future pattern of distribution, and recommend to the National Committee arrangements (including relocation) for ensuring that the museum function is properly considered in the reorganisation. GCG Committee will be submitting detailed comments to Sir Alwyn's group by the end of March. The timetable for change is so tight that by the time you read this, the fate of those collections most vulnerable in the overall reorganisation will already have been sealed. Watch this space.

Peter R. Crowther
14 March 1988

Geological Curator, Vol. 5, No.1, 1988 (for 1987), pp.3-16
COLLECTIONS, COLLECTORS AND MUSEUMS OF NOTE, No.54

TUNBRIDGE WELLS MUSEUM: GEOLOGY AND GEORGE ABBOTT (1844-1925)

BY MARGARET A.V. GILL AND SIMON J. KNELL

INTRODUCTION

Above the door of the Natural History Room in Tunbridge Wells Museum hangs a portrait of George Abbott FGS, as a tribute to his struggle for over forty years to provide Tunbridge Wells with a museum. 'Knowledge of the Earth and its Story helps to make a man fitter for life on it and also to raise him above it' (E.B. Cumberland) was one of his guiding principles, and he placed the quotation above the window display in the newly-opened Municipal Education Museum in 1918. As instigator and first Curator he was responsible for the creation of its fine geological collections, of which a mere fraction now remains. Recent research into their disposal has shed new light on the history of these collections and on the work of Abbott who, as a collector, supplied concretions to museums throughout the world.

BACKGROUND AND EARLY COLLECTIONS

The massive outcrops of Wealden sandstone in the neighbourhood of Tunbridge Wells, at such sites as High Rocks, first attracted man's attention as suitable shelters for prehistoric settlement; centuries later, in a more sophisticated age, they provided a scenic spectacle for increasing numbers of visitors to the area following the discovery of the Wells by Lord North in 1606. So 'remarkably pleased' was the Duke of York with the splendour of the 'rude eminencies' of High Rocks that he had a house built there in 1670, since when 'it has been fashionable to make entertainments amidst those stupendous ruins of nature, which ever have been, and ever must be reckoned amongst the principal curiosities of the place' (Burr 1766). Evidently the more scientifically minded of Thomas Benge Burr's contemporaries were also taking an interest in the local geology as such and speculating upon its origins, for in a digression he commented that 'The curious philosophic enquirers who love to indulge themselves in conjecture, have imagined that the vale in which these rocks are situated was once the bed of a prodigious river ... demonstrable from marks on the rocks themselves ... proof of their having been the habitation of a particular species of fish'.

For the next half century Burr's remarks continued to be reprinted verbatim in successive editions of Sprange's Tunbridge Wells Guide. Meanwhile geology had become a respectable science, so that when John Britton came to write his Descriptive Sketches of Tunbridge Wells in 1832, he felt compelled to consult Gideon Mantell for an authoritative account of the geology of the surrounding country. Mantell referred to his own observations made during 'few and hasty visits', and to the collections of local fossils made by Mr Jansons, formerly of Dudley House, several years previously and by the Rev. Sackville Bale of Withyham; he expressed the conviction 'that the environs of Tunbridge Wells would, by a little perseverance and diligent research, be rendered as productive as the most celebrated localities in Sussex', and earnestly recommended 'gentlemen who reside in that neighbourhood, and have taste and leisure for the task, to follow up the enquiry since it cannot fail to lead to the most interesting and important results'. Earlier in his essay, Mantell noted that 'the Museum at Canterbury contains a very fine collection of the fossil productions of the county ... arranged and displayed in a manner that would do credit to any metropolitan museum' (Mantell 1832).

This seems to have acted as a stimulus. In 1836 the Literary and Scientific Society was established and by 1839 was described in Colbran's New Guide to Tunbridge Wells as having 'a small museum, containing among other things some specimens of fossils, &c., chiefly of those found in the neighbourhood' (Phippen 1839). In Brackett's Descriptive Illustrated Hand Guide William Gaspey (1863) wrote that the museum contained 'fossils and other productions of the district'. Other than the prominence of geology in its collections, very little is known of this early museum. A later note (announcing the opening of the Municipal Museum in 1918) indicates that this material in the main was the collection of one man: 'Fifty years ago Mr Maddocks, a former resident on our Pantiles collected many specimens which are still in the adjoining library, but he had no immediate successor. The work ceased and all too little care was taken of what he had obtained which were mostly geological specimens'. The vague reference to 'fifty years ago' probably refers to the date of his death rather than the period of his collecting. The more recently founded Natural History Society made an unsuccessful attempt to acquire this collection in 1890 but it was not until 1920, following the establishment of the Municipal Museum, that this was achieved. The entry in the Accession Book reads: 'Large collection of Fossil, Mineral, Botanical and Zoological Specimens from the Literary Society (many local ones & collected by the late Mr W. Maddocks)'. Unfortunately this material is no longer identifiable.

In the 1870s increasing numbers of provincial towns opened municipal museums, formed for the most part from local society collections; but despite the existence of

the Literary Society's museum this did not happen in Tunbridge Wells, where there was a reluctance on the part of the Town Council to involve itself in such educational enterprises, a reluctance that continued to hamper the development of a museum worthy of the town for decades. Indeed, but for the efforts of Dr George Abbott, Tunbridge Wells might still be without a municipal museum of any sort.

DR ABBOTT AND THE NATURAL HISTORY SOCIETY

George Abbott was born on 25 March 1844 in Nottingham and, after an apprenticeship with a local doctor, went to Guy's Hospital to study for the MRCS, gaining all the major awards for medicine. For some years he worked as a general practitioner in Leicester, but had to give up on account of ill health; he returned to London and in 1878, at the age of thirty-four, moved to Tunbridge Wells. Always interested in public welfare, particularly health and education, he started a dispensary which through his efforts became the Ear and Eye Hospital, and later in the basement of the Hospital he gave educational classes, from which developed the Technical Institute.

As a member of the Literary and Scientific Society he was familiar with its geological collections but initially showed no special interest in geology. His interest in education, however, led him in July 1885 to prepare a labelled display of local flora in the lobby of the Literary Society's Rooms. As the season advanced, flowers were supplemented with fungi and 'Fungus Forays' were organised for the collection of specimens. Such was the enthusiasm aroused that in September The Kent and Sussex Courier was able to announce: 'We hear that an effort will shortly be made to establish a Natural History Society for Tunbridge Wells. We hope that the movement will be attended with success, and that the ultimate result will be the establishment in our town of a museum worthy of the reputation of the place'. Preliminary meetings were held, followed on 12 November 1885 by the first public meeting of the Natural History and Antiquarian Society (renamed the Natural History and Philosophical Society in 1888). From the outset a major objective was the creation of a natural history museum.

As well as being the inspiration for the Natural History Society, Abbott acted as Honorary Secretary for the first five years, while the Rev. T.R.R. Stebbing (an authority on crustacea and former member of the Challenger Expedition) was elected President. Activities of the Society during its first year included lectures and microscopical meetings in the Literary Society's Rooms, and excursions in the neighbourhood, and it was not long before it was pursuing the ideal of a museum. At the first Annual General Meeting it was decided that 'The time has now arrived when some steps should be taken to establish a Museum of Natural History, if only on a small scale'; the display area in the Literary Society's library was available and several important collections promised. Funds were required for the purchase of showcases, but a public appeal launched for this purpose with the hope of raising 'at least £100' produced only £13.5s. Though the purchase of additional display cabinets was necessarily postponed, the Society began to collect specimens.

The first major acquisition in December 1886 was 'a very valuable collection of geological specimens' given by Dr B. Marsack, in appreciation of which the donor was elected an Honorary member of the Society, and a Microscopical Conversazione was organised devoted to the theme 'The Geology of this district'. Geological specimens were exhibited, fossils and rock sections shown in the microscopes, and in the course of the evening a short lecture was delivered by Prof J. Wilson, formerly of the Geological Survey, on the Wealdon formation. From now onwards geological subjects featured regularly in the winter lecture programme and as the raison d'etre for summer excursions.

The early years of the Society were filled with great enthusiasm, informality and hilarity - there had obviously been a latent desire for such a development in the town for many years. Abbott's diverse and interesting itineraries were complemented by Stebbing's witty speeches and the 'quips and cranks' and 'genial stories' of the famous art-photographer Henry Peach Robinson. On foot and on bicycle, by train and by carriage, even in boats these 'merry scientists' explored the countryside, accompanied by picnic hampers, kettles, baskets of strawberries and bottles of cream. 'Was ever tea so good or bread-and-butter nicer, or appetites better?' wrote one participant of a botanical trip on the Medway (Kent and Sussex Courier 26 June 1889).

In 1889 showcases were installed in the Literary Society's Rooms, and by 1890 the Natural History Society had what was described in the report of the Annual General Meeting as 'a small museum'. At that meeting Abbott resigned from the post of Secretary because he felt 'there was such a thing as being too long in office'; he was presented with a clock by the Society 'in appreciation of his zeal, energy, and perseverance in meeting all difficulties', and was formally elected Curator and Librarian of the Society's collections (functions he had hitherto undertaken as Secretary).

Till now Abbott had displayed no particular interest in geology, but from this date onwards there is evidence of his growing fascination with the subject, which was to be so important for the development of the museum collections. At one of the December meetings he exhibited belemnites, the following April a 'Large Collection of fossils from the chalk, and a number of geological specimens from Swanage and Dartmouth', and later in the year with W. Carter 'a great variety of Geological Specimens'. In 1892 he lectured to the Society on 'Chalk Flints & how they were

Fig.1. Excursion of Natural History and Philosophical Society members to High Brooms Brickyard to examine a section of Wadhurst Clay capped by Tunbridge Wells Sand, 14 May 1898. It was conducted by Dr Abbott (centre), who 'afterwards kindly entertained the party to tea & showed them numerous very interesting fossils & geological specimens'.

formed'; 'Dr Abbott had before him and arranged around the room a most extensive and varied collection of flints, grouped into classes according to their peculiarities. Most were obtained in the district from roadside heaps and Brighton, others from Cornwall & Maidstone'. The subject was explored in greater depth during the next session in a paper entitled 'Sponge Spicules in Flint'. These are the first signs of his interest in concretions (on which he was to become an authority) and are indications that he had already been collecting widely. He had also been in correspondence with other geologists, such as Dr J. Reid of Canterbury Museum, who had supplied him with green flints to illustrate his first lecture (Tunbridge Wells Gazette 15 April 1892).

Since the 1870s, successive editions of Pelton's Illustrated Guide to Tunbridge Wells had contained a chapter on 'The Geology of the Neighbourhood' by W. Topley MA of the Geological Survey; in the 1893 edition Abbott contributed a page of illustrations and notes of local Wealden fossils, with the comment that 'These and other specimens can be seen at the Natural History Society Museum, 32 The Pantiles'. By the end of 1893 the Society's collections had increased significantly in size; they now had 'a good collection of local fossils'.

The Society had always received good coverage of its activities in the local press, but when the latter failed to exploit an opportunity to give some instruction in geology in response to a query about 'The Rocks' on the Common, Abbott intervened, and in doing so advertised the Society. 'At last', he wrote, 'there is in the town a collection of our local sandstones, limestones, etc., which will grow, I hope, year by year, till all interesting specimens found in the locality gravitate into it' (Tunbridge Wells Advertiser January 1894). A year later he wrote another letter in which he stressed the need to record geological sections when first made by road cuttings and before being obscured by Nature (Kent and Sussex Courier 21 December 1894).

Adding a little confusion to the scene, around this time Abbott's namesake W.J. Lewis Abbott FGS (1853-1933) of Sevenoaks led members of the Society on a number of field classes (Free Press 9 May 1894), and followed them up with a course of six lectures on geology at the end of 1895. Also in 1895 George Abbott led his first Geologists Association Excursion (see below), and in the following years conducted the Natural History Society's geological peregrinations. After an excursion to High Brooms Brick Clay Pit in 1898, he 'kindly entertained the party to tea & showed them numerous very interesting fossils & geological specimens'.

In the flurry of full programmes of lectures and excursions, the needs of the museum were not overlooked. In April 1895 'The Curator was authorized to pay a small reward for local fossils', and in December of the same year he 'was authorized to purchase 2 gross of cardboard boxes and Lowry's Chart of Fossils'. It would seem however that Abbott was not completely happy with the progress; in the Annual Reports for 1898 and 1899 members were requested to collect 'not only on our Summer Excursions, but at all times, regularly, systematically. Although occasional chance notes and observations would be valued, the best work would result from Members taking up a special branch of local investigation and making it peculiarly their own', as indeed had Abbott himself with his study of honeycomb and other weathering in rocks.

Fig.2. Members of the Natural History and Philosophical Society on their excursion with the Eastbourne Natural History Society to the Heathfield Natural Gas Springs, 24 June 1899. The parties were conducted by Dr Abbott and H. Sparks (seated together centre).

In 1897 it was announced that Mr Charles Hose (President of Baram Sarawak) was willing to present 'some valuable geological specimens, if the society would be in a position to exhibit them. Want of space and a suitable home is a great difficulty with the local society, but it was decided to accept this generous offer, if possible. Regarding as we do our Natural History Society as an ultimate benefactor to the future Municipal Museum, we trust that the society will be able to find the means; and, it may be added, the funds to avail themselves of the gift of what we understand is a really valuable collection. The nucleus which the Town Council are at present acquiring for a local museum, is to say the least of it of that heterogeneous character which more benefits an old curiosity shop' (Press cutting 16 October 1897).

Progress was not being made towards the creation of a municipal museum; the Town Council had adopted the Public Libraries and Museums Act in 1891, and land was acquired for the purpose of erecting a public library and museum. In his Curator's report for May 1897, Abbott expressed pleasure 'at the early prospect of a municipal museum being established', but two years later had to recognise that although land had been acquired it would be several years before a town museum could be built. Meanwhile he persuaded the Town Council to allow material to be stored at the new Technical Institute and to appoint R.R. Hutchinson, Secretary of the Society, as Honorary Curator of the Town's Collections.

THE SOUTH EASTERN UNION OF SCIENTIFIC SOCIETIES

In 1896 George Abbott organised a meeting of representatives from Natural History and Scientific Societies throughout the South East. With Abbott as Honorary Secretary and the Rev. Stebbings as the first in a line of eminent Presidents, this group became the South Eastern Union of Scientific Societies.

Meetings were arranged annually at which museum displays became a particular feature with members contributing specimens. At the first of these, which was held in Tunbridge Wells, local fossils were shown at the Southborough Field Club and the local Natural History Society, and Ightham fossils and gems by W.J.L. Abbott.

Through its journal, the South Eastern Naturalist edited by Dr Abbott in its early years, the Union rapidly evolved into a forum for the exchange of ideas and information, not least among local geologists. Among the schemes devised for mutual help was Abbott's 'Travelling Lantern Slide Show' which aimed to provide a loan collection of geological photographs. The scheme failed to inspire local photographers and, although a set of slides was eventually assembled, it was greeted with apathy.

DEVELOPMENT OF THE TOWN MUSEUM IN TUNBRIDGE WELLS

At the Annual General Meeting of the Natural History Society in 1900, Dr Abbott proposed the transfer of the Society collections to the Town Council, which had provided a

temporary store room in the new Technical Institute and a curator 'until the Town Museum could be built'. This was duly done (apart from the material on display in the Literary Society's Rooms), and consequently by 1904 the post of Curator to the Natural History Society had lapsed. While his curatorial duties were thus reduced, Abbott's interest in the provision of a proper museum did not flag; as President of the Society (1904-1906) he continued to urge for suitable premises to be found. The Society discussed the possibility of erecting a temporary iron museum on spare ground at the rear of the Technical Institute at a cost of £250, of which £130 would be required for the actual building (a room 30ft by 40ft) and the balance for purchasing display cabinets and other fittings. Aware of the Town Council's unwillingness to incur any expense, they nevertheless thought that if money for the building could be raised privately, the Council might cooperate in providing the site. The response was so lukewarm that the Society was soon discussing alternatives, such as hiring a room in the Old Technical Institute for a museum. In February 1906 the Treasurer reported that 'he had received an offer from a person who wished to remain anonymous of £100 towards providing the town with a Museum; should definite steps be taken in that direction during the next two years'; the offer (almost certainly from Dr Abbott) was not taken up.

The subject of temporary premises for a museum was again aired in 1914, when a petition was made to the Town Council for the use of a vacant house for 'the purpose of forming the nucleus of a public Museum'. Unfortunately, opposition to the idea outweighed support; it was pronounced 'a fad of the worst kind', 'a scheme which was extravagance of the grossest possible kind' and 'an idiotic and silly proposal', although when asked if there were sufficient material, one sympathetic Councillor admitted that 'there was already enough material stored in the cellars of the Technical Institute to fill one or even two houses in Calverley Parade'.

Throughout the early years of the century the Natural History Society sustained its interest in geology, largely through Abbott's enthusiasm. He continued to conduct geological excursions, such as one on 17 September 1904 to 'examine the remarkable section of Tunbridge Wells Sands on Speldhurst Hill, which exhibits a series of faults, fissures and bends of the sandstone, making it the most remarkable and instructive geological section in the neighbourhood'; he ensured that the lecture programmes regularly included geological subjects by such authorities as Dr H. Woodward FRS (Keeper of Geology at the British Museum) and Prof G.S. Boulder FGS; and in 1910 he persuaded the Society to introduce a competition to encourage the photography of geological phenomena, one of his own great interests. Five prizes of £1 each were offered for the best set of photographs illustrating scenery of (1) Chalk districts, (2) Wealden sandstone, (3) showing shingle, (4) rivers and marsh, and (5) Tertiary beds.

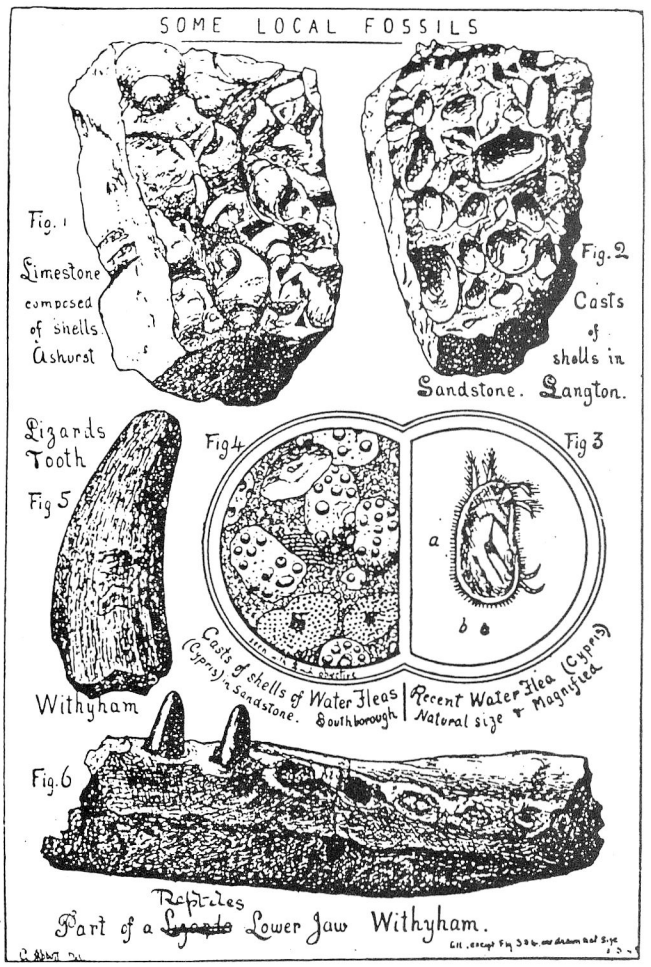


Fig.3. 'Illustrations and Notes of Local Wealden Fossils' contributed by Abbott to Pelton's (1893) Illustrated Guide to Tunbridge Wells.

The Museum's collection continued to expand, with such acquisitions as over 200 mineral specimens bequeathed by the late Prof J. Wilson, about 100 more donated by Mr A. Baker and another 200 by Mrs Meyer. In 1910 the late Frederick Tendron (a former resident of Tunbridge Wells and Chairman of a Brazilian mining company) left large and important mineral collections, of which the finest specimens went to the British Museum (Natural History) and the 'residue passed to the Corporation of Tunbridge Wells to form the nucleus of a local museum'.

In 1917 the Museum was presented with the 'largest and most valuable' of any gift yet received, from the late Rev. Richard Bull, including 'two cabinets of shells and fossils (the latter from the neighbourhood of Harwich), as well as smaller cabinets and other larger specimens'. C.W. Andrews had seen this large collection in September 1914 and noted that specimens were stuck on glass and were without labels (Sherborn 1940). The British Museum had previously acquired some fine Eocene turtles and type mammal material from the collection, but had declined the rest. Their acceptance of the residue compelled the Museum Committee to renew attempts to secure 'additional premises ... the store now being already overcrowded'. In October Abbott was able to report to the

Natural History Society 'that we should probably acquire through the town Council, a room opposite the Calverley Hotel, which could be used as a storeroom & showroom of what we possess', and by the following June 'that the work of transferring Museum specimens to 18 Cresent Road was proceeding satisfactorily'. In July 1918 the Municipal Educational Museum opened with Dr Abbott as its first Honorary Curator.

With space in the makeshift premises of this former shop to display as well as store the accumulated collections, Abbott set to work, arranging and labelling. His efforts did not pass unnoticed; like other visitors, the local press was welcomed to spend 'an interesting and instructive hour in being conducted over the rooms by the ever-obliging curator, Dr Abbott, who explained explicitly and at length many of the things of interest which are to be seen'. A reporter from the Argus wrote enthusiastically of the 'excellent beginning' and anachronistically of the Palaeoliths, which 'could have been of little avail against the fearsome beasts which then roamed the earth, judging by the size of the footprint of the Iguanodon, the cast of which we are assured was taken at Crowborough or that of the Femur taken from the Wadhurst clay at High Brooms. By comparison a walrus skull brought back from the Arctic regions loses its thrill'. For the geologist he thought there was 'much of real interest ... particularly ... examples of Devonian limestone of beautiful shades and quaint shapes, and ... fine pieces of Engrintal marble from Derbyshire, but the specimens of landscape marble from Bristol - literally natural pictures in stone - deserved the most prominent place'.

'Upon entering the museum', recorded a representative from The Advertiser, 'glass cases filled with stones, crystals, etc. of every description met one's gaze, and one could not help being struck by the varied colours of some of the polished stones ... One case, which Dr Abbott seemed particularly proud of and took more interest in - and rightly so, for he said there was no collection similar to it elsewhere, not even at the British Museum - contained pieces of stone and weathered mortar which nature had formed into all manner of shapes and designs ... Dr Abbott has been engaged in this particular research work, and he is probably the only person who has tackled the subject ... in another room there was a considerable number of larger specimens of rock materials which had turned into definite shapes like organisms, many of which came from Sunderland'.

The Crescent Road premises were no more than a temporary expediency; the search for other, more suitable premises was resumed. Having spent a lifetime struggling to provide the Town with a museum worthy of the place, Dr Abbott was anxious to achieve it before his death. In 1919 he offered to bear the entire cost of the purchase and erection of an Army hut for a museum, provided a site could be obtained; in 1920 he offered to give £500 towards a new building and threatened in the event of nothing being done to withdraw all his specimens. At the same time he announced his intention of resigning the curatorship, but despite age and ill health he was persuaded to continue in the post. After the rejection of his generous offers he grew increasingly pessimistic; in 1922 he again expressed his concern about the future of the museum, feeling doubtful 'whether it will, unless circumstances are very different, ever have the support it deserves. As I am unable at present to remove some of my rare specimens I should like them to remain for a time as a loan. I refer to those from Sunderland and others relating to the Concretionary type'. He was however willing 'if the Museum continues as a municipal one, for all the others to remain as a gift, viz, Glass Cases, table, books, pictures and Natural History specimens'.

Though local journals might enthuse about his achievements in the tiny 'somewhat out-of-the-way' museum, Abbott himself held no illusions; as he took the trouble to stick the cutting in the Museums Accessions Book, he may well have agreed with the sentiment of the correspondent who wrote to the Courier of the 'very fine and telling specimen of the manner in which this spa considers the correct procedure of carrying out enterprises in what is called the "Museum" in Crescent Road. A more terrible and petrifying piece of work it would be difficult to encounter', signed 'Unfortunately a resident'.

Abbott remained Honorary Curator of the Museum until his death on 12 January 1925 at the age of eighty.

DR ABBOTT'S WORK ON CONCRETIONS

Abbott's published work primarily concerns the origin, nature and classification of concretions. The development of his understanding of these phenomena can be traced through a series of short notes, articles and letters contributed to a handful of journals over a period of some thirty years. The first of these concerned the secondary origin of flint (Abbott 1838a, 1839b) and the finding of paramoudra on the south coast (Abbott 1893c) - a claim he subsequently withdrew (Abbott 1916b).

Between 1895 and 1898 he led three excursions of the Geologists' Association (GA) to sites in and around Tunbridge Wells (Herries and Abbott 1895; Abbott 1897; Herries 1898) and again in 1909. At these meetings Abbott demonstrated his great interest in the weathering of local rocks, an interest which directly influenced his ideas on the formation of concretions. At the Dover meeting of the British Association in 1899 he gave these ideas more formal expression in two papers: the first discussed the formation of 'water-zones' and the second (also reproduced in Science Gossip, Abbott 1899) described the occurrence of tubular concretions. In the following year he read his first paper on the concretions of the Magnesian Limestone of Fulwell, Co. Durham (Abbott 1900) - a subject which was to become a life-long love.

A CLASSIFIED LIST OF THE "CELLULAR

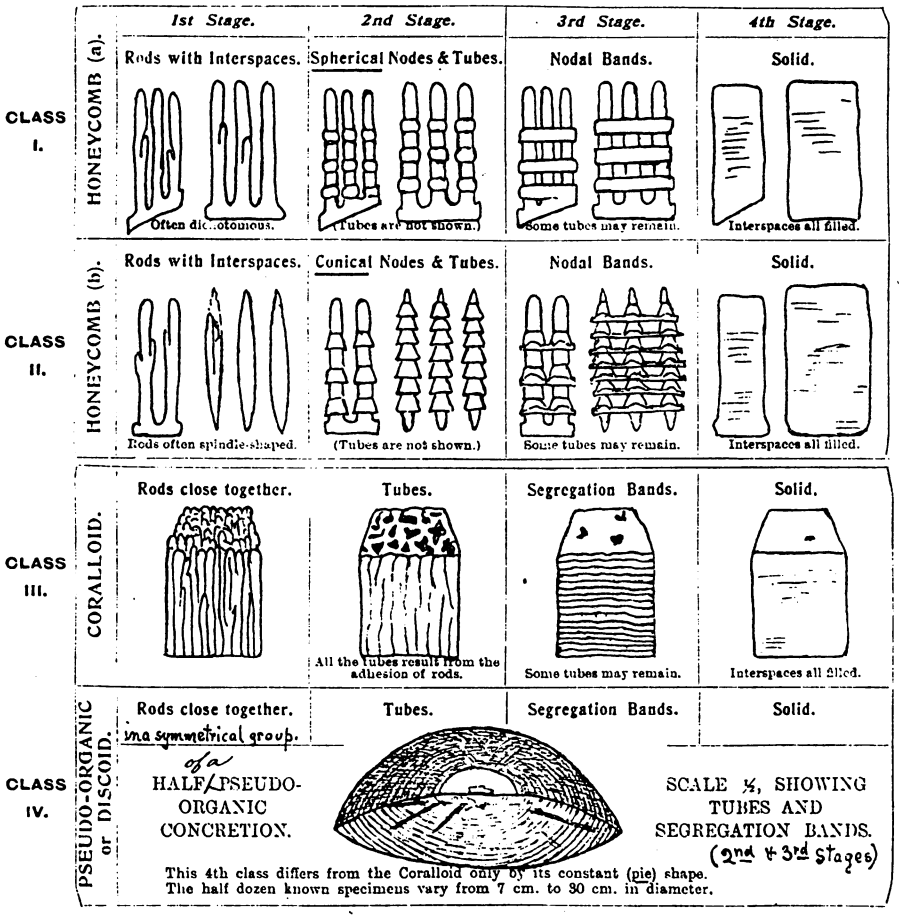
MAGNESIAN LIMESTONE CONCRETIONS

SUNDERLAND (PERMIAN).

With Details and Diagrammatic Sketches of the FOUR STAGES OF GROWTH.

They are entirely inorganic, and consist chiefly of lime which arranged itself when in the amorphous condition; the magnesia being only a passive matrix.

All the rods are drawn as if they had grown upwards, but they are found at every possible angle.



This classification applies only to the "cellular" concretions. The botryoidal masses originated in a different way.

In Classes I., II., and III. the mass may be of any shape, the pattern varies, as this depends on the relative position of the rods in their FIRST stage, which were either parallel or divergent.

Their size is generally governed by the number of 'cleavage splits', but these are not always present, and then the concretionary structure, limited only by the joints and bedding planes, is massive.

This organic like structure has been produced by the action of a "molecular directive force." In the first three classes it has governed the *internal* architecture only, whilst in the fourth class it must also have controlled the *external* shape, as otherwise the specimens could not have been all alike.

Tunbridge Wells, January, 1901. GEORGE ABBOTT, M.R.C.S.

Fig.4. Abbott's classification of the Magnesian Limestone concretions of Sunderland (Abbott 1901c) produced for a meeting of the Geological Society, May 1901.

It was here that he produced his first classification of these structures (also reprinted in the Geological Magazine, Abbott 1901b).

These ideas were greatly revised for a meeting of the Geological Society held in May 1901 where he exhibited some of his specimens, and a card printed for this occasion shows clearly the 'four stages of growth' on which his classification was based (Abbott 1901c). In June he was elected Fellow and eighteen months later read his first paper before the Society (Abbott 1902). In the discussion which followed, Henry Woodward complimented the speaker on the quality of his photographs and on the series of specimens he had given to the British Museum (Natural History) but remarked: 'surely, the giving of names to the varied forms which these remarkable inorganic bodies took on, does not advance us much'. Professor Garwood complained 'he could not see anything that was new' in what the speaker had said on their mode of formation. Abbott had in fact noticed some order in the diversity of concretionary forms found at Fulwell: he had discovered a

sequence in their formation and saw classification as a step towards a better understanding. He returned to the Society in 1906 to exhibit more specimens and photographs (Anon. 1906).

A GA excursion visited the quarries at Fulwell in 1903 with Abbott and D. Woolacott as leaders. It is interesting to note from the report of this visit (Abbott 1903) that it was Abbott who described the nature of the local concretions whilst Woolacott's contribution came later in describing a raised beach. Sixteen years later, Woolacott researched and published on the concretions in the Magnesian Limestone apparently unaware of Abbott's later work; it is Woolacott (1919) who is best remembered for the study of these beds while the work of George Abbott has long been forgotten.

By 1907 Abbott had developed a wide knowledge of concretions of all types and in a paper published in that year produced an overall classification illustrated with a fine series of photographs of specimens from museums in Newcastle, Bristol, Truro, Brighton, and Plymouth, and the BM(NH) (Abbott 1907a, 1907b).

Between 1912 and 1917 he became a regular correspondent to Nature, primarily on the subject of the Fulwell concretions. Of particular interest is a letter entitled 'Is Atikokania Lawsoni a concretion?' (Abbott 1914d). Atikokania had been described by C.D. Walcott in a Memoir of the Geological Survey of Canada as being related to the sponges or Archaeocyathinae; Abbott suggested that they might in fact be concretions similar to those in the Permian of Co. Durham - a view with which Walcott had to concur (Walcott 1914). Years later Holtedahl (1921) made a similar observation and has subsequently been credited with the discovery.

Abbott's most innovative work also appeared in 1914: 'Discoid limestones which simulate organic characters - a case of inorganic evolution'. This developed further his theory on the 'four stages of growth' and he urged that 'we must not remain blind to what the alkaline earths can of themselves do in the formation of the skeletons of higher structures' (Abbott 1914c; Anon. 1914). Mention is also made of specimens in museums in Oxford, Aberdeen, Hazlemere, Copenhagen, Sunderland and Newcastle. Abbott subsequently had this article privately reprinted as a pamphlet (a copy in the Geological Society also contains a series of his unpublished photographs and handwritten notes).

To pursue his work further he established the Geophysics Society (Anon. 1925a) in 1915 with Benjamin Moore as President; meetings were held in Burlington House but there is no record there of its existence. 'During its brief life it did useful and suggestive work but Abbott's failing health made it impossible for him to develop the idea' (CHG 1925). Alternatively Nature suggested 'here apparently was a society which was not needed, for after a few years of vicissitude it ceased to exist ... but as a protest against the overpowering study of palaeontology it performed some useful work' (Anon. 1925a).

In 1916 he published a paper on tubular concretions and played host to a party from the GA who had made a special visit to his museum. His last paper was published in Nature in 1923 when at the age of seventy-eight fascination with concretions was as strong as ever.

As a geologist Abbott can only be considered a keen amateur. Through some thirty-five years of study he had acquired an unequalled knowledge of concretions and had made a number of original observations but these, with the exception of a short note published in 1903, have subsequently been overlooked. 'Among his foreign correspondents were F. Chapman, Melbourne Natural History Museum; Professor Chaput, Geological Dept. Dijon University; Paul Combs, Paris; Professor E. Hartung, Melbourne University; G. Henriksen, Tromso; Professor O. Holtedahl, Christiana University, Cleveland, Ohio; Professor A. Issel, Genoa; E.M. Kindle, Dept. of Mines, Ottawa; Professor Kissling, Berne Museum; Dr S. Leduc, Nantes; Professor D. de Papp, Budapest Museum; Dr Roccati, Turin University; Professor L.D. Stamp, Rangoon University; Paris B. Stockdale, Ohio University; and Dr Walcott, Smithsonian Institute, Washington. To these and to many museums in Great Britain and its Colonies, and Europe and America, he sent at his own cost heavy cargoes of concretions from Fulwell' (CHG 1925).

THE DISPERSAL OF ABBOTT'S COLLECTIONS

Throughout his life Abbott had been both the instigator and driving force behind many enterprises - the Ear and Eye Hospital, the Technical Institute, the Natural History Society, the South-Eastern Union, the Town Museum and the Geophysics Society. He had provided the Museum with objects, furnishings, equipment and funds. Through the 'Fairy Godfather' or 'Adopted School' scheme, which he also established, Abbott provided schools with train fares for visits, pictures, books, specimens, etc. (CHG 1925; Anon. 1925b). Self-effacing, 'simple and direct', he was by nature a philanthropist motivated by the need for education for all.

During his life in Tunbridge Wells Abbott had done much for the town but the Town Council in return seemed to have contributed nothing. Disappointed, he wrote in his will: 'I did offer a considerable sum to the Town Council through the Museum Committee towards the cost of a new Museum Building ... the offer was declined and kept secret. Stinginess to my mind as regards education at the present time is a very false economy ... It seems, as a friend has just written me "We need a Society for the Education of Town Clerks and Town Councils ... to remedy this and prevent them any longer thinking only of saving the town's coppers". Until then, I ask, why should anyone leave them any

legacies? Why? Why?'. The Town Clerk on reading this in the local paper wrote to the Chairman of the Museum Sub-Committee stating that he was unaware of any offer of a donation; he remarked 'I believe it is a fact that wasps sting after they are dead'.

In his later years Abbott had worked with Dr W.A. Richardson of University College, Nottingham, and it was left to Richardson to decide what should be done with Abbott's collections which totalled some five to six tons from Fulwell alone. 'He had collected widely and well' having procured specimens 'from the quarries, from walls, from private rockeries, and even private collections' (Richardson 1927). His aim had been to supply colleges and museums and this was carried through after his death with at least twenty-eight institutions benefitting. His research collection, his fine collection of photographs, and one third of his fortune, which totalled £8000, were left to the University's Geology Department. To this day the Department pays annual tribute to Abbott's generosity in the form of the George Abbott Memorial Lecture and some of Abbott's specimens have been set in the wall of the Department's new building. The remainder of his fortune was split between Guy's Hospital and University College, London; he left nothing to Tunbridge Wells.

TUNBRIDGE WELLS MUNICIPAL MUSEUM AFTER ABBOTT

Following the death of Dr Abbott, Herbert E. Turner 'agreed to the suggestion of the committee that he should for the time being act as Honorary Curator to the Museum, although it was quite understood that he would not be able to devote very much time to the duties, but would undertake general scientific supervision'. Also a geologist, he had contributed a chapter on local geology in Tunbridge Wells and Neighbourhood edited by Henry R. Knipe (1916); and with Dr Richardson worked for a time on Abbott's concretions.

The Museum remained much as Abbott had left it, for 'little more could be done until more satisfactory and adequate premises were secured'. In 1928, however, the lease ran out and the Museum had hastily to be moved to a Victorian house in Upper Grosvenor Road. Luckily a retired Liverpool medical practitioner, Dr John C.M. Given MBD, MD, FGS, had recently come to reside in Tunbridge Wells. Another keen geologist, he assisted Turner 'in the work of classification and arrangement of the showcases'. Having only regarded himself as an interim official, Turner soon recognised the qualities in Given that would make him a worthy successor to Dr Abbott; in January 1929 he resigned, recommending the appointment of Given as Honorary Curator.

For the next twenty years Given continued to develop the collections, accepting specimens from all parts of the world, ranging from Cretaceous fossils from oil boring in Iraq, native pitch from the Pitch Lake in Trinidad, and gold quartz from prospecting in

Fig.5. Geology Room of Tunbridge Wells Museum at Abbotsford, 6 Upper Grosvenor Road, about 1933, showing a display of Coal measure fossils in the foreground and Geology of the Weald against the far wall.

Australia, to polished pebbles from Worthing Beach. From local engineers he acquired such specimens as a core section of the Fordcombe boring through the Ashdown Sands, samples of ironstone from a waterpipe trench including 'a large basin like mass ..., black & very heavy, about 5ft across', and purchased for £1 the left femur of an Iguanodon from a workman 'who found it a few weeks ago embedded in the Wadhurst Shale in High Brooms Brick Pit'.

Ardent geologist though he was, Given felt the Museum should also illustrate the history of the town; lack of space and the loan of an important collection of Tunbridge Ware in 1933 forced him reluctantly to dismantle the display of minerals. However, when the lease expired a year later and the Museum moved to new premises on Mount Ephraim, he was able to devote an entire room to mineralogy, placing on display 'many fine specimens collected by the late Dr Abbott and now exhibited for the first time'.

The displays in order, Given now considered documentation of the collections. First he introduced accession numbers in the register 'inserted in Red Ink on Jan 1st 1936 beginning forwards from 2.1 and backwards 1.999', but while most later acquisitions were marked with the new system, 'Acc.' numbers were not added to the earlier material. Instead, all specimens were labelled with 'Departmental Register numbers', which he used when compiling a catalogue of the entire geological section a few months later (see below).

In 1937 plans were approved for the building of a Public Library and Museum as part of the New Civic Centre complex, on land purchased forty years earlier. The shell was completed, but work was interrupted by the outbreak of war and not resumed until 1951. Although it had been admitted that the new building would be inadequate for both purposes and resolved that the 'new Library

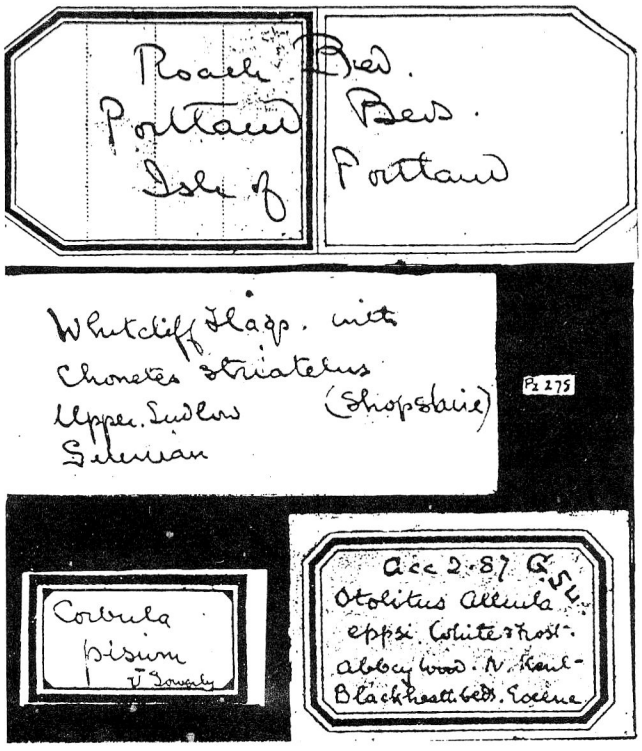


Fig.6. Specimen labels from the Tunbridge Wells Museum geological collections. All actual size. Borders dark blue, writing in black ink.

Building be kept solely for the purpose of the Public Library', when the Council acquired the Ashton Bequest of Victorian paintings it was decided to hang them temporarily in an upper room. Thus in October 1952 it was a 'New Library Building and Art Gallery' that was officially opened, and two years later the Museum moved in to occupy the rest of the upper floor. The Museum had purpose-built premises at last, premises that were quickly to prove inadequate for the collections.

During Dr Given's curatorship the geological collections were well maintained and he added a great deal. In 1938 such was the shortage of space for new acquisitions that the Library Committee (which now governed the Museum) authorized the Curator 'to dispose of by sale or otherwise any exhibits ... unsuitable for retention or superfluous'. Consequently, the following year saw geological specimens being sent in exchange to St Mildred Museum Croyden (including five of Abbott's concretions), and Scunthorpe, Erith and Newbury Borough Museums (specimens from the latter exchange have recently been located at Newbury). Tunbridge Wells also acquired a collection of minerals from Hove Museum. In 1942 the collection was further depleted when specimens were stolen from one of the showcases.

After Given's retirement in 1948 the geological section fell into neglect as the succeeding Curators' interests lay in other fields. With the move to the present premises in the Civic Centre, a modest selection of geological material was placed on display, arranged by one of the lecturers from Wye College, which offered to purchase certain mineralogical exhibits. The offer was deferred and the major part of the geological collection was placed in a basement store, where it suffered from flooding in 1958 and continued to be subjected to atmospheric damp caused by spasmodic water seepage through the walls.

THE DISPOSAL OF THE GEOLOGICAL COLLECTIONS

Early in 1968 Dr Raymond Casey of the Institute of Geological Sciences, an authority on Lower Cretaceous palaeontology and stratigraphy, wrote requesting to see the geological collections; in reply, the Curator (14 May 1968) invited him to come but warned that the collections were 'stored in decrepid cabinets under poor light and are difficult of access'. On visiting the Museum, Dr Casey was both surprised at the mass of material of all types present in the basement and shocked by its condition: 'Some specimens were in cabinets, but most were on open shelves or laid on top of cabinets and tables, many in various stages of decomposition and in no discernible order. A few specimens had labels, but in the absence of a catalogue a large number, possibly the majority, were unlocalized, both geographically and stratigraphically' (pers. comm. May 1986).

After his visit Dr Casey wrote to the Curator reporting on the fossil collection. This he described as representing most of the major groups of organisms from a wide range of geological horizons, particularly strong in fossils from the Carbonifereous and Cretaceous systems, and including a large number of cut and polished Devonian corals as well as British and foreign Tertiary mollusca but with no documentation to suggest that the collection might be anything more than of educational interest. There were rumours at this time of geological material from the Municipal Museum being dumped on the local refuse tip, of specimens leaving the Museum destined for bookcases and rockeries, and of other specimens being sold at Sotheby's; apparently all the local secondhand dealers were selling fossils and minerals.

Dr Casey, having already experienced the destruction of many fine collections in the South East, some of which he had helped form, feared that this collection would be totally destroyed. He recalls: 'The Curator was most concerned about the state of the collection he had taken over and after some discussion it was agreed that it should be taken to the Geological Museum for sorting and remedial work where possible, after which help would be given to the museum to arrange a small geological display of local interest'. He and a colleague returned to the Museum and removed about a 'Land Rover full' of geological material, supervised by a member of the Library staff in the Curator's absence. During the transfer a council official attempted to persuade them to take everything in the basement including natural history and social history items; this they refused to do.

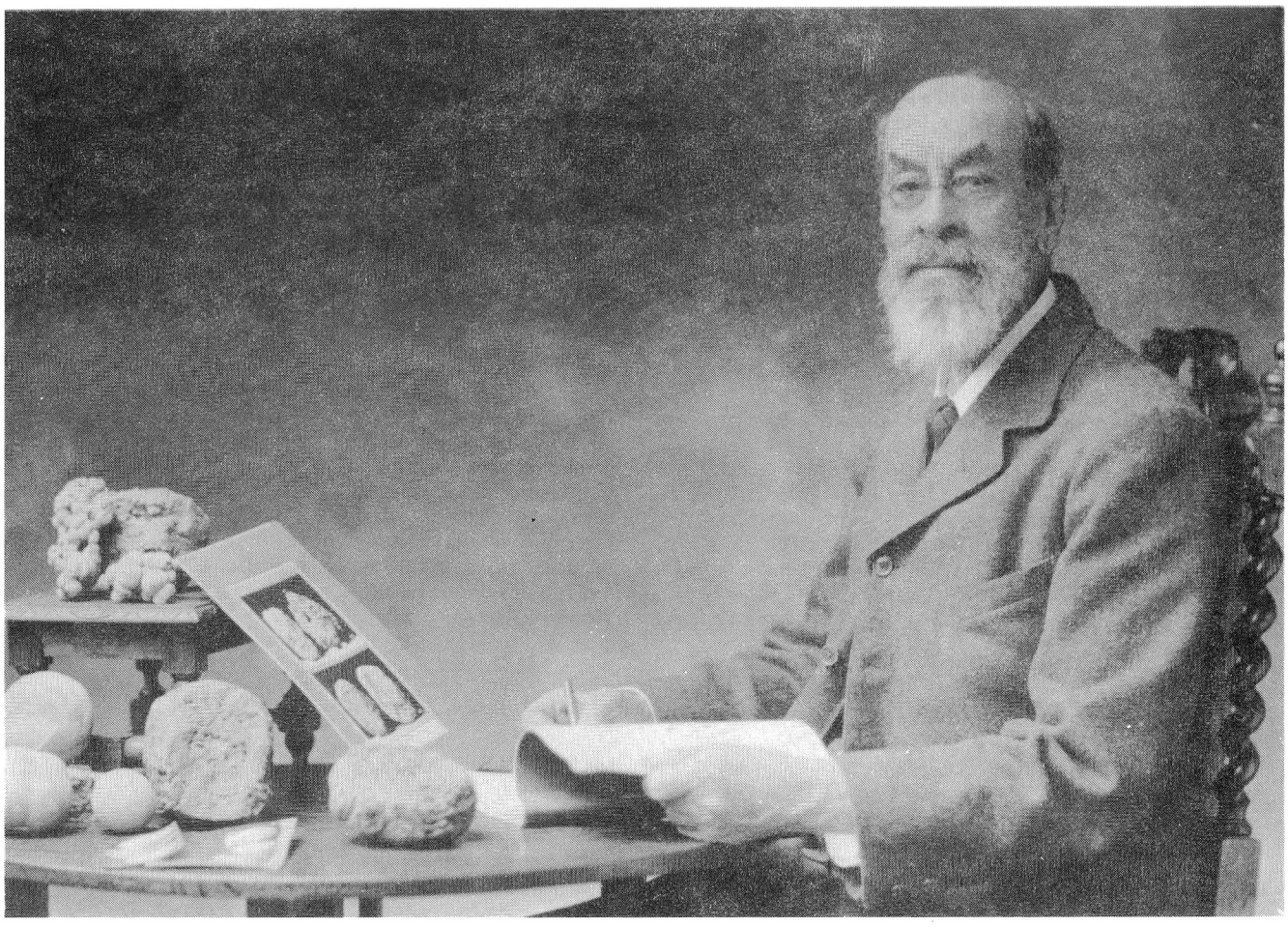


Fig.7. Dr George Abbott (1844-1925), founder and first Curator of Tunbridge Wells Museum, with a selection of his concretions.

On arrival at the Geological Museum the collections were laid out on tables and sorted. The best specimens (if any) were to be added to the survey collections as registered donations, while the Museum's Education Department, which was at that time establishing collections, took what it needed. Dr Casey recalls this as being mainly rocks and minerals, although today it is primarily the fossils which can be traced to this source. Of the remainder Professor Kirkaldy of Queen Mary College took the bulk of the fossils for teaching purposes, and what was left was put into trays for distribution to schools.

THE PRESENT GEOLOGICAL COLLECTIONS AT TUNBRIDGE WELLS

Geological material in the Municipal Museum today numbers around 920 specimens. It includes many Palaeozoic fossils (graptolites and trilobites), obviously overlooked in the disorder of 1968. These and a number of rocks and minerals date from the early years of the Museum and include material of good quality, carrying old handwritten labels with reasonably good locality and stratigraphic data. From what remains it is apparent that these were once excellent collections.

On examination of the surviving material it is possible to isolate certain recognisable and reasonably distinctive characteristics, most notably Dr Given's adhesive paper number tags attached to the specimens. These are of six types:-

1. rocks = Petrology: P + 3 figure decimal no. (e.g. P1.14, P1.15)
2. minerals = Mineralogy: M + 3 figure decimal no. (e.g. M3.65, M3.66)
3. fossils = Palaeozoic: Pz + 3 figure no. (e.g. Pz210, Pz211)
   = Jurassic: J + 3 figure no. (e.g. J210, J211)
   = Tertiary: Ty + 3 figure no. (e.g. Ty210, Ty211)
   = Post-palaeozoic: G + 3 figure no. (e.g. G310, G311)

Museum records relevant to the geological collections include the complete set of Accession Books. Although the earliest of these dates from the opening of the Municipal Museum in Crescent Road in 1918, Dr Abbott incorporated details of major acquisitions from 1887 onwards. The second register begun in 1930 testifies to a considerable reduction in the acquisition of geological material under the Curators who succeeded Dr Given. Unfortunately these entries contain little detail other than a general description of each collection, its source and donor. A list (part of the 'Departmental Register') recording some of the rocks and minerals on

display in 1936 survives, but the more detailed geological catalogue compiled by Dr Given between 1937 and 1940 is missing, possibly mislaid in the transfer to new premises in 1954; it was almost certainly lost prior to 1959 when a list of fossils was prepared based on specimen labels. This latter is now known to be far from complete.

In recent years the standard of curation has improved; the geological collections have again been catalogued and are appropriately labelled and stored in stable conditions. When discrepancies between the range and number of specimens now in the collections and those listed in earlier records were noted, attempts were made to account for the missing items. However, the only record of their disposal held at the Museum is a limited amount of correspondence between Dr Casey and the former Curator, containing no details of what was removed from the Museum nor their ultimate destination.

THE REDISCOVERY OF TRANSFERRED MATERIAL

The true origin of the fairly large collections in the Geological Museum's Education Department had been lost with staff changes; no accession records were kept and the natural assumption was that they had come from the Survey. Subsequent discussions with the retired Education Officer showed these collections to be composed of material rescued from provincial museums when these were going through periods of active disposal. Examples include the Bruce Castle Museum, and museums in Brighton, Peterborough, Rochester and Tottenham. Over the years, old labels have been lost and tracing any of this material may well be impossible.

By contrast, many of the specimens from Tunbridge Wells remain distinctive so that it has been possible to identify over 1000 through the recognition of characteristic label design, numbering system and handwriting; even items from individual named collections have been located (eg. Bull, Abbott). To prevent any future loss of identity and documentation, all such specimens now carry 'ex-Tunbridge Wells Municipal Museum' labels, Tunbridge Wells Museum has been supplied with a list of data taken from the old labels, the Geological Museum has been provided with copies of the original entries in the surviving registers etc., and the research continues to reassemble the former Tunbridge Wells collection as far as possible on paper.

CONCLUSIONS

The history of the geological collection at Tunbridge Wells is just one example of the destruction which Doughty (1981) has described so graphically. Recent work by the Area Museums Service for South Eastern England has shown that a majority of museums in the area have been seriously depleted in terms of the quality and quantity of material they hold and reports from other regions support the view that this loss is widespread (Pettitt and Hancock 1981; Brears 1984; Taylor pers. comm. 1987). Today, knowledge of the events which brought about this destruction survives only by word of mouth; there has been little attempt to document it more formally.

The active disposal of collections throughout the South East is particularly apparent from c.1920, but this may only reflect the lack of information available on events before this time - certainly a number of museums had already disappeared. Over this period there has been a progressive shift in staff specialism away from geology and towards the human interest disciplines of archaeology and history. With wavering local political or financial support curators often found themselves working in depressing circumstances, and in an atmosphere of professional isolation. Pressure from above or the direct involvement of trustees, councillors and librarians appears to be characteristic of these disposals. Their motives were lack of interest, lack of space, financial gain, or a belief that the material was not of local significance.

Rarely were collections transferred to other institutions even though exchanges of material were frequent. The Municipal Museum in Tunbridge Wells seems to have used every method available to dispose of its collection but there are many other examples: St Albans buried material in the garden; Rochester dumped material; Abingdon sold material at auction; Haslemere advertised and sold parts of its collections and library regularly in its early years.

It was against this background that Dr Casey became actively involved in the rescue of collections - as he saw it the alternative was their total destruction. Today, with the existence of the GCG and widespread professional awareness of the plight of geological collections, it is difficult to visualise the limited options open to Dr Casey. It is all too easy to be critical of his actions and those of earlier curators, particularly when not looked at in context; it is likely that future curators will be just as critical of us for having largely delegated the rescue curation of neglected collections, a task requiring a great deal of curatorial experience, to non-professional labour. Whilst it is true that MSC teams and volunteers have made an invaluable contribution to the recovery of the natural sciences in museums in recent years, they can only operate effectively with specialist supervision - something few museums can offer. The loss of labels and packaging through inappropriate curation is as damaging to a collection as the neglect or disposal it might otherwise receive.

As for the problem of disposal there are two actions the GCG should take:-

1. The GCG Recorder should compile a dossier on the past disposals and transfers of collections, even though this may be based on fragmentary or relatively unsubstantiated information. As a permanent record it will aid collection research and perhaps lead to the reuniting of specimens and documentation.

2. The disposal of material for the right reasons is an accepted part of any good collection management policy. As the only national body concerned with the care of geological collections the GCG should offer its advice and support in these matters in the hope that this will bring these activities out into the open where they can be properly assessed, thoroughly documented, and collections allocated to an appropriate institution.

At Tunbridge Wells, without adequate documentation many questions remain unanswered:
Where is the rest of the Tunbridge Wells collection?
Where in particular are the specimens illustrated in Peltons Guide?
Which museums have received donations from the Geological Museum in the last 25 years and which hold parts of the Abbott collection?

ACKNOWLEDGEMENTS

We would like to thank Alan Timms and his staff at the Geological Museum, Dr R. Casey, Ron Roberts, John Thackray, Dr Taylor (University of Nottingham) and Fay Jordan (AMSSEE) for typing the manuscript.

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Typescript received 5 March 1987
Revised typescript received 15 July 1987

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6. Museum Minute Books: 1918-1920; 1923-1933.
7. Minutes of the Library Committee: 1923-1974.
8. Museum Accession Books: Original First 'Old' Accession Book, 1918-1930; Accession Book 1930, 1930-1949; Accession Book, 1930-1961; Accession Book II, 1962-1978.
9. Geology, Archaeology: photograph album compiled by Dr J.C.M. Given, 1930s.
10. Cases & Cabinets Contents Lists: containing a list of minerals on display in the Museum, 1936.
11. Geology Catalogue: incomplete list of fossils in the Museum collections, c.1959.
12. Miscellaneous Museum correspondence, 1965 onwards.

Geological Curator, Vol. 5, No.1, 1988 (for 1987), pp.17-18

SPONSORED FOSSILS

BY W.D. IAN ROLFE

This article about the exhibition 'Mr Wood's Fossils is based on one that appeared in the Summer 1986 issue of Scottish Museum News and is reproduced by permission of the Scottish Museums Council. A future article in Geol. Curator will bring the story of the exhibition up to date. A review of the exhibition's opening at the Hunterian Museum, Glasgow appeared in Geol. Curator 4, p.502.

Stan Wood was employed by the Hunterian Museum as a MSC supervisor until 1983. During this period he discovered unsuspected 330 million-year-old sharks in the Glasgow suburb of Bearsden, which attracted much local and national interest. The Hunterian therefore wished to show these fossils to a wider public.

Before coming to the Hunterian though, Stan had made other significant finds, most of them now housed in the Royal Museum of Scotland. Shortly after leaving the Hunterian he found the world's earliest complete land amphibian, in 340 million-year old oil shale near Bathgate. This was of great scientific interest as well as visual appeal, and really convinced us that an exhibition of Stan Wood's fossils was timely.

The excitement of their discovery, kept up to date by a Stop Press section in the exhibition, could bring these fossils back to life almost as well as the graphic reconstructions we hoped to commission. The Hunterian had the usual problem, in common with small museums, of lack of funds to mount such an exhibition. Stan naturally attracts good public relations. BBC-TV had already made a film of the Bearsden excavation, and it therefore struck us that the exhibition would be a good subject for sponsorship. Indeed, since Stan has founded his own small business selling fossils, we hoped for financial support from him, which he has indeed provided. He also agreed to visit museums taking the exhibition to prepare fossils, using sand-blasting equipment lent to the exhibition by generous support in kind from manufacturers or licensees: GEC, Hydravane and Nilfisk.

Much of the exhibit work had to be contracted out, since the Hunterian Museum has lost many internal technical staff through university cutbacks. This was costed into the budget, resulting in a deficit of £12,000, to be raised by sponsorship. Being largely ignorant of how to go about attracting sponsorship, I talked to former Royal Scottish Museum palaeontologist, Dr Roger Miles, now Head of Public Services at the British Museum (Natural History). He had had several successes in the field of sponsorship for natural history exhibitions, including the Prudential's sponsorship of that museum's exhibition of the BBC Wildlife Photographer of the Year competition, and Sealink's sponsorship of twelve banners promoting the new Whale Hall displays at the British Museum (Natural History). It was Roger Miles who showed me the key publications on attracting sponsors - required reading for all who wish to find sponsors.

I also needed BM(NH) help to interpret the early amphibian finds. Dr Miles was keen to collaborate by providing an interactive videodisc programme, encouraging visitors to learn about the significance of amphibians to the origin of life on land, and about their role in the evolution of reptiles, mammals and Man. Unfortunately, the high cost of such a programme meant that it had to be made the subject of a separate appeal for funds, which simply ran out of time and had to be abandoned. The BM(NH) is still collaborating by providing the concept document for this part of the exhibition.

Following Miles' sponsorship advice to the letter, a two-page sponsorship proposal was drawn up, which included details of the exhibition, its schedule, benefits to the sponsor and the budget. Then began the long process of telephoning potential sponsors to learn if they might be interested, and to find out to whom the proposal should be addressed.

We obviously hoped for sponsorship from an oil company, since the theme of collecting fossils from the landscape and making a living from this was something that should appeal to them. Britoil, who had previously sponsored Hunterian activities, were not deciding their 1986 sponsorship programme until October 1985 - too late for us to contemplate formally applying to them. Like most major companies, they decided their sponsorship only once a year, and we had just missed their current round. This makes the point that most sponsors want applications far in advance - two years is regarded as normal, and one year is too short a lead time. In fact, we got nowhere with the oil companies, except for a much appreciated donation of £200 from Clyde Petroleum. The Royal Bank of Scotland, however, did express interest and after visiting us for a presentation of the proposed exhibition, rapidly agreed to exclusively sponsor it, provided it could tour England and Wales before Scotland. They specified this since their merger with Williams and Glyn's Bank occurred in late 1985, and they needed a presence south of the Border thereafter. The Royal Bank of Scotland saw this exhibition as contributing to that presence. The Bank was also interested in the educational activities that we planned to take place at venues, based on the successful experience of 'Shark Days' held at the Hunterian Museum and on site in 1981.

Much of the research work on the new fossils has been done at the University of Newcastle-upon-Tyne. A grant from the Carnegie Trust for the Universities of Scotland helped towards the cost of commissioning reconstructions from one of the researchers. These drawings are used in the accompanying literature as well as in the exhibition.

Stan Wood's business of collecting fossils for sale can obviously pose a nature conservation problem. He has publicised, expansionist views on collecting, but he is also a responsible collector. He collaborates with researchers to collect information as well as specimens. So we included a section on these conservation issues, and the Nature Conservancy Council agreed to grant-aid this aspect of the exhibition.

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Received 7 July 1987

Suggested reading on sponsorship:

ABSA/W.H. Smith Sponsorship manual (no date). Office of Arts and Libraries, 1981. (Available from ABSA, 2 Chester Street, London SW1X 7BB).

How to win sponsors and influence people. HMSO (Available from ABSA).

Norton, M. (ed.), 1984. A guide to Company giving. Directory of Social Change, 9 Mansfield Place, London NW3 1HS.

Arts Council of Great Britain. 1984. Business sponsorship of the Arts (reading list). (Available from Information Section, ACGB, 105 Piccadilly, London, W1V 0A11).

[Editor's note: Ian Rolfe coordinated 'Mr Wood's Fossils' when Deputy Director of the Hunterian Museum, University of Glasgow.]

FORTHCOMING MEETINGS

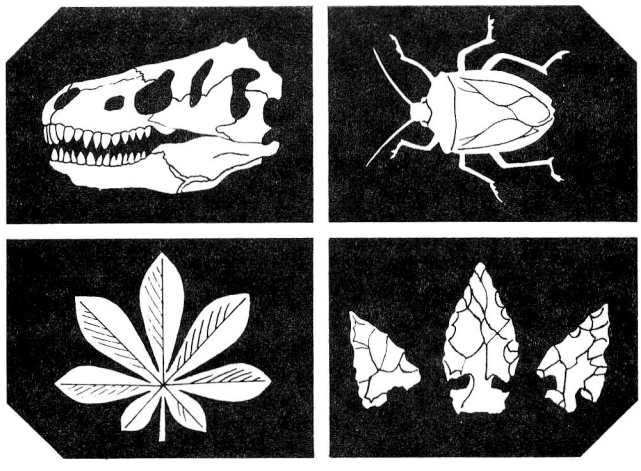
Fri. 22 April 1988
GCG
BGS - what price a national service?

10.30 Coffee
11.00 History of BGS - Brian Taylor
Introduction to BGS - Director of BGS
The role of BGS in the stewardship of the National Geosciences Date Centre - Brian Kelk
12.30 Discussion
13.00 Buffet Lunch
14.00 Tour of facilities (including the new Library, 'P' block to view collections, a demonstration of the digital information systems development, and the NGDC).
16.15 Tea and disperse

There will be a charge of £3.50 for the Buffet Lunch. Transport will be available from Nottingham to Keyworth for those coming by rail.

Contact: Mr M.F. Stanley, Derbyshire Museum Service, John Turner House, The Parkway, Darley Dale, Matlock, Derbyshire DE4 2FW (tel. 0629 733226).

Tue. - Fri., 31 May - 3 June 1988
Society for the Preservation of Natural History Collections
1988 Annual Meeting
Carnegie Museum of Natural History, Pittsburgh, USA



The Carnegie Museum of Natural History cordially invites all interested individuals to the Third Annual Meeting of the Society for the preservation of Natural History Collections (SPNHC). The meetings will include oral and poster presentations, symposia, workshops, tours, and social activities. The programme focusses primarily on museum conservation for natural history materials and health and safety issues for individuals working with such materials.

Contact: Duane A. Schlitter or Stephen L. Williams, The Carnegie Museum of Natural History, 5800 Baum Boulevard, Pittsburgh, Pennsylvania 15206-3706, USA.

Fri.-Sat., 1-2 July 1988
GCG
Lifelines for a small museum
Whitby Museum, North Yorkshire

Friday will be devoted to hearing about the various sources of help and support available to small museums, in the light of Whitby's experience. On Saturday members can enjoy the geological and scenic splendours of the North Yorkshire coast from West Pier to Black Nab. Details will be circulated in due course.

Contact: Shawn Lofthouse, c/o Whitby Museum, Pannett Park, Whitby, N. Yorkshire YO21 1RE (tel. 0947 602908).

Tue.-Wed., 5-6 July 1988
BM(NH) and Mineralogical Society of Great Britain and Ireland
Mineralogy and museums
BM(NH), Cromwell Road, London

The Conference will discuss how the mineralogical work of museums can best serve the requirements of industry, science, universities, the amateur mineralogist and the general public. It will be of interest to all museum research workers, curators, designers, mineral collectors, gemmologists and educationalists.

Three keynote speakers will lead sessions on the themes:

Communication and display - Dr H. Bari (Strasbourg)
Acquisition and curation - Dr J.S. White (Smithsonian Institution)
Research directions and needs - Dr J.A. Mandarino (Royal Ontario Museum)

A number of invited speakers will also take part in these sessions which will be followed by an open session. Offers of papers should be made as soon as possible using the form provided, the deadline for abstracts being 29 February 1988. Poster displays are welcomed.

For details of registration and accommodation contact: Dr Paul Henderson, Mineralogy and Museums Conference, BM(NH), Cromwell Road, London SW7 5BD.

Thu.-Fri. 29-30 September 1988
Society for the History of Natural History
The History of Geology
Department of Geology, University of Bristol

The bequest to Bristol University Library in 1986 of the magnificent library on the history of geology compiled over half a century by the late Victor and Joan Eyles provided the impetus for this conference. In view of the Eyles' life long interest in William Smith, it is appropriate for the meeting to concentrate on the development of geology, both in Britain and on the continent of Europe, during the century or so to 1839 - the year of Smith's death. In addition to a full lecture programme, delegates will have the opportunity to see the Eyles Collection and to visit localities around Bath associated with William Smith.

Thu. 29 September 1988. A day of lectures (see below) in the Department of Geology, University of Bristol, beginning mid-morning; followed by an early evening visit to the Special Collections, Bristol University Library, to see the Eyles collection on the history of geology (under the guidance of Librarians George Maybee and Nick Lee), and a Conference Dinner in the Orangery of Goldney Hall.

Friday 30 September 1988. A full morning's excursion by coach to visit houses and sites around Bath which are associated with the life and work of William Smith (1769-1839), the 'Father of English Geology'; led by Hugh Torrens (University of Keele). After a pub lunch near Bath, return to Bristol for a final early afternoon session of lectures before the conference closes at tea-time.

The lecture programme will include:

Norman E. Butcher (Open University, Edinburgh - [Aspects of William Smith's work]
Karen S. Cook (British Library) - the design of Geological maps in England before 1840: insular or innovative?
David A. Cumming (Edinburgh) - G.B. Greenough's image of Indian geology.
Desmond T. Donovan (University College London) - Aspects of early nineteenth century geological literature.
C.W.P. MacArthur (Dunfanaghy, Donegal) - Dr Berger of Geneva (1799-1833): from the Travelling Fund to the Wollaston Donation.
David Price (Sedgwick Museum, University of Cambridge) - John Woodward: pioneer natural historian of the Earth.
Jim Secord (Imperial College London) - Popular geology and the science of strata in early nineteenth century Britain.
Brian J. Taylor (British Geological Survey) - Geological Grant Tours of France and Spain in the eighteenth century.

A booking form can be obtained from the Local Secretary Peter R. Crowther, Curator of Geology, City of Bristol Museum and Art Gallery, Queen's Road, Bristol BS8 1RL, and must be returned by 1 June 1988. Numbers will be limited to 50 (on a 'first come, first served' basis), so it is advisable to book early.

Geological Curator, Vol. 5, No.1, 1988 (for 1987), pp.20-22

CHARLES MOORE'S FOSSIL FISH FROM QUEENSLAND

BY SUSAN TURNER

In 1870 Charles Moore (see e.g. Pickford 1971) wrote a paper on the geology and palaeontology of the Mesozoic of Australia in which he presented a short note on Cretaceous fossil fish from 'Wollumbilla Creek', Queensland (Moore 1870, p.238). The specimens had been sent to him in England as part of a collection made by the Reverend William Branwhite Clarke, one of Australia's leading palaeontologists in the mid-nineteenth century (e.g. Grainger 1982). Clarke was based in Sydney but he did acquire fossil material from Queensland (then northern New South Wales). He was virtually the only active geologist in the colony for the whole of the middle years of the century which has earned him the title 'Father of Australian Geology', though this was not without its problems (e.g. Branagan 1975). He obtained the fossils from Wallumbilla (Wollumbilla), north of the Condamine River near Roma in central Queensland, from one of the pioneer squatters in that region. In 1861 Clarke asked his friend Mr W.P. Gordon to examine the neighbourhood and to send him any fossils he discovered (Clarke 1867). In a few months he received a collection of fish teeth which was later mentioned by Clarke (1862), who thought that they were of Triassic age - in contradiction to the assessment of his rival, Professor Frederick M'Coy of Melbourne, who thought the Wallumbilla deposits to be of Jurassic age.

The specimens were originally intended for the 1862 Exhibition but they were delayed en route to England by an accident to the ship Queen of Thames (Etheridge 1872).

Clarke corresponded with many palaeontologists in the 'home' country, especially with Richard Owen (e.g. Moyal 1976). Why then did these Queensland fossils go to Moore and not to Owen at the British Museum (Natural History), or to Robert Etheridge at the Geological Survey? There seems to be at least two possible explanations. Firstly, Moore was one of the few people to work on vertebrate microfossils in Britain in the last century and Clarke may have known of his interest in Mesozoic vertebrates. More likely, Clarke had begun to correspond with Moore when he became Crown Agent for emigration to the Colony. Copp (1975) showed that 'after moving to Bath in 1853, he (Moore) became agent for emigration to Queensland,' and thus 'he obtained many samples of Australian fossils and this enabled him to recognize the existence of Mesozoic rocks on that continent.'

In a review of Queensland fossil fish (Turner 1982) I presumed, following Copp (1975) and Pickford (1975), that the fossil fish which Moore mentioned must be in the Museum at Bristol, or at Bath. In early 1983, during a visit to England, I attemped to locate the

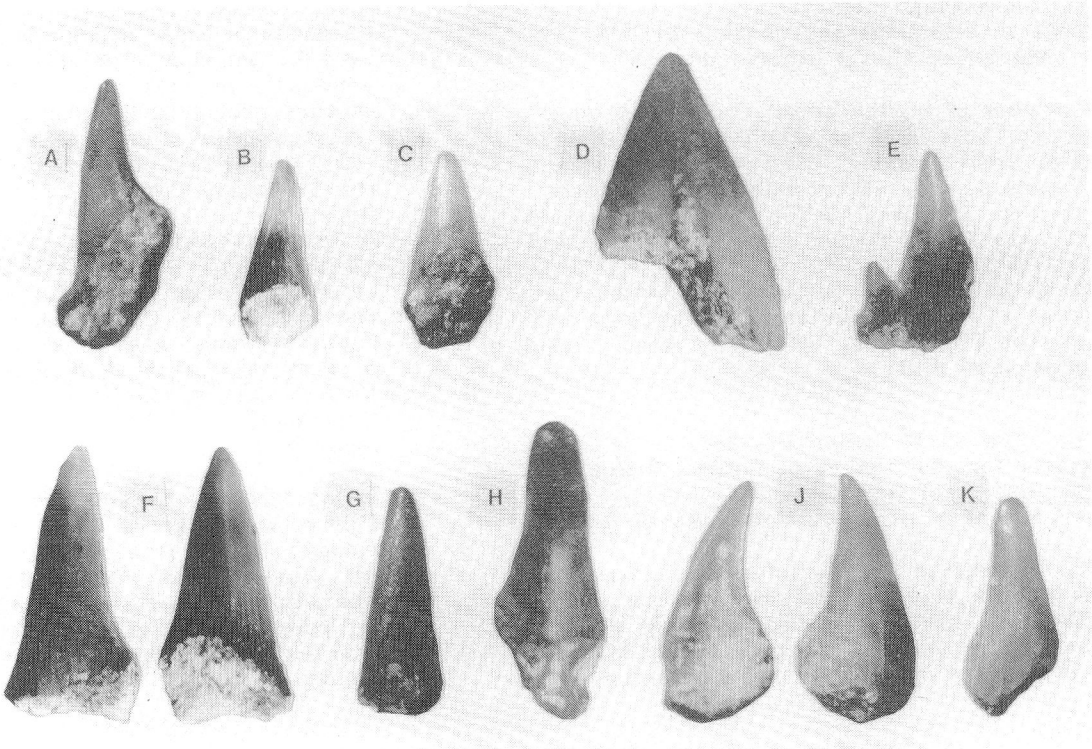
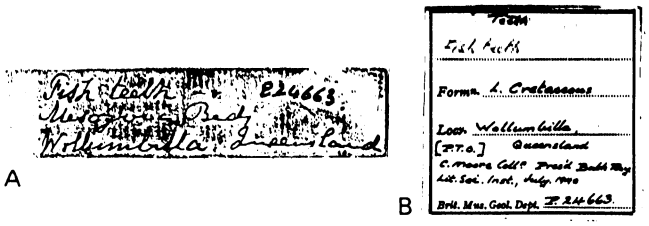


Fig.1. Lower Cretaceous elasmobranch/neoselachian teeth from Wallumbilla, Queensland, first discussed by Moore (1870). All specimens in BM(NH). A, P.62123, x32; B, P.62124, x50; C, P.62125 x50; D, P.62126, x20; E, P.62127, x32; F, P.24663, x20; G, P.62128, x50; H, P.62129, x50; J, P.62130, x32; K, P.62131, x32.



A B

Fig.2. A, B, labels kept with BM(NH) P.24663. On the obverse of B is written - Recorded as "Hybodus" by C. Moore 1870 Q.J.G.S. XXVI, p.240.

Wallumbilla fish fossils. I made a visit to Bath Museum where Mr Ron Pickford very kindly helped me to examine Moore's Australian fossil collection. We could not find the fish fossils in question but subsequently I discovered the material at the British Museum (Natural History) where it had apparently been 'donated' by the 'Bath Royal Literary Society and Institution' in July 1940. This transaction was not recorded in the Bath Museum files.

THE FISH FOSSILS

The specimens (which when found were kept in a small tube labelled BM Geol. Dept. P.24663) comprise at least thirteen small shark teeth, ten of which are figured here for the first time (Fig. A-H, J, K), and other fragments of fish teeth, scales and one or two vertebrae of indeterminate bony fishes. An original label (in Moore's or Clarke's handwriting?) is extant (Fig.2.). The shark teeth are all microscopic, in the region of a few millimetres in length. All are poorly preserved, the softer basal tissue having been eroded away. A similar style of preservation was noted by De Beaufort (1920) in a sample of shark teeth from a deep sea deposit on the island of Timor.

Moore (1870) had identified the remains as teeth of Hybodus and Lepidotus. He provided no illustrations. From my examination of the microremains there are no examples of either genus. The shark teeth undoubtedly belong to neoselachian genera. Noel Kemp (Tasmanian Museum) has kindly examined photographs of some of the specimens and has suggested the following associations. Fig.1A might belong to the squalid Centrophorus but is more probably an odontaspidid; Fig.1D might be a carcharhinid, squalid or alopiid; Fig.1F could be an odontaspidid or scapanorhynchid. Only Fig.1E seems capable of generic identification, comparing favourably with Brachaelurus sp., an orectolobid from the Turonian Calile Shale of South Dakota (Capetta 1973). It does resemble some teeth referred to the genus Synechodus, especially S. nerviensis Leriche, 1929 from the Cretaceous of Belgium, which might account for Moore's assignment of the teeth to Hybodus. However, there are no apparent hybodont characteristics in the Wallumbilla teeth, nor in the only other record, that of 'Hybodus' incussidens De Vis, 1911, from the Lower Cretaceous of the Hughenden district (Turner 1982; Lees 1986). This latter tooth (QM F12194; De Vis 1911, fig.3) is rather similar to that in Fig.1E but is of much greater size. The presence of hybodont teeth in the Lower Cretaceous of Queensland is therefore discounted.

ACKNOWLEDGEMENTS

I thank Ron Pickford (then Bath Geology Museum) and Peter Forey (BMNH) for helping me to locate the Queensland fossil fish, and Noel Kemp (Tasmanian Museum and Art Gallery, Hobart) for giving his opinion on the shark teeth. This work was carried out with the aid of an Honorary Research Fellowship of the Queensland Museum.

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Typescript received 24 November 1986
Revised typescript received 11 November 1987

COLLECTIONS INFORMATION NETWORK, GEOLOGY

COMPILED BY DONALD I. STEWARD

CING 41 DARLINGTON Museum

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

Geological collections: c.4,500 specimens; rocks, good local coverage for minerals and fossils; condition variable; not stored systematically and less than half registered; major strength in minerals of Durham Dales; some individual collections good but storage poor. July 1986.

CING 42 DERBY Museum

Geological public service: permanent display closed at present, new displays planned for new branch museum; access to reserve collection; one specialist curator; identification service; NSGSD record centre for Derbyshire.

Geological collections: c.8,500 specimens; good local coverage for rocks, minerals and fossils, also maps, manuscripts and photographs; condition mainly good; systematically stored and much of collection on MDA cards; major strength in British 'marbles'; cited fossils. July 1986.

CING 43 DORSET County Museum, DORCHESTER

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

Geological collections: c.15,000 specimens; rocks, minerals and fossils (nearly all Dorset material), also maps, manuscripts and photographs; condition nearly all good; easy to locate and majority accessioned; major strength in Dorset Jurassic fossils; type, figured and cited fossils. September 1986.

CING 44 MANX Museum, DOUGLAS

Geological public service: permanent display, to be drastically revamped in 1990; access to reserve collection by prior appointment of at least a fortnight; no specialist curator; identification service only at a most basic level; not a NSGSD record centre.

Geological collections: 1,000-5,000 specimens; fair local coverage of rocks, good for minerals and fossils, also maps, photographs and personalia; condition mainly good; systematically stored and whole collection registered; possible figured and cited fossils. July 1986.

CING 45 FOLKESTONE Museum

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

Geological collections: c.3,000 specimens; rocks, minerals and local fossils, also correspondence; condition generally fair, Gault fossils at risk as there is no RH control; stored by basic subdivisions (rocks not in any order) and some MDA catalogues; major strength in Gault fossils; some cited material. May 1986.

CING 46 THURROCK Local History Museum, GRAYS

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

Geological collections: c.250 specimens; local fossils only; condition mainly good, a little pyrite disease; quite well documented. October 1985.

CING 47 HARLOW Museum

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

Geological collections: 1,000+ specimens; local rocks, minerals and fossils, also maps; condition fair; systematically stored and all registered. October 1985.

CING 48 GRAY Art Gallery and Museum, HARTLEPOOL

Geological public service: permanent display; access to reserve collection by written request; curator has geological background but no permanent post; identification service; not a NSGSD record centre.

Geological collections: less than 500 specimens; local coverage of rocks, minerals and fossils; condition indifferrent; systematically stored, less than half registered; major geological matters referred to the Cleveland County geologist. July 1986.

CING 49 HERTFORD Museum

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

Geological collections: c.5,000 specimens; rocks, minerals and fossils, also books; condition reasonable; not easy to locate, poor records. December 1986.

CING 50 HERNE BAY Museum

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

Geological collections: c.400 sepcimens; rocks, minerals, and (mainly) fossils, also photographs and manuscripts; condition variable; location possible as collection small, poor records; major strength in local Pleistocene, particularly elephant jaws; part of Kent County Museum Service. August 1986.

CING 51 Museum of LAKELAND LIFE AND INDUSTRY, KENDAL

Geological public service: permanent display; access to reserve collection on request (few specimens); no specialist curator; identification service where possible; not a NSGSD record centre.

Geological collections: less than 500 specimens; local rocks, minerals and one fossil, also items relating to mining; condition good; easy to locate and all catalogued. July 1986.

CING 52 KENDAL Museum of Natural History

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

Geological collections: c.1,000 specimens; rocks, minerals and (mainly) fossils; condition fair; not easy to locate and records poor. August 1986.

CING 53 KESWICK Museum

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

Geological collections: c.1,200 specimens; rocks, minerals and fossils, also maps and mining tools; condition good; systematically stored but records poor; major strengths in local ores and minerals. July 1986.

CING 54 LEICESTERSHIRE Museum and Art Gallery, LEICESTER

Geological public service: permanent display, two galleries; access to reserve collection by appointment; five geological staff; identification service; NSGSD record centre for Leicestershire.

Geological collections: c.85,000 specimens; good local and general coverage of rocks, minerals and fossils, also maps, manuscripts, personalia and photographs; condition 90% good; systematically stored and most of collection registered; major strengths in Precambrian fossils and Jurassic vertebrates; type, figured and cited material. July 1986.

CING 55 LIVERPOOL Museum

Geological public service: permanent display; access to reserve collection; two specialist curators; identification service; NSGSD record centre for Merseyside, Cheshire, Clwyd and Lancashire.

Geological collections: 30,000 specimens; good local and general coverage of rocks, minerals and fossils; also maps; condition good; systematically stored and majority computer indexed; major strengths in gemstones and local Carboniferous fossils; type, figured and cited material. July 1986.

CING 56 LUTON Museum

Geological public service: permanent display in Natural History gallery; Natural History post frozen; not a NSGSD record centre.

Geological collections: c.500 specimens; rocks and fossils; also maps; condition fair although problems with RH control; systematically stored and most specimens with data; storage will be improved when the collection is transferred to a branch museum. September 1985.

CING 57 MALDON Museum

Geological public service: permanent display (small); no specialist curator; no identification service; not a NSGSD record centre.

Geological collections: less than 100 specimens; rocks, minerals and fossils; conservation problems; randomly stored and no records; collection acquired in disarray from old Maldon Museum which closed in 1930s. October 1985.

CING 58 MANCHESTER Museum

Geological public service: permanent display; access to reserve collection; specialist curator with some technical help; identification service; NSGSD record centre for Greater Manchester.

Geological collections: c.240,000 specimens; good local and general coverage of rocks, minerals and fossils, also maps, photographs and personalia; condition mainly good; systematically stored, nearly all the minerals recorded but some other groups not registered; major strengths in Carboniferous fossils, Jurassic ammonites and Pleistocene cave mammalia; over 1,000 type, figured and cited specimens. August 1986.

CING 59 MANSFIELD Museum

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

Geological collections: c.500 specimens; rocks, minerals and fossils; condition good; mainly systematically stored, most of fossils on MDA cards. August 1986.

CING 60 PEAK DISTRICT MINING Museum, MATLOCK BATH

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

Geological collections: c.50 specimens; mostly Derbyshire minerals, also mining artefacts; on display, no register. June 1986.

CING 61 CLEVELAND Gallery, MIDDLESBROUGH

Geological public service: no permanent display, a programme of temporary and touring exhibitions exists; access to reserve collection normally by appointment; one specialist curator; identification service; NSGSD record centre for Cleveland and bordering areas.

Geological collections: c.12,000 specimens; good general collection of rocks, minerals and fossils, also maps, references and photographs; condition good; systematically stored and all records computerised; major strengths in northern England minerals and fossils; a Cleveland County Museum Service collection. July 1986.

CING 62 DORMAN Museum, MIDDLESBROUGH

Geological public service: small, non-permanent display; access to reserve collection by written request and appointment; no specialist curator (MSC scheme with geologist to start soon); identification service; not a NSGSD record centre.

Geological collections: c.10,000 specimens; rocks, minerals and fossils, also maps and collectors' notes; condition poor but action being taken to improve; stored in stacked drawers and all catalogued; major strength in local fossils. August 1986.

CING 63 WALLINGTON (National Trust), MORPETH

Geological public service: permanent display - a 'cabinet of curiosities'; no reserve collections; no specialist curator; no identification service; not a NSGSD record centre.

Geological collections: c.200 specimens; condition good; all on display, index record of exhibits. August 1986.

CING 64 CRAGSIDE (National Trust), MORPETH

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

Geological collections: c.200 specimens; rocks and minerals; condition good; specimens not detailed. August 1986.

CING 65 NEWBURY Museum

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

Geological collections: 1,000 (max.) specimens; a few rocks, some interesting minerals and local fossils, a few maps; condition fair, no Rh control; minerals systematically stored, only partial card index; September 1986.

CING 66 NORWICH Castle Museum

Geological public service: permanent display; access to reserve collections by appointment only; one specialist curator; identification service; NSGSD record centre for Norfolk.

Geological collections: c.40,000 specimens; good local and general coverage of rocks, minerals and fossils, also maps, books and some manuscripts; condition good; systematically stored and good records; major strength in palaeontology, particularly Pleistocene, Cretaceous and Upper Jurassic; type, figured and cited material in quantity. 1984.

CING 67 Nottinghamshire Education Resources Service, NOTTINGHAM

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

Geological collections: 1,000-5,000 specimens; local and general rocks, minerals and fossils; condition 75% good; systematically stored and most of collection registered; major strengths in Notts. gypsum and oil industries. June 1986.

CING 68 OLDHAM Local Interest Centre

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

Geological collections: 1,000-5,000 specimens; a few rocks, good general minerals and fossils, also maps; good condition; systematically stored and whole collection recorded. September 1986.

CING 69 PENRITH Museum

Geological public service: geological display in preparation (for August 1987); unlimited access to reserve collections; no specialist curator; no identification service; not a NSGSD record centre.

Geological collections: c.1,700 specimens; well balanced general collection of rocks, minerals and fossils; fairly good condition; incomplete manuscript list available, approx. 90% of specimens with labels; major strength in small specimens of local minerals. August 1987.

CING 70 PENLEE HOUSE Museum, PENZANCE

Geological public service: some local rocks in environment room display; difficult access to reserve collection; no specialist curator; no identification service; not a NSGSD record centre.

Geological collections: c.100 specimens; local rocks and minerals; condition poor; in disorder and underdocumented; this collection is the remains of the Penzance Natural History and Antiquarian Society dating back to 1839. 1984.

CING 71 PETERBOROUGH Museum

Geological public service: permanent display - one case, major new display planned; access to reserve collection by appointment; one specialist curator; identification service; NSGSD record centre for Peterborough City District.

Geological collections: c.6,000 specimens; rocks, minerals and fossils (over 80% of collection), also maps and reference literature; condition good in general; systematically stored and most specimens numbered and labelled; major strength in Oxford Clay vertebrates. December 1985.

CING 72 CUMBERLAND HOUSE Museum, PORTSMOUTH

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

Geological collections: c.5,000 specimens; rocks, minerals and fossils (75% of collection), also maps, manuscripts and personalia; condition reasonable; stored in some disorder due to redevelopment, no catalogue available. October 1985.

CING 73 HARRIS Museum, PRESTON

Geological public service: some geology in the History of Preston gallery (in preparation); access to reserve collections by appointment; no specialist curator; no identification service; not a NSGSD record centre.

Geological collections: 1,000-5,000 specimens; general coverage of rocks, minerals and fossils; condition 75% good; not systematically stored, labels with some specimens but no register. August 1986.

CING 74 READING Museum

Geological public service: permanent display; access to reserve collections; responsibility of Keeper of Natural Sciences; identification service; NSGSD record centre for Berkshire.

Geological collections: 4,000-5,000 specimens; rocks, fossils and large worldwide minerals, also maps and manuscripts; condition good; systematically stored and records reasonably good; major strengths in cave material, Pleistocene vertebrates and Faringdon sponge gravels. September 1985.

CING 75 LOUND HALL Mining Museum, RETFORD

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

Geological collections: less than 500 specimens; general rocks, local minerals and fossils; condition mainly good; systematically stored and mostly labelled. June 1986.

CING 76 ROCHDALE Museum

Geological public service: permanent display planned as integrated part of local collectors exhibit; access to reserve collections by appointment, new storage area available 1987; no specialist curator; no identification service; not a NSGSD record centre.

Geological collections: 1,000-5,000 specimens; local and general coverage of rocks, minerals and fossils, also prepared microscope slides; condition fair to good; systematically stored and mostly registered in outline, currently being catalogued by MSC team; major strength in local material; type specimen from Sparth Bottom site. August 1986.

CING 77 ROSSENDALE Museum, RAWTENSTALL

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

Geological collections: c.3,000 specimens; rocks, minerals and fossils; condition good; all specimens numbered and a full list and index available; collections transferred to Blackburn Museum (1978), collections then transferred on long-term loan to Bolton Museum (2.2.1979) and will be stored there until staff and facilities able to cope with it are available at Blackburn (Rossendale was to receive any local material but there was so little data that nothing was found and returned). January 1987.

CING 78 St. ALBANS City Museum

Geological public service: new permanent display planned for 1987; access to reserve collections by appointment only, new storage planned; no specialist curator; limited identification service; NSGSD record centre for South Hertfordshire.

Geological collections: c.6,000+ specimens; rocks, minerals and fossils, some maps; condition mostly good; easy to locate and nearly half fully registered; formerly Hertfordshire County Council. March 1986.

CING 79 St. HELENS Museum

Geological public service: small permanent display - one case only; access to reserve collections by appointment only; no specialist curator; limited identification service; not a NSGSD record centre.

Geological collections: c.1,000 specimens; rocks, minerals and fossils; condition good; not systematically stored, minerals and fossils all registered. August 1986.

CING 80 PILKINGTON GLASS Museum, St. HELENS

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

Geological collections: 21 specimens; rocks and minerals; good condition; all on display and labelled. August 1986.

CING 81 SALFORD Mining Museum

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

Geological collections: 500-1,000 specimens; rocks, local minerals and fossils, also maps and books from 1830s onwards; condition poor, dusty; not easy to locate; no register; major strength in Coal Measure material; staff unlikely to be funded to reorganise collections in a geologically professional manner. September 1986.

CING 82 Museum of ISLE OF WIGHT GEOLOGY, SANDOWN

Geological public service: permanent display; access to reserve collection; specialist curator; identification service; NSGSD record centre for Isle of Wight.

Geological collections: 10,000+ specimens; good local coverage in rocks, minerals and fossils, also maps and photographs; condition good; systematically stored and easy to locate; major strength in local material; type, figured and cited fossil material. October 1985.

CING 83 SOUTHEND-on-SEA Central Museum

Geological public service: permanent display, Pleistocene specimens; access to reserve collection by appointment; no specialist curator; limited identification service; not a NSGSD record centre.

Geological collections: 1,000+ specimens; rocks, minerals and fossils, also maps, manuscripts and photographs; condition mainly good; systematically stored but much unaccessioned; major strength in Pleistocene fauna. September 1985.

CING 84 BOTANIC GARDENS Museum, SOUTHPORT

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

Geological collections: less than 500 specimens; rocks, minerals and fossils, and photographs; condition mainly reasonable; not systematically stored and mostly registered; major strength in Triassic reptile footprints (displayed at Bootle Library). August 1986.

CING 85 STOCKPORT Museum

Geological public service: small display; no access to reserve collection; no specialist curator; limited identification service, Keeper of Social History has some grounding in geology; not a NSGSD record centre.

Geological collections: 1,000-5,000 specimens; good local coverage of rocks, minerals and fossils; condition poor; not systematically stored and mostly registered August 1986.

CING 86 SUNDERLAND Museum

Geological public service: permanent display; access to reserve collections by appointment only; one specialist curator; identification service; NSGSD record centre for Durham and Tyne and Wear, south of the Tyne.

Geological collections: 40,000+ specimens; good regional and general coverage in rocks, minerals and fossils, also maps and photographs; condition 95% good; systematically stored and cataloguing on MDA cards 75% complete, computer catalogues available for minerals and some fossils; major strengths in Permian fossils, rocks and evaporites; type, figured and cited fossils. July 1986.

CING 87 BOURNEMOUTH Natural History Society Museum

Geological public service: permanent display; access to reserve collection by appointment with Mrs V.E. Copp (0202 34534); no specialist curator; no identification service; not a NSGSD record centre.

Geological collections: 4,000-5,000 specimens; good local coverage for rocks, minerals and fossils, also maps and books; condition 95% good; systematically stored; major strength in Barton fossils and Bournemouth Leaf Beds. September 1987.

The following is reproduced with permission from the Geologists' Association Circular no.863, September 1987:

The [Bournemouth Natural History] Society grew out of meetings held as far back as 1868 when a few people began to meet at each other's houses to read and discuss papers of scientific interest. Alfred Russell Wallace was a founder member. By 1919 the Society had become so large that the present house at 39 Christchurch Road was purchased with donations and loans from members. It is a listed Victorian building standing in attractive grounds, housing a well-equipped lecture hall and possessing reference and lending libraries and a museum.

Geology is one of the ten specialist sections into which the Society is divided. Geology lectures, given by members or visiting speakers, occur about once a month and the varied geological exposures in the vicinity are a fertile area for our field trips.

Former Presidents and members of scientific eminence include amongst others Lord Grenfell, Sir Daniel Morris, Sir Ray Lankester, Dr W.T. Ord, H. St. Barbe, Sir Arthur Smith Woodward, Clement Reid, Dr J.F.N. Green, Henry Bury, Heywood Sumner, Richard Sherring and Prof. Frank Hodson.

The Society's Proceedings have been published annually since 1908 and contain many geological papers of particular interest, such as Dr Green's researches on the Terraces of Bournemough and Henry Bury's records of the Bournemouth Cliff Sections which are now obscured by coastal defences.

In the past membership has always included a fair proportion of well-educated and monied people with leisure and connections who have been instrumental in cultivating local geological pursuits and ensuring preservation of finds from our neighbourhood in the Society's collections. Material from further afield has also accumulated by gift, whereby the collection is now surprisingly wide-ranging, not only in time but geographically and subject-wise.

Our greatest strength is our collection of Tertiary fossils, mostly from local coastal exposures. The Dent Collection of exceptionally fine Barton fossils, acquired in 1913, contains over 130 molluscan species and 13 species of vertebrates, comprising 3,375 separate shells and 800 specimens of vertebrates. Such a series may never be obtained again as the most fossiliferous beds are now extensively covered by landslips. Of special interest are the 92 vertebrae and associated bones of the early whale Zeuglodon from the local Eocenes - rarely found in this country.

Other smaller collections of local Tertiary fossils include those of E. St. J. Burton and Ada Burton, the Rev. William H. Webster and an interesting collection of Middle Eocene fossils from the Paris basin assembled by R.V. Sherring. Also present is a large and important collection of fossil plants (mostly leaves) from the Bournemouth "leaf" beds, now covered and seldom exposed. Few of these remains are named and any palaeobotanist specialising in Eocene flora interested in identifying these specimens would be welcome with open arms.

The geological section of the library is well stocked for those desirous of research on the specimens "in house". It has rich holdings of locally oriented publications.

The collections have been rather neglected over the last few decades, but this is now being remedied through the completion of a comprehensive catalogue. The fossil vertebrates have now been registered and the invertebrates are in the process, but the "leaf" collection remains to be tackled. A printed catalogue of type, figured or described specimens in the collection will be issued in due course. Moreover, once the bulk of the specimens has been properly registered it is hoped to design new and more informative displays of selected material.

There is no full-time Curator but I would always be very happy to show the collections to anyone who is interested. I can be contacted on Bournemouth (0202) 34534.
Mrs V.E. Copp, Chairman of Geology Section.

LOST AND FOUND

COMPILED BY DONALD I. STEWARD AND HUGH S. TORRENS

Abbreviations

CLEEVELY - Cleevely, R.J. 1983. World Palaeontological collections. British Museum (Natural History) and Mansell Publishing Company, London.
GCG - Newsletter of the Geological Curators' Group, continued as The Geological Curator.
LF - 'Lost and Found' reference number in GCG.

14 Dr Charles CALLAWAY (1838-1915)

GCG, 1(6), 299; 2(6), 352; 2(8), 511; 4(1), 15

Hugh Torrens writes:

'Letters recently discovered in the Cheltenham Museum 'archives' shed new light on the fate of this man's geological collections; one long sought in these columns.

Callaway died on 29 September 1915 in Cheltenham. On 16 November his close friend and obituarist Linsdall Richardson (who may also have been Callaway's executor) wrote to Cheltenham Museum from 33 Cecily Hill, Cirencester, asking if the Museum wished to purchase Callaway's set of the Geological Magazine. His letter continued 'I understand that Miss Saunders [Callaway's niece] will offer Dr Callaway's fossils and rock specimens to the Museum. They are well worth accepting and putting on one side until they can be looked through carefully [this of course was written in the middle of the Great War] and what is no good discarded'. The next day Miss H. Saunders wrote to the Curator, from 16 Montpellier Villas, Cheltenham, offering 'any of my Uncle's books or specimens that you would care to purchase for the public library or museum'. Subsequent discussions obviously ended any hopes that such money would be available for this, for on 30 November Miss Saunders wrote again, saying she would now be 'very pleased if you will accept my Uncle's specimens for the Public Museum, and should be glad if you could send for them sometime tomorrow, Wednesday, as I want the cabinets emptied as soon as possible .... I hope you will find some of the specimens amongst them that will be of use'. No information seems to be yet available as to what material the collection then contained, but clearly Cheltenham Museum is now the obvious place to continue the search for those Callaway specimens, figured by Davidson in his Monograph on the Ordovician and Silurian brachiopods of the Welsh Borders, which have been so long sought. Any information will be gladly received.'

164 Mary ANNING (1799-1847) of Lyme Regis

CLEEVELY, 42
GCG, 4(5), 296

Hugh Torrens (Dept. of Geology, The University, Keele, Staffs. ST5 5BG) is still in search of material collected by Mary Anning. The initial plea only produced one reply and this certainly cannot be the full extent of information available. If you know of any reasonably documented material from Lyme Regis between 1800-1850 it is possible that it could have been collected by Anning and HST would be interested in hearing about it. Please inform HST of such specimens - you never know, you may be the proud possessor of material of great historical significance.

196 Victor FOUILHOUX - Dealer in French rocks

Simon Knell (Keeper of Natural Sciences, Borough Museum and Art Gallery, Oswald Road, Scunthorpe, South Humberside DN15 7BD) writes:

'Bishops Stortford Local History Society Museum have a collection of French rocks from the 'Department du Puy-de-Dome' supplied, at an unknown date, by the mineral dealer Victor Fouilhoux. The material consists of 200 small rock specimens approximately 40mm x 60mm x 40mm in size. Each carries a white paper number tag printed in blue ink with a rectangular border (10mm x 7mm). The accompanying catalogue printed in French is divided into four sections:

1. 'Terrains primordiaux' (numbers 1-47)
2. 'Terrains sedimentaires' (48-92)
3. 'Terrains volcaniques' (93-192)
4. 'Terrains modernes' (193-200)

The catalogue entries have been designed so that they can be cut out and used as labels. The specimen numbers have been added later by hand.

Recently I came across an identical collection here at Scunthorpe which lacked the vital catalogue and had never been curated; the numbers however differ slightly from those at Bishops Stortford. It was acquired via the Area Service in 1965 from Selby Museum which was at that time dispersing its collections. It is possible that other museums also find themselves with a Fouilhoux collection but no catalogue - if so a copy of the catalogue is available from me.'

197 William Crighton MACLEAN FGS (d.1901)

John Crossling (Deputy Curator and Keeper of Geology, Warwickshire Museum, Market Place, Warwick CV34 4SA) writes:

'The Warwickshire Museum has recently purchased a collection of minerals that are now believed to have been collected by William Crighton Maclean FGS. The collection, dating from the mid-nineteenth century, consists of 964 small samples - virtually all minerals together with a few rock samples and the odd archaeological specimen.

The evidence for attributing this collection to William Maclean is circumstantial but so overwhelming as to leave us with little doubt. Most of the labels are in one handwriting and some are written on the backs of letters addressed to him. There is a complete envelope bearing his name and address and there is an invitation to him from the then President of the Royal Geographical Society, Sir Roderick Murchison. Maclean lived in Great Yarmouth and worked there as a customs collector. He was elected a Fellow of the Geological Society in 1864 and died in 1901; as yet we have no date of birth.

What remains a mystery is how and when the collection first came to the family from whom it was purchased by the Museum. We were initially informed of the existence of this collection by the owner, Mrs Nellie Truslove, who lived in the small village of Birdingbury, near Warwick. On visiting her and becoming interested in the minerals she told us that she believed the collection had belonged originally to a Mr Frederick Roberts who was a chemist in Whitby. Upon his death in the 1920s his wife returned to her home town of Leamington Spa taking the collection with her. Eventually the collection passed in turn to her niece - the aforementioned Mrs Truslove.

Whilst we are now convinced that Fred Roberts did not make the collection (although he could have added to it), we do not know how he came by it. Did he buy it from Mr Maclean or was it willed or given to him? Perhaps the collection was sold or auctioned upon the death of Mr Maclean in 1901 although this was not too long before Fred Roberts himself died. Why did Mr Roberts want the collection? He does not seem to have been a Fellow of the Geological Society but perhaps he was known locally around Whitby in geological circles.

If anyone can shed any light on these questions we would be very pelased to hear from you.'

198 Richard W. BANKS (fl. 1855-70)

CLEEVELY, p.48

In his Monograph of British Fossil Crustacea (1866-78) H. Woodward mentions on page 96 that 'It was in 1854 or the commencement of 1855 that my friend Mr Richard Banks, of Ridgebourne, Kington [Herefordshire], first directed my attention to the remarkable collection of fossils he had obtained from several localities in that neighbourhood.' Cleevely lists Banks, R.W. and Banks, Richard under separate headings and notes that the former lived in Ludlow whilst the latter lived at 'Richbourne, Kington, Hertfordshire'. Parts of the Banks, R.W. collection of Old Red Sandstone fishes are listed as being at the BM(NH) - being specimens transferred from Ludlow Museum in 1947 - and at the Manchester Museum. The Banks, Richard fossil collection is listed as having partially remained with his family according to data from 1902 and that some specimens had been presented to Malvern College and later acquired by the Museum of Practical Geology.

Enquiries, much aided by the local knowledge of John Norton at Ludlow Museum, have revealed that there is still a member of the family, a Mr R.A. Banks, living at Hergest Croft, Ridgbourne Road, Kington and who has a business address of Ridgbourne, Hergest Court Farm, also Kington. A geological collection is in the possession of this family and the present Mr Banks is a keen naturalist with a particular interest in trees.

It now seems certain that the two entries by Cleevely relate to the same person; the confusion may have arisen due to the incorrect transcription of the address of Banks, Richard - it is easy to see how 'Ridgbourne, Kington, Herefordshire' could become 'Richbourne, Kington, Hertfordshire'.

199 Edmund Thomas HIGGINS (fl. 1831 - fl. 1887)

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

'Occasionally one comes across a fascinating or shadowy figure whom posterity seems to have particularly ignored and about whom one would like to learn more. Such a man is the subject of the present appeal.

The fossil specimen which first inspired the search for any information about Higgins is the new fossil fish found early in 1839 by Mary Anning (1799-1847) in Dorset. The true facts of its discovery were apparently first, and unexpectedly, announced in the Mining Journal (vol.9, no.209) for 3 August 1839 as 'the jaws and other fossil remains of an extinct species of Shark, discovered by Miss Anning in the cliffs of Lyme Regis, and [now] in the cabinet of Edmund Higgins Esq.'. When the specimen was scientifically described by Edward Charlesworth (1839) as the holotype of Hybodus delabechei sp. nov. Higgins was described as a surgeon then living in Cheltenham and 'who had for some time past been a very ardent collector of fossil remains'. The original figure from Charlesworth's description is reproduced here (Fig.1).

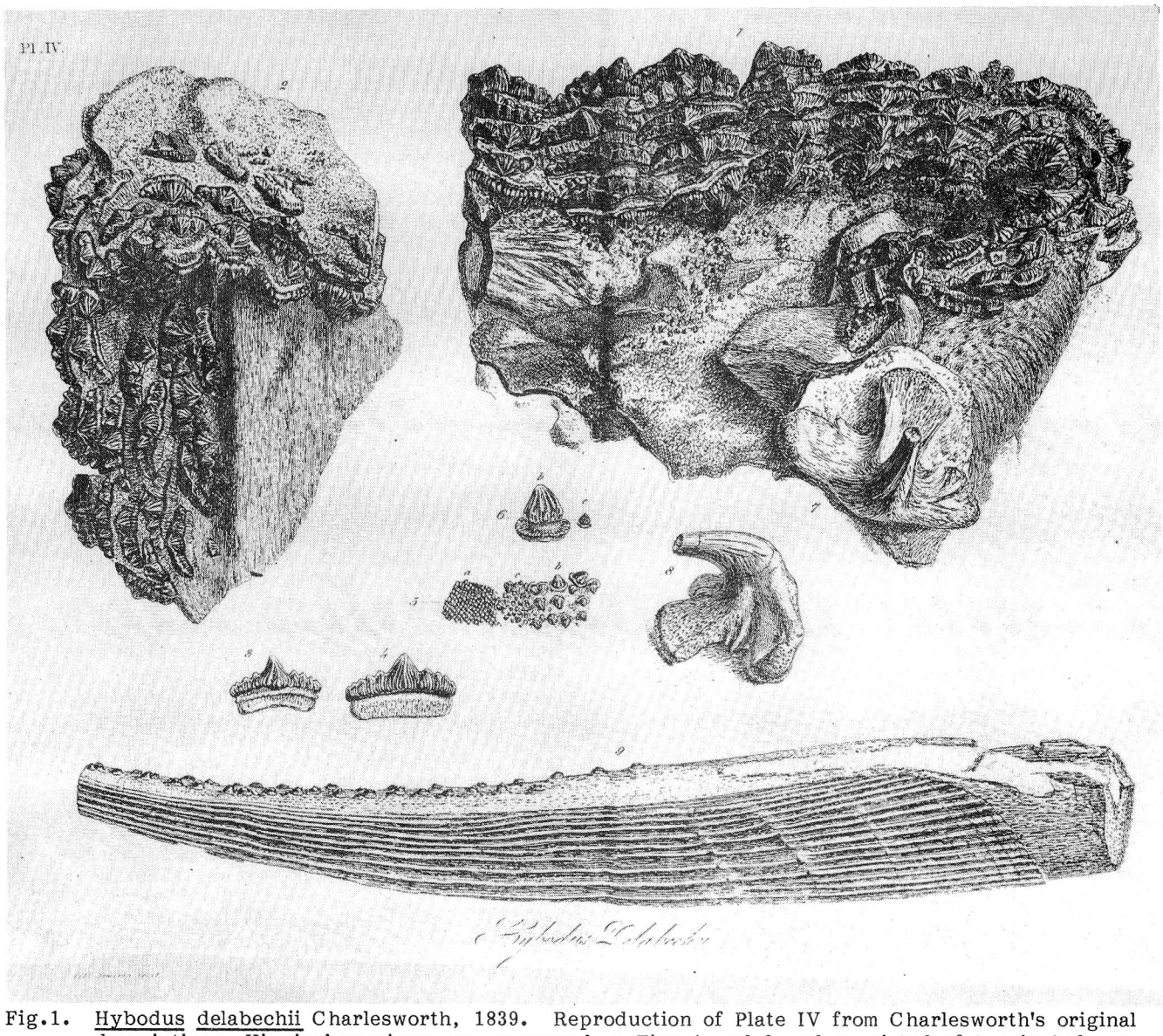

Fig.1. Hybodus delabechii Charlesworth, 1839. Reproduction of Plate IV from Charlesworth's original description. Higgins' specimen was engraved as Figs.1 and 2 and consisted of two 'Tabular masses upon the borders of which the teeth are disposed. The posterior and right lateral borders extend farther than represented in the engraving. The parts connecting the two fragments are missing'. (Charlesworth 1839, pp.247-248).

Attempts to locate the original type specimen (holotype), which is of another new species discovered by Mary Anning junior, have met with no success. Any information from fossil fish experts or museum curators of the potential, or actual, whereabouts of this type specimen would be gratefully received. As the saga of Higgins' life and work started to unfold (see below) any chances of its turning up seemed to grow progressively more slender, but one lives in hope.

The initial clue of Higgins' background as a surgeon proved crucial in starting to uncover his remarkable career. He was elected a Member of the Royal College of Surgeons of London in 1839 and his medical career thereafter can be followed in the pages of the annual Calendars published by the College. The last year in which full details for him are given is 1880 (for reasons which will duly emerge), when he is recorded as 'retired and living in Stoke Newington, London M.R.C.S. 1839 and L.S.A. 1851 (University College, London and Guy's Hospital, London), F.R.G.S., F.Z.S., F.E.S.' Later entries bear an asterisk against his name denoting those 'who have not returned annual circulars'.

The record of his L.S.A. (Licentiate of the Society of Apothecaries) proved a second crucial lead, as the records of the granting of these (now in the Guildhall Library, London) often yield biographical data. Higgins' entry (Guildhall MSS 8241/16) showed he was elected L.S.A. on 24 April 1851 as the son of Mrs Emma Maria Higgins of Charlton Kings, near Cheltenham, Glos., widow. He had been apprenticed by indenture to John William Wilton (c.1796-1867), who was later senior surgeon of Gloucester Infirmary, at Gloucester for five years from 29 May 1835 and his age is given in an enthusiastic underestimate as merely 'upwards of 25 years'. In addition he had attended as a surgeon for twelve months at Gloucester Hospital.

The same certificate also ambiguously lists lectures he had attended with the date 1831 cryptically recorded against them. These

lectures clearly relate to his earlier attendances at Guy's Hospital and University College in London, presumably from 1831 onwards if the date given is correct. From the names of some of those whose lectures he is listed as having attended in London, like Marshall Hall (1790-1857), and if the relevant details are correctly given for them in the Dictionary of National Biography, Higgins must have stayed in London until at least 1834. The most significant lecture course he is known to have then attended, from the point of view of his later career as a naturalist, is that on botany by John Lindley (1799-1865) who was Professor of Botany at University College London from 1829 to 1860 (Bellot 1929, pp.136-138).

By 1840 he was freed of his apprenticeship and he is next heard of in 1845 in Clifton near Bristol (R.C.S. records). It must have been at this time that he started his famous collection of Ceratodus teeth from the Rhaetic Bone bed at Aust Cliff near Bristol, which was later purchased for Bristol City Museum. Donations of Liassic fish and reptile material from Dorset (and probably originating again from the Annings) made by him to the Yorkshire Museum between 1847 and 1850 are also recorded (Cleevely 1983, p.150). In 1851 he contributed an article on the Hawk Owl to the Zoologist (Higgins 1851) and early in the same year his eldest son, Edmund Hayes Betts Higgins, was baptised at Saint Jude, Southwark, London as the son of Edmund and Emma. By 1853 he is recorded as at Birkenhead whence he writes to John Morris (1810-1886) from Duncan Street there, with details of his collection of Ceratodus teeth (Morris 1854, p.320).

These crucial links of a son named Hayes with an address in Birkenhead provided the clue to his ancestry, as search had already revealed another surgeon named Charles Hayes Higgins (1811-1898) F.R.S.E. 1871, based in Birkenhead from 1850 on (Marsden 1907, pp.25-26). The latter was elected L.S.A. in 1834 (Guildhall MSS 8241/6) and his certificate recorded he was a son of Emma Maria Higgins then of Clifton, widow. In other words he was Edmund's elder (and rather better known) brother!

Charles Hayes Higgins proved to have had a most eventful start in life, having been born on board the flagship of Admiral Sir John Hayes (1775-1838), and who became his godfather, in the harbour of Batavia on 15 October 1811 as Java's capital was being seized from the French by English troops. These troops included Edmund and Charles' father, by then apparently a Captain, Charles Thomas Higgins (died 1828). His eldest son Charles Hayes Higgins was the first Englishman born in Java.

The action packed exploits of their father in army service for the Bengal establishment of the Honourable East India Company in central India, where he had arrived in December 1800, are given in an obituary notice (Gents. Mag. 98 (1), 369, 1828). He was away from India in Java and probably elsewhere from May 1811 to November 1816 when he was posted back to Central India, to Nagpur. Here in November 1817 he, with his wife and by now four children, which must have included Edmund Thomas, were involved in a desperate retreat, which they were all clearly very lucky to have survived. It is clear Edmund's earliest years were also ones full of event.

By 1827 Lieut. Colonel Charles Thomas Higgins had returned, probably retired on half pay, with his family to England; they were based at Ashburton in Devon when he died early in 1828. On the death of their father both the two recorded sons abandoned any ideas of following him into the Army and changed to train as surgeons, Charles Hayes entering Guy's Hospital in October 1831, almost certainly at the same time as his younger brother Edmund Thomas who concerns us here.

Both brothers are recorded together in Birkenhead from 1853 to 1857. Edmund had returned to Bristol by 1860, moving later to Eastington in Gloucestershire, where he is recorded in 1864. 1865 finds him now based in London and in 1866 he was elected a Fellow of the Entomological Society of London (Neave 1933, p.171). He published one paper in their Transactions (Higgins 1869) and he was elected to serve on the Council of the Society in 1871-1872. In 1867 he was also elected a Fellow of the Zoological Society of London, to which he read three papers (Higgins 1868a, b, 1872). He was also elected a Fellow of the Royal Geographical Society in 1867, having been proposed by Admiral Sir George Back (1796-1878), Sir James Fergusson (1787-1865) and Sir Roderick Murchison (1792-1871, the geologist.

The most significant event of 1867 however, was Edmund's abandonment of his career as a surgeon and his purchase of the London Natural History Agency which had been run for many years, from 1848, by the entomologist Samuel Stevens (1817-1899) (Anon 1899). It was Stevens' agency which had dispersed many of the natural history treasures which had been collected in the Amazon basin by Alfred Russell Wallace (1823-1913) and Henry Walter Bates (1825-1892) between 1848 and 1859 (Marchant 1916, vol.1). Details of some of the specimens of birds which were sold by Higgins to the British Museum between 1862 (and thus before he had purchased the Stevens agency but when he was already clearly acting as an agent for natural history specimens) to 1879 are recorded by Sharpe (1906, pp.384-385, but as by T. Higgins) and details of others are given by Mather (1987, p.156). A sample of the headed notepaper for Higgins' agency in 1872 survives in the Royal Geographical Society's archives and is reproduced here (Fig.2).

In 1873 Higgins' 'wonderful' personal collection of Ceratodus teeth and Megalosaurus bones from the Rhaetic sections at Aust Cliff on the Severn, were secured via his Agency for Bristol City Museum for £250. This sum was subscribed through the intervention of Spencer George Perceval (1838-1922), to prevent its 'being sold to the Americans'. Two letters from Higgins to Perceval about this sale are preserved

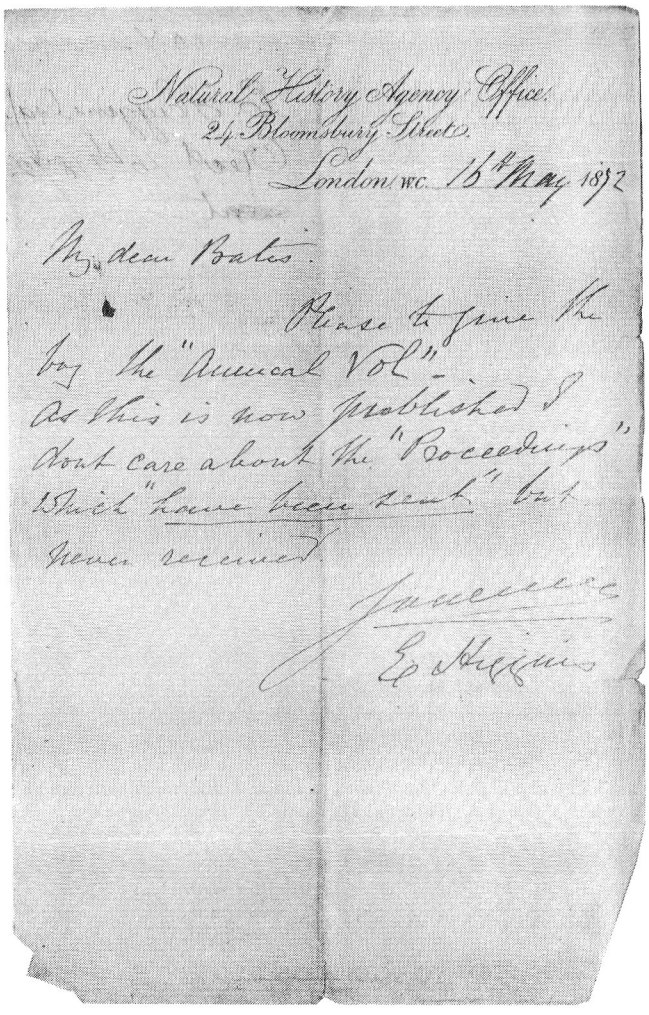
Natural History Agency Office
24 Bloomsbury Street
London WC 16th May 1872
My dear Bates.
Please to give the
boy the "Annual Vol"
As this is now published I
don't care about the "Proceedings"
which have been sent but
never received
Yours truly
E Higgins

Fig.2. Sample of headed notepaper, dated 16 May 1872, as used by Edmund Higgins when proprietor of the London Natural History Agency.

(British Library, Add. MSS. 41495 ff. 159, 161) and have been published with details of the whole transaction (Perceval 1907). Some of this material has survived to the present day (Peter Crowther, pers. comm 1987), despite the later history of its neglect to which Perceval tartly alludes in 1907 and the subsequent destruction of Bristol's display and primary reference collection in the Second World War.

In 1879 Higgins' name appears for the last time in the membership lists of the Zoological Society. The last full details of his career with any known address appear in the 1880 Calendar of the Royal College of Surgeons. Then on 3 August 1880 he resigned from the Royal Geographical Society. This was the same year that he resigned from the Entomological Society. In the same year as well, an announcement that James Thomson (died 1897), the entomologist, had purchased the fine collection of beetles belonging to the subfamily Cetoniinae that had been formed by Higgins, also appeared in a French publication (Anon. 1880); this collection contained over 4000 individuals, with 1000 species and 70 types. After 1880 Higgins disappears from British records completely.

By early 1881 he reappears in Deloraine, Tasmania where he had received a land grant of 90 acres, having been issued with a land order warrant by the Emigrant and Colonists' Aid Corporation Limited in London (Ian Pearce, Tasmanian State Archivist, in lit. 30 September 1987). He and his family are listed, as comprising himself aged fifty (sic! another underestimate as he would then have been apprenticed at the age of about five, more like sixty-seven is probably correct!), his wife Emma aged 55 (born c.1825), with their children Frances Ironside (born c.1855), Francis Robert (c.1858) and Catherine Emma (c.1859). Edmund Thomas Higgins is listed in Walch's Almanac for 1882 in the medical directory for Deloraine and in the next year, for 1883, at Launceston, the capital. His work as a natural historian also continued in Australia, as on 9 October 1882 he and the conchologist and mineralogist William Frederick Petterd (1849-1910) read the first of their five papers on Tasmanian animals to the Royal Society of Tasmania. The last was read on 10 September 1883. They refer to a Mr E. Higgins of Kentishbury, Tasmania, as having provided specimens. He may thus be the son baptised in 1851 and which, if so, suggests the family's emigration record is incomplete. The papers include drawings by Francis Robert Higgins, his son. These were published in 1883 and 1884 and are listed in the Royal Society Catalogue. Higgins never became a member of the Society, though in December 1883 a letter was received by the Society, according to the Council minutes, from 'Dr Higgins of Launceston relative to the salary and duties of curator' (Miss P.S. King, Archivist to the Royal Society of Tasmania, in lit. 1 October 1987). The previous curator had died in November 1883 but it is not known if Higgins was one of the fifty-one applicants for the job, which went to Alex Morton of the Australian Museum in Sydney. Higgins disappears from Walch's Almanac for 1888-1889 when he is listed as 'absent'. His fate thereafter is as yet uncertain, though it appears likely he died in Tasmania soon after this. If he was the next younger brother to Charles Hayes Higgins, who was born in 1811, Edmund Thomas might have been about seventy-five by 1888. He is remembered as the dedicatee of Higgins pseudo-rat from Tasmania (see Australian Encyclopaedia).

There is a final added interest in locating details of the disposal of Higgins' natural history collections both before and after his death and any Anning specimens it once contained, as his forms one of the few collections of fossils sold at auction to be listed as untraced by Chalmers-Hunt (1976, p.179) who was quoting from data given by Sherborn (1940, p.69). Sherborn stated that the cabinet containing the Higgins collection of otoliths (not certainly, or even all, fossil) was sent to London and sold at Stevens auction rooms about 1911. It was purchased by R.T. Gunther (founder of the Oxford Museum of the History of Science) and then pased to the Pittsburgh Carnegie Museum. Confirmation of this would be welcome.

ACKNOWLEDGEMENTS

Grateful thanks are due to the staff of the Guildhall Library, London, to G.C. Bentley, Registrar of the Royal Entomological Society of London; Peter Crowther, Bristol City Museum; Julie Ellin of the Royal College of Surgeons; R. Fish, Librarian of the Zoological Society of London; Geoff Hancock, Glasgow City Museums; Christine Kelly, archivist of the Royal Geographical Society; Pamela Gilbert, British Museum (Natural History) and, in Australia, to D.R. Gregg, Director of the Tasmanian Museum; Miss P.S. King; Ian Pearce and Tom Vallance.

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NOTES AND NEWS

COMPILED BY MICHAEL A. TAYLOR

RESEARCH AT THE BM(NH)

In January 1987, the BM(NH) announced that it had commissioned the Programme of Policy Research in Engineering, Science and Technology group from Manchester University (PREST) to evaluate the effectiveness of its research. Covering the fields of botany, entomology, mineralogy, palaeontology and zoology, over 300 scientists are currently engaged in studies primarily aimed at identifying and classifying accurately species of animals and plants.

The BM(NH) stores and conserves over 65 million reference items of animals, plants, rocks, minerals and meteorites. The evaluation will seek to discover who uses the research and to what purpose. At the one of the scale the museum has many links with universities. Several academics spend part of their training working on the collections. At the other end, the Museum provides advice and identifications in response to thousands of inquiries from industry, government and other organisations, charging where these are of a commercial nature. The evaluation team will look at the nature and frequency of these contacts and seek the views of those inside and outside the Museum on the value of its work, using questionnaires, telephone surveys and interviews.

The evaluation is being co-funded by the Advisory Board for the Research Councils (ABRC), the Department of Education and Science (DES) and the BM(NH). DES and ABRC's interest arises because the museum, unlike other national museums, receives funding from the Science Budget.

PREST Director Professor Michael Gibbons commented, 'PREST is looking forward to the challenge of carrying out the first evaluation of a major national scientific institution of this kind'.

A NEW SCOTTISH MINERAL FROM MAIDSTONE

Maidstone Museums and Art Gallery put out the following press release on 11 June 1987:

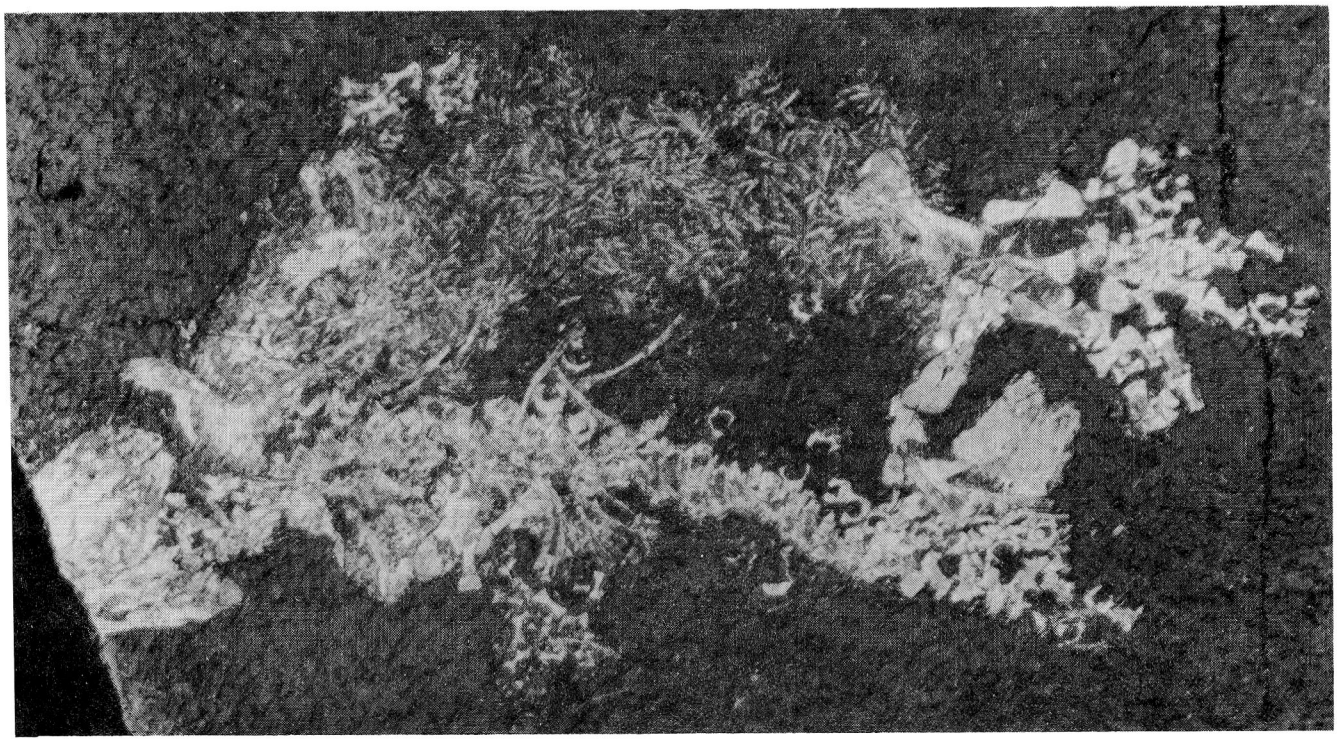


Fig.1. The fossil amphibian recently acquired by the Royal Museum of Scotland, to be named Eoherpeton eldeceeon after the sponsor, the Livingston Development Corporation. Photo about life size, by National Museums of Scotland.

'The scientific value of the large collection of minerals in Maidstone Museum has been confirmed by the recent publication in the Scottish Journal of Geology (1987, vol.23 pp.1-8) of the description of a previously unknown mineral, mattheddleite, based in part on type specimens in the Maidstone collection. This is worthy of note since, on average, fewer that 80 new mineral species are described worldwide every year.

Mattheddleite, a lead sulphate silicate, was recognised as a new mineral in 1982, on a specimen in Maidstone Museum, during re-cataloguing work being carried out by Dr George Ryback; and independently and at about the same time by Dr A. Livingstone on a specimen in the Royal Scottish Museum, Edinburgh. The detailed chemical and crystallographic work described in the joint paper was carried out at the BM(NH) and in Edinburgh. The new mineral has been named in honour of Matthew Heddle (1828-1897), a famous Scottish mineralogist.

Mattheddleite occurs as microscopic (0.1mm) crystals, associated with the rare lead minerals lanarkite and leadhillite, at Leadhills, Lanarkshire, south Scotland. The Susanna lead mine at Leadhills, from which the material probably originated, has stood abandoned and flooded for a century, but in the past provided many fine specimens of rare lead and copper minerals. The five mattheddleite specimens identified in Maidstone Museum came from the C.S. Catty collection. Several more specimens exist in other museums and private collections, and recently the mineral has been found at a second locality, in the Lake District.

Further information from Eric Philp, Keeper of Natural History, Maidstone Museum, St. Faith's Street, Maidstone, Kent ME14 1LH.'

WHAT'S IN A NAME?

Stan Wood and the Royal Museum of Scotland are back in the news with what must be the first fossil named after a British New Town! The Museum recently released this announcement:

'The fossil of the world's oldest complete ancestor of reptiles and mammals has been bought by the National Museums of Scotland. Livingston Development Corporation (LDC), in whose area the fossil was found, assisted with the purchase. In recognition of this the fossil is to be formally named Eoherpeton eldeceeon.

The ancient amphibian was discovered by Stan Wood, the Scots fossil-hunter, in rocks some 340 million years old. He commented: "I found eldeceeon in a most unusual rock formation formed probably at the bottom of shallow almost lifeless fresh water lakes. The lakes fed by poisonous hot springs and geysers would become spluttering hot mud pools. Four kinds of land amphibians have been found in the Livinston area: an early frog ancestor, a snake-like amphibian, a lizard-like amphibian with keyhole shaped eye sockets and the rare animal which the museum has bought."

Dr Ian Rolfe, Keeper of Geology at the National Museums of Scotland said: "We are very grateful to LDC for their sponsorship support. Other museums outside Soctland were

interested in buying this rare specimen, but as part of Scotland's heritage, it was important it was acquired for the Scottish nation."

Mr Robert S. Watt, Chairman of Livingston Development Corporation commented: "In this, the town's 25th anniversary year, it is nice to think that years after the Corporation has ceased to exist it shall be remembered by future generations for helping with this purchase. The fact that it was found in West Lothian and its great historic interest makes it an ideal subject for the Corporation's support. I hope that future generations will benefit from learning about 'eldeceeon' and the role it played those millions of years ago."

For further information, contact Vina Oberlander (Public Relations Officer) or Dr Ian Rolfe, (Keeper of Geology) Royal Museum of Scotland, Chambers Street, Edinburgh EH1 1JF.'

The story reached the May Day pages of The Scotsman and the Glasgow Herald, which also mentioned the price of £20,000, which includes VAT, and interestingly, a royalty to the local authority. Another feature of the transaction novel to geological museums was the carefully prepared Patronage or sponsorship proposal to buy part of Scotland's natural heritage, with details of various benefits to the sponsor. The RMS approached over 100 potential sponsors informally and submitted formal applications to 45 or so, but only the LDC came forward to have something named after itself for all eternity. Perhaps, it seems, sponsorship for fossils (rather than fine art) has a long way to go before the idea is widely accepted by both sides: but at least Ian Rolfe has led the way.

MESSELL UNDER THREAT YET AGAIN

By the time you read this the precarious situation at the famous site of Messel, near Darmstadt, Germany, may have been resolved: and not, I hope, towards conversion to a rubbish dump. This quarry in the Eocene oil shales is famous for its gloriously preserved fossils such as mammals and birds with hair, stomach contents, and other soft parts, and is one of the very finest fossil sites in the world. An earlier proposal to use it as a waste tip was blocked by the Social Democrat - Green alliance controlling the government of Hesse, but the collapse of this pact (partly, it seems, due to disputes as to exactly how much should be preserved) led to the Christian Democrats gaining power. One of their manifesto commitments was the use of Messel for waste disposal! Consequently the petition against the previous proposal has been followed by yet another, even more urgent one, from palaeontologists all over the world, with (in the UK alone) a piece in the New Scientist of 2 July 1987 and letters in the Times and other papers. Let us hope that Messel can be preserved and turned into a tourist attraction. And if you haven't yet written, please send a courteous letter to the Herr Ministerprasident at the Hessischen Ministerprasidenten, Bierstadterstrasse 2, 6200 WIESBADEN, Federal Republic of Germany: it may not be too late.

CONSERVATION AT BRISTOL

Bristol City Museum continues to build upon the experience of housing the experimental geological service of the Area Museum Council for the South West. Peter Crowther, David Hill and their colleagues are now planning a permanent geological conservation laboratory to replace the temporary lab used during the AMCSW scheme. This lab is being fitted with specially designed dust and fume extraction systems, following advice by Frank Howie. It will use the equipment purchased by the AMCSW for its own scheme and now handed over to Bristol as a major client and provider of an agency service. The regional role of the lab has also attracted an award of £6,000 from the 1987-88 MGC Conservation Grants Scheme.

This is splendid news as hitherto the only geological conservation (not just preparation!) labs in English museums have been at the BM(NH) and Leicestershire Museums. Come along now, you out there, who'll be next?

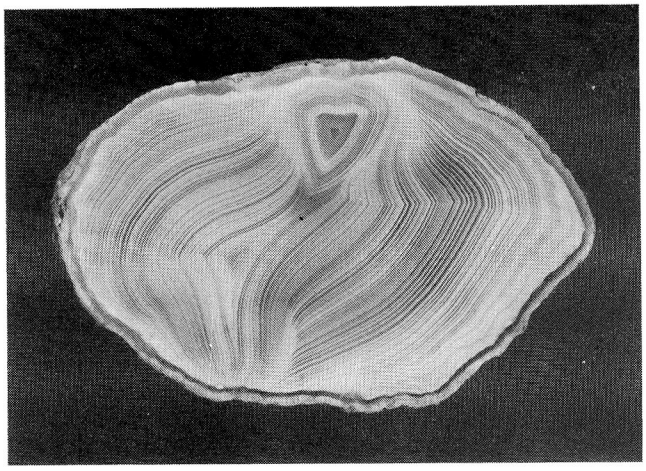
THE DUDLEY BUG

Colin Reid, recently appointed Keeper of Geology at Dudley, is pictured with a Calymene in the Dudley and District Chronical for 27 March 1987. He has 'put out an appeal for other old collections of fossils that may be hidden away in garages or attics.

The appeal follows the arrival of a fossil and mineral collection, bestowed to Dudley by Mrs Joyce Wedge of Southampton. She bought the collection at an antique sale in 1979. Museum staff describe it as 'the most historically important collection to enter the borough's collection since the early part of the century'. Included in the collection are a number of 400-million-year-old fossils from Wren's Nest, Dudley, including the Calymene trilobite, the famous Dudley Bug, plus a sea-lily, which was exhibited at an important meeting of the British Association.

Mr Reid said: 'Mrs Wedge decided to give the collection to the museum as she felt that it was where it really belonged'. He said improvements had been carried out within the museum over the past four years by assistants employed through the Manpower Services Commission scheme. These had resulted in the restoration of the museum's world famous fossil collection and installation of proper storage facilities, ensuring a good home for Mrs Wedge's collection.

Now the new geology curator is appealing for people to search through sheds, attics and garages to see if they can unearth any old collections of fossils that they may have stored away. 'People have been collecting beautiful fossils at Wren's Nest and Castle



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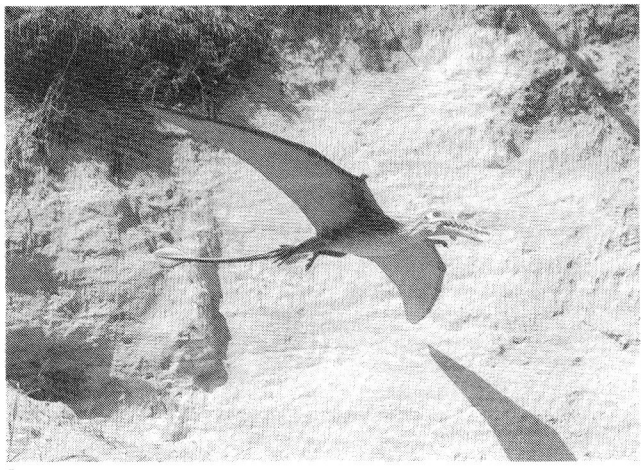

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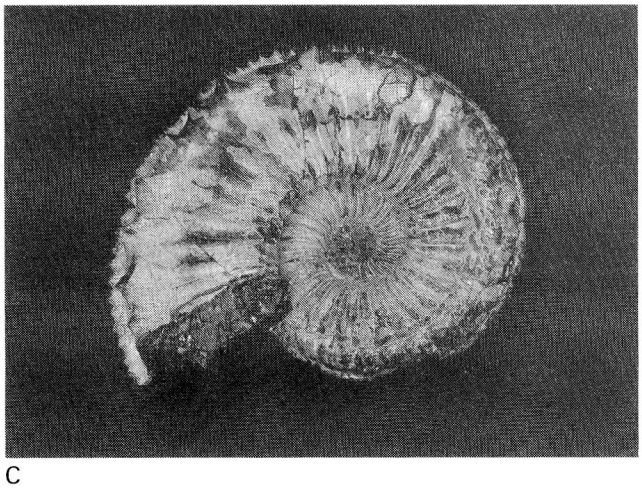

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Fig.2. Three of the many geological postcards published by the Royal Museum of Scotland. A, agate from Ballindean, Perthshire (Scottish Agate Collection, 210-2191). B, model of Rhamphorhynchus, based on fossils from the Solenhofen Limestone, West Germany. C, a Scottish ammonite, Amoeboceras kitchini Spath, from Kimmeridgean rocks near Cromarty.

Hill for hundreds of years, particularly during the period when the old limestone quarries were in operation,' he said. 'I'm sure there must be families in the vicinity who still have boxes of specimens collected by relatives or ancestors which are still lying in old cupboards or dusty attics.'

Mr Reid said that while the museum could not guarantee all material would be of high enough quality to be retained and displayed by the museum there were bound to be some fossils of great interest or, like Mrs Wedge's collection, of considerable historic importance.'

Colin Reid's recent talk to the Black Country Geological Society outlined progress at Dudley Museum, as follows:

'Two aspects of the Society's work have been particularly commendable; the research and partial restoration of the museum collection carried out by Graham Hickman and others during the late 1970s, and, more recently, the role of the Society in site documentation and conservation. After years of hard lobbying by the Society its invitation to the Geological Curators' Group to hold its 1985 AGM at Dudley Museum finally brought the local council's attention to the plight of the collections, and the need for a permanent curator to maintain them properly and to promote an interest in geological heritage within the borough.

I wouldn't be here in Dudley were it not for the BCGS and I feel very honoured to have been chosen as the Black Country's first permanent Keeper of Geology. As this is a new post there is no specific job description, allowing considerably more freedom than might be expected at a large museum. Thus unshackled I hope that, together, we can work to fulfill your hopes and aspirations, and to promote Geology in the area in a way that Murchison and his fellows would have approved of.

So what has been achieved to date in the museum and what are the future plans? In the last fiscal year a sum of money was set aside by Dudley MBC to assist in the establishment of a new Department of Geology. This groundwork is now complete. The entire Dudley collection, catalogued over the past three years by Joan Round and her MSC assistants (notably Paul Farmer and Chris Lewis) is now housed in new wooden cabinets within a humidity-controlled storage room.

A new geology workshop has been built in the museum basement. This will be used for conservation work and as the workroom for any future Manpower Service schemes. The department also has a new comprehensive library complete with reference books on all aspects of Geology. There is a set of the Treatise on Invertebrate Palaeontology, many monographs, several sets of journals and Geological Survey Memoirs covering most of Great Britain. In particular there is a strong reference section on the Silurian, not only of England, but throughout the world. Thus equipped the museum now sports the 'Thumbs-up' sign of geological service on the front door. This means that anyone with queries on any aspect of geology, or on how to start and maintain a collection, can now get professional assistance within.

At the moment plans are under way to design a completely new permanent display taking up two galleries on the museum's ground floor.

The sixties style gallery will be dismantled eventually and replaced with something much more appealing and in keeping with modern ideas. The days of the Victorian-style glass case are over! The Geology collection is to be computer catalogued using a new software package developed by the Museums Documentation Association (MDA). This will allow Dudley to tie into a nationwide museum network linked by a standardised data entry system, which will have enormous benefits for collections research.

The museum is soon to become a Geological Site Documentation Centre for the Black Country and beyond. All the records prepared by the BCGS and previously maintained at Stoke Museum are now kept at Dudley. Assistants employed in a future MSC scheme will be able to produce more detailed records, including logged sections and photographs. Much of this information will also be computerised and made available to any interested party. This project should tie in nicely with the site conservation work being carried out by the BCGS at the present time.

Outside the museum, plans are afoot for a new geology trail and guide for Wren's Nest and possibly an Interpretation Centre as well. Information leaflets on Geology in the Black Country and at Wren's Nest will be produced before the end of 1987, together with a poster to promote all Dudley's Nature Reserves.

The role of the BCGS within this new framework is more important than ever, particularly its work in conservation which will, hopefully, be acknowledged with financial assistance from the Nature Conservancy Council.

NEXT BM(NH) DIRECTOR APPOINTED

Professor Sir Richard Harrison Kt MD DSc FRS, Chairman of the Board of Trustees of the British Museum (Natural History), announced on 10 August 1987 the appointment of Dr Neil Robert Chalmers as the next Director of the Museum.

Dr Chalmers, aged 45, has been Dean of Science at the Open University for the last two years, and was employed previously as a Lecturer, Senior Lecturer and Reader in Biology since joining the University in 1970. His first employment was as a Lecturer in Zoology at the Makerere University College, Kampala, Uganda from 1966 to 1969 and he was the Scientific Director at the National Primate Centre, Nairobi, Kenya from 1969 to 1970. He is an Oxford University Zoology graduate and did a Ph.D. on Animal Behaviour at the Dept. of Zoology, Cambridge University.

The Board of Trustees, with the approval of the Prime Minister, has appointed Dr Chalmers to succeed Dr Ronald Hedley CB DSc on 2 November 1988. The early announcement of the appointment will enable Dr Chalmers to be involved with the Chairman of Trustees and Dr Hedley in policy and planning matters during the last year or so of Dr Hedley's Directorship.

The Director's salary is £41,000 per annum (and is under review).

BIGC - A NEW FORCE IN CONSERVATION

The second day of GCG's joint conference with the Palaeontological Association and the Geological Society (2 October 1987) was punctuated by the lunchtime launch at the Linnaean Society of a new body to promote geological conservation in Britain - christened 'BIGC', the British Institute of Geological Conservation. Intrigued delegates were invited to attend the event and most heard Professor Percy Allen (University of Reading) give an Acting Chairman's Address, as follows:

'Having done fieldwork in pits full of municipal filth, beneath seacliffs populated by nudists, and sympathised with a colleague faced by a quarry full of substandard rice-pudding, I feel somewhat qualified to launch the new British Institute for Geological Conservation.

In a nutshell, geological conservation concerns the care of field evidence, stored materials and data (I would widen it that much) for research and education. All three aspects are constantly at risk from other activities, proper and improper, of our democratic society. To the risks I've exemplified (governmental, industrial) must be added such hazards as 'site development' (probably the worst), uncooperative landowners, unskilled curators, secrecy and even other geologists. (Was that incredible coral bush still there when you lifted the turf recently? Has some monomaniacal palaeomagnetist drilled holes across vital sedimentological and palaeontological features? Has the earnest engineering geologist been along with his/her grass seed, turves or concrete?)

To resist the obscuration and destruction of scientific evidence and, more positively, to promote the geological sciences, we must of course work under some legislative umbrella like the planning and Wild Life and Countryside acts. But we also require, in the best British tradition, at least two national bodies: a semi-official quango with statutory powers (like the Nature Conservancy Council) interacting with a broadly based voluntary body with a hard scientific core. As you know, recent changes in the NCC have left the geological community without an effective forum. This the new Institute will provide, so that cases can be debated, the theory and practice of conservation promoted, in-house Government advisers and the geological community informed about any consensus of geological opinion, and so on. There are, as we have seen at the conference next door, many different views on how to cope with the problems and prospects I have mentioned.

The biologists have for long had an influential forum. Their requirements are often different from ours and we have sometimes suffered from a biological strait-jacket. Rare Western ferns growing on damp shady sandstones in the Weald can reproduce; the fossil ferns and sedimentological evidence in the sandstones cannot. Nor do we lack the biologists' global dimension. They have overwintering Arctic geese with well known international consequences; we have type localities and fossil floras and faunas of vital concern to geologists (academic and industrial) the world over. We need our own ongoing 'think tank'.

In commending the new Institute to you in this European Year of the Environment, I prefer not to launch it as a ship, but to cut a tape and open a road. On such an occasion it is right to thank the designers and engineers. So let us applaud the skill and dedication of George Black, Mike Benton, Chris Cleal, Maggie Rowlands and all those who have worked towards today. It will be a long hard road, demanding constant vigilance, scientific anguish and much diplomacy. But that is the field-geologists's lot anyway, isn't it?'

Further details about BIGC are circulated with this issue of Geol. Curator.

GEOLOGICAL GAFFES

Simon Knell (Scunthorpe Museum) coins the above title to cover such things as the fruits of his researches in the Trans. Leicester Lit. Phil. Soc.
In the issue for June 21 1858, p.201, we learn: 'The complete remains of a mammoth were found in the surface gravel at Barrow this year, but crumbled to dust on exposure.' Or, in p.209 for 1889: 'This meeting of the Section [for Geology] was called for the purpose of considering the future of the section, but only four members were present.' There is, on p.303 of the first volume, a decided example of careful choice of words following after-the-event consideration: 'The geological collection in the museum was rearranged and more important gaps in the series filled up during this year. Many valuable additions were obtained by exchange of some useless duplicates, but the legality of this method being disputed it was discontinued'!

Roger Clark of Bristol City Museum noted this quote in Nagel's encyclopaedia-guide: Bulgaria, 1981. ed. C.J. Veyrenc, concerning the Bulgarian Museum of Natural History: 'The exhibits include ... skeletons of giant mammals of the Tertiary and Quaternary periods (mastodon, deinotherium, cephalopod).'

Further contributions gratefully received!

PALAEONTOLOGICAL CLUEDO

A recent series of articles in Antiquity have revived the old controversy of 'whodunit' at Piltdown, adding a new, geological, twist to the story. Peter Costello, ' a biographer and literary historian of Dublin', has published (Costello 1985) a summary of some new evidence and the main conclusions of his forthcoming book on the Piltdown hoax. The main thrust is that Charles Dawson was the innocent victim of a hoax which stemmed from a genuine find of a human cranium, probably derived from a mediaeval plague pit. The later finds of the orang-utan jawbone and canine were subsequently introduced to the gravel pit. For this Costello blamed Samuel Atkinson Woodhead, the Sussex county analyst and Dawson's collaborator in research on the natural gas strike at Heathfield.

This article, and the attention which it drew in the media, stimulated further reminiscences and letters to the Editor of Antiquity, Glyn Daniel (himself author of such fictions as The Cambridge Murders). These implicated Dr John Theodore Hewitt OBE FRS, Professor of Chemistry at the University of London, who had admitted in 1952 that he helped someone, presumably Woodhead, to perpetrate the hoax (Daniel 1986). Further research (Costello 1986) revealed a possible motive in that Dawson and Hewitt had publicly disagreed over the chemical composition of the natural gas at Heathfield at a meeting of the Geological Society (Dawson 1898; Hewitt 1898). Hewitt had also admitted at least two further helpers in the hoax, so that the Third and Fourth Men have yet to be revealed!

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FOREST OF DEAN MINING HISTORY

Although the Forest of Dean is well known for its mining heritage, the mines which worked over a period of centuries around its northern borders have been quite forgotten. The tiny Newent Coalfield was once considered of great potential, bringing a canal to the town. Iron-ore was raised for the Newent Ironworks in the reign of Charles II, and there were trials for silver and gold, one of which, near Ross, may be attributable to the Romans.

A history of this neglected local industry, which did not cease until within living memory, is told by David Bick in his new book The Mines of Newent and Ross (October 1987, £6.95 + 60p postage, available from the publishers, The Pound House, Newent, Glos. GL18 1PS; ISBN 0 906886 06 X). It encompasses the results of many years research, with details of present-day remains, and is fully illustrated with photographs, maps and plans.

NATURAL HISTORY BOOKS GALORE

A Natural History Book Festival is to be held at the BM(NH) from 16-19 June 1988. The Festival will provide an opportunity for publishers, retailers and organisations with a common interest in the earth and life sciences to get together. There will be a programme of exhibitions and related events, including authors, book readings and book signings at the Museum over the five day period. The exhibition will be housed in a marquee in the East Gardens.

EARTH SCIENCE AT THE BRISTOL EXPLORATORY

Neal Marriott (Bristol Exploratory) writes:

The Exploratory Hands-on Science Centre is an interactive science exhibition currently located in the Victoria Rooms, Clifton, Bristol. In February 1988 the exhibition will be celebrating its first birthday, and is hoping to have had over 100,000 visitors through its doors to explore the world of science via 80 fully interactive exhibits.

To date, the exhibition has concentrated almost entirely on physics and human perception, but in the coming year it is hoped to expand into difficult fields: chemistry, the life sciences, and the earth sciences. We are already working on several earth science exhibits, thanks to a grant received from the Nuffield Foundation specifically for this purpose.

The Exploratory setting is quite different from that of a museum. The philosophy of 'please touch everything' raises particular problems for designers and builders, and presents obstacles to the presentation of even the simplest concepts. Exhibits must be robust, re-usable, simple, safe, enjoyable to use and educational - and able to withstand the attentions of numerous inquisitive and energetic five year olds. It is usually possible to meet all these requirements when designing a demonstration of, say, colour mixing, static electricity, angular momentum or some other fundamental principle of science. However, some fields tend not to lend themselves so readily to an interactive approach - life and earth sciences are two clear examples which might tend to 'fight back' a little when subjected to such an intensive environment.

Earth science projects currently underway include the examination of thin sections with plane and cross-polarized light, and a selection of aerial photographs covering major types of landforms. Please contact Neal Marriott (Exploratory Workshop, 131 Duckmoor Road, Bristol BS3 2BH. Tel: 0272 634321) for further information, or if you have comments or suggestions to make.

The Exploratory is a registered charity. The exhibition is open 10am - 5pm, Wednesday to Saturday; 11am - 5pm Sundays and Bank Holidays. Adults £1.50, children and concessions £1.00. Parties by appointment only.

MORE BGS OPEN DAYS

Following the overwhelming success of these British Geological Survey events in 1985 and 1986 (at Keyworth in 1986, over 10,000 attended the public Open Day alone!), further Open Days are planned in 1988 when the theme wil be 'Geology and You'. The dates where known precisely are as follows and opening hours are between 10am and 5pm.

Aberystwyth - Thursday, Friday and Saturday, 14, 15 and 16 July
Edinburgh - Friday, Saturday and Sunday, 28, 29 and 30 October
Exeter - Thursday, Friday and Saturday, 12, 13 and 14 May
Keyworth - Thursday, Friday and Sunday, 5, 6 and 8 May
London (Grays Inn Road) - Friday and Saturday, 20 and 21 May
Newcastle - Thursday, Friday and Sunday, 5, 6 and 8 May

Described as 'splendid examples to the general public of geology in action' and as 'immensely valuable to the profession as a whole', the exhibits, displays and demonstrations on view should excite, enthrall, entertain and enlighten all who come - and all are welcome. For further details, including checks on dates, times and days specifically set aside for you, please contact Dr Brian J. Taylor at Keyworth (056077 6111 ext 3392).

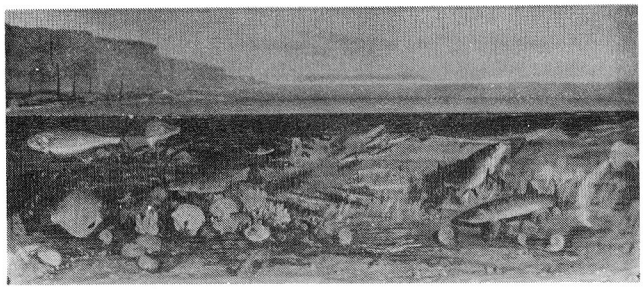
DIORAMAS LOOKING FOR A HOME

The reshaping and restyling of the British Museum (Natural History) has some odd and perhaps fortuitous side effects. One such is that we now have eight dioramas, displaying models of fossil fishes in contemporary settings, surplus to present requirements.

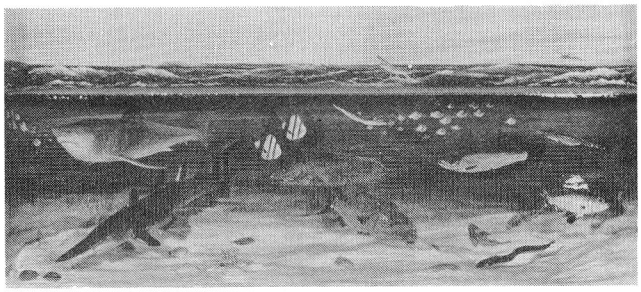
The dioramas were constructed between 1932 and 1948 by Vernon Edwards, a well-known artist and model maker employed by the BM(NH) who worked closely with scientists. By and large, the models contained within the exhibits are as faithful to our ideas today as they were then. And within each diorama the models are to relative scale. The dioramas can 'stand by themselves' as attractive displays or, as originally used, they can serve a reinforcing function alongside real fossils of the fishes portrayed.

Each diorama is housed within a self-contained wooden box with a glass front, and this is covered by a separate glass, framed in mahogany. Each diorama measures approximately 6 x 3 x 2ft (no two are precisely the same size) and each weighs approximately 150lbs, the bulk of which is plaster (for the landscaping and the models) and glass (for the water surface and the case front). There is a recess in the top for a fluorescent tube which would have to be provided anew.

As individual items they would be ideally suited to local/provincial museums displaying



A



B

Fig.3. Two of the fish dioramas being offered to other museums on long term loan by the BM(NH). A, Liassic. B, Cretaceous.

fossils from particular strata. There are dioramas illustrating the fish fauna from the Lower Devonian, Upper Devonian, Upper Carboniferous, Triassic, Liassic, Upper Jurassic, Cretaceous (Chalk) and the Eocene. Those depicting the Devonian, Carboniferous, Liassic and Chalk are particularly rich in British species and might therefore be particularly appropriate.

The dioramas are of historic interest and the BM(NH) would therefore not wish to part with them permanently. However, they could be borrowed on a (very) long-term basis and incorporated in existing or planned exhibits. At present the dioramas are wrapped in polythene and can be moved as an entity in a small van. If there are any curators who think that they might like to make use of a diorama please contact Dr Peter L. Forey at the Department of Palaeontology, BM(NH), Cromwell Road, London SW7 5BD, for further details (e.g. lists of genera exhibited within each diorama).

BOOK REVIEWS

Davis, P. and Brewer, C. (eds.). 1986. A catalogue of natural science collections in North-East England, with biographical notes on the collectors. North of England Museums Service, Durham, 333pp. ISBN 0 9510948 0 7. Price £9.50 (incl. p.&p.).

This is as handsome a volume as camera-ready A4 size computer generated print can produce. But I must admit that I was wholly prejudiced against it from its opening words! The 'historical note' on page 1 claims that 'the impetus for collections research began in North West England, following a meeting of the Biology Curators' Group devoted to the Function of Local Natural History Collections held at Liverpool in 1977'. This meeting was in fact organised with the Systematics Assocation, a quiet national body with roots going back to 1938 (see Nature, 142, pp.1069-1070) for the study of systematics. It was formed in an attempt to keep the various then rapidly diverging branches of systematic botany, zoology and palaeontology together, as far as their study of taxonomic and systematic matters was concerned. It has since produced a long and significant series of publications. GCG was also heavily involved with this meeting, having of course come into existence well before BCG and having been active in collections research through its Newsletter and Lost and Found columns, from its creation in 1974.

So, if this historical note was so inaccurate or polemic, I at once began to wonder about the factual errors or axe grinding I might find in the main text. In fact the volume improved immediately. The system used to gather data is well described and the crucial point of what information was initially sought is properly outlined, with lists of the curators and institutions involved. These are grouped in the new counties of Northumberland, Tyne and Wear, Durham and Cleveland only. The main catalogue lists 1049 records of named collections, both of individuals and institutions with name, dates if known and then details of the relevant material known to have survived. Reviewing such a catalogue is almost impossible and only first impressions are really feasible. This named collections section is clearly set out and very easy to use. It too suggests that a good and well balanced spread of data has been retrieved right across the wide field of natural history. Some pleasant surprises include the survivals of some of the region's pioneer museologists, like the two entries for Marmaduke Tunstall (1743-1790) or the five entries for George Allan (1736-1800). One notes too the careful separation of the three entries for a later name-sake of Allan who flourished in the 1880s. Some other important names also appear, like the Colonel Silvertop whom one might have expected a NE Museum Service publication to have been better able to identify. Others equally significant appear rather outside their expected territory like P.B. Brodie and G.A. Mantell. Occasionally it is impossible to tell from the entry concerned whether it is the famous at all: is it for example the Hugh Miller or the Dr W.B. Clarke who appear here? I felt a little

more effort might have been put into the identification of such entries, as it is clear in some of these cases (and one even suspects in most) that the compilers were unaware of the potential interest of such material. Odd entries have just been totally and irretrievably confused, like the anonymous and unidentified 1832 donor 'Mr WILLIAMSON, Piele', who would surely have been better entered and more easily identified as the correct 'Mr PEILE, Williamson', a mining engineer and geologist who collaborated with Adam Sedgwick? Some other entries are just delightfully unexpected: who, for example, would have looked for donations in this region from Nicholas 1, Emperor of Russia, and what one wondered were H.M. Customs and Excise, Heathrow doing giving South African Mammals and Reptiles to the Hancock Museum in 1983? (More important where have all the heroin and gold bars gone?)

Part two of the Catalogue comprises alphabetical 'Biographical Notes on the Collectors', but, with only 466 entries as opposed to the 1049 in the main catalogue, we are shown how much more collection research remains to be done. Some of the entries seem rather coy and I for one would have enjoyed learning more of two of the region's best known magpies - C.T. Trechmann with his remarkable career and personal problems, or N.J. Winch who went bankrupt. The volume concludes with a 'Subject of Collection and Taxonomic Index' and finally a 'Geographic Index'.

This is clearly a very useful, if sometimes flawed, compilation. It is especially pleasant to be able to record the North of England Museums Service's involvement and the financial support of the Royal Society towards its publication. All concerned are to be congratulated on making so much information, which is otherwise almost unobtainable, available in one place.

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24 September 1987

Embrey, P.G. and Symes, R.F. 1987. Minerals of Cornwall and Devon. British Museum (Natural History), London and Mineralogical Record Inc., Tucson, Arizona, vi + 154pp. ISBN0 0-565-00989-3 (paperback), 0-565-01046-8 (hardback). Price £9.95 (paperback), £19.95 (hardback).

This most fascinating account of the minerals associated with the complex geology of the South West Peninsula includes a comprehensive description of the rise and decline of the mining industry and is the culmination of over a decade's detailed research by the authors. The publication is well written, aesthetically pleasing and well supported by fine illustrations throughout. The text is arranged in four sections with an extensive list of over eleven hundred references and a comprehensive index.

The first section is concerned with the emplacement of the rocks and relates to the complexities of how the granites have influenced adjacent sediments and the mobilisation of the mineralising fluids. 'Mines and Mining' relates to the early exploitation of the Pleistocene placer deposits during the Bronze Age and the subsequent development of the outcrops and the economic mineral veins up to the present day.

The section on 'Methods and Mines' expands the theme, introduced in previous pages, of the streaming operations and briefly outlines some of the tinners' rights set up under the Stannary Charters of 1201 and 1305. This is followed by an account of the basic principles of de-watering underground workings, including the use of drainage adits, leats and water wheels and the introduction of steam engines during the Industrial Revolution. This section is further enhanced by a most interesting description of the development of the Cornish Beam Engines which used to dominate the landscape in mining areas.

Vivid reference is made to the appalling working conditions which the impoverished working population had to endure. Among the means of improving these conditions the authors briefly highlight the introduction of the safety fuse, the man engine and steam whims, together with the overall amelioration of working people's lives following the Royal Commission of 1864.

A further section links the mining theme with a review of some classic mineralogical sites located between Mounts Bay in Cornwall and Combe Martin in North Devon. The economic difficulties which have beset the mining industry in the West Country as a result of market fluctuations are outlined.

The section relating to collectors and dealers is an in-depth study, based on historical and scientific evidence held in the British Museum (Natural History) which confirms beyond all doubt the dept we owe to those early collectors whose contribution forms the nucleus of the Nation's mineralogical heritage.

Summing up, the book provides a clear, concise and up-to-date account of the region's geology, together with background history of how the mining industry developed and reflects on the social and economic difficulties endured by the indigenous population since recorded evidence began. The authors have re-identified many of the classic mineral sites and assembled a wealth of information from many normally inaccessible sources; as a result, this publication is in many ways unique and reflects professional skill throughout.

The only minor inaccuracy I was able to find was on p.83, where reference is made to arsenopyrite crystals from Wheal Penrose, collected by Mr 'Richard' Sparks. This should read Mr 'Dennis R.A.' Sparks. I was pleased to see mentioned the contribution made by the late R.W. Barstow and a picture

of the late John Fuller, who, in spite of his busy work schedule, always found time to discuss recent mineralogical developments.

Bryan V. Cooper
Torquay Museum

21 December 1987

Riccardi, A.C. and Martin, C.S. 1987. Catalogo de material tipo e illustrado de invertebrados fosiles del Museo de La Plata. Ser. Tec. Didact., Fac. Cienc. Nat. Mus., Univ. Nac. La Plata 16, 1-124.

For more than a century since its foundation by F.P. Moreno, the La Plata Museum of Natural Sciences has played a leading role in Argentine palaeontology (Riccardi 1981, 1987 for historical background). Such a long tradition has resulted in the gradual development of a very important palaeontological repository, with about 50,000 catalogued invertebrate fossils. Yet no published account of its palaeobiological holdings (not even a partial inventory) had been available up to now. So the production of this first Catalogue of type and figured material housed in the Museum's Invertebrate Palaeozoology Division (published in compliance with recommendation 72G of the ICZN 1985), is to be welcomed by the scientific community; it signifies a major contribution towards filling a long-standing gap in curatorial knowledge from South America.

The Catalogue is written in Spanish, but potential foreign users will undoubtedly benefit from its full-page English abstract. Anyway, technical terms usually have so similar spelling, regardless of language, as to be almost self-explanatory. The introductory pages briefly describe how the collections were assembled, how they have been curated, and how the catalogue itself is organised. The short historical overview exhibits certain parallels with that of the Sedgwick Museum in Cambridge. Here too, after an initial stage of building-up collections in a somewhat haphazard fashion (as a result of exploration and surveying activities), a fundamental step towards ordering and retrievability was likewise made in the 1930s (by Dr J. Frenguelli, with the zealous help of his technician O. Gomba) in establishing, as a complement to the general accession books, a system of interrelated manual card-indexes - still in use today.

All curated material is now individually labelled and safely stored in drawered cabinets for ease of access, and arranged taxonomically. Type and figured material is maintained separately from the rest of the main reference collection. Coloured spots, stuck to each specimen, its container and respective index card, indicate: red - holotypes, lectotype, neotypes and allotypes; blue - syntypes; green - paratypes and paralectotypes; and yellow - hypotypes, topotypes and other figured specimens. About 4% of the catalogued collection corresponds to such 'types', which collectively total well over 1800 specimens (nearly 10% being casts).

The bulk of the catalogue (just over 100 pages) is devoted to a combined taxonomic-alphabetical listing of each taxon dealt with under the generic and specific names as first published. The format agrees with the recommended procedures outlined by Bassett (1975, p.755) i.e. museum registration number, type status, bibliographic reference(s) with pagination and illustration details, collecting locality and stratigraphic/provenance data (as provided by the original authors, in most instances), is included. Complete synonymies are not attempted, changes in taxonomic assignment have been recorded and cross-referenced when the types have been re-illustrated. Entries have been systematically arranged according to PHYLUM and Class, as follows (figure in brackets denotes number of taxa listed): CNIDARIA, Scyphozoa (5), Anthozoa (2); BRYOZOA (29); BRACHIOPODA (46); MOLLUSCA, Scaphopoda (4), Calyptoptomatida (2), Gastropoda (69), Bivalvia (223), Cephalopoda (189); ANNELIDA (2); ARTHROPODA, Trilobita (12), Arachnidea (1), Crustacea (6), Insecta (11); ECHINODERMATA, Ophiuroidea (1), Echinoidea (5); GRAPTOLITHINA (21); ICHNOFOSSILS (10); and INCERTAE SEDIS, shelled (1). Of these, 32% are Palaeozoic, 63% Mesozoic, and only 5% Cainozoic in age. This uneven distribution probably reflects historical preferences or biases, rather than any deliberate institutional policy. The last 16 pages are reserved for two alphabetical indexes of species and genera mentioned in the text. Misprints are very few.

It can be obtained via institutional exchange (via Biblioteca), or else ordered (via Seccion Publicaciones), from Museo de Ciencias Naturales, Paseo del Bosque s/n, 1900 La Plata, Argentina.

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CONSERVATION FORUM

CONSERVATION OF GEOLOGICAL MATERIALS: INSTITUTE OF ARCHAEOLOGY SUMMER SCHOOL 13-17 JULY 1987

The present state and status of geological conservation within the UK has received a great deal of coverage in the recent past. Doughty (1981), Collins (1986) and Taylor (1986) have all stressed the inadequacy of training and career structure for the conservator working in the earth sciences. These opinions shared by many were the basis on which GCG's 1986 conference 'The conservation of geological material' was founded. This was the first real attempt to discuss recent advances and present techniques and finally publish the proceedings (Crowther and Collins 1987). The conference created an environment for the advancement of the professional status of geological conservators. The course in geological conservation held this summer at the Institute of Archaeology aimed to further this initiative and lead the way towards a more structured training scheme for those with responsibility for geological specimens. By bringing together a number of acknowledged experts, the course attempted to give the opportunity for their expertise to be passed on through lecture sessions and informal discussion. Without exception everyone on the course had their own contribution to make, and it was through this sharing of experience and building up of contacts that the course really succeeded.

The course participants included specialist geologists and other conservators and technicians responsible for collections which include geological material, employed by museums, academic institutions and commercial organisations in the UK, Canada, Denmark and Ireland.

Due to the variety of participants it was inevitable that each found certain elements of the course less satisfactory or interesting than others. I had in fact expected myself to be one of the main critics of the course since I am a mere novice when it comes to geology (I am a zoologist no less!) and therefore had anticipated an uphill struggle in understanding. Pleasantly surprised, I found this to be the exact opposite. Since virtually all the information presented was new to me I found every aspect fascinating and enormously useful. I should, however, state that in order to get much from the course as a beginner one must be prepared to put some effort in by way of background reading (if only Rixon 1979). This not only helped my understanding but prevented me from asking too many dumb questions and holding up the rest of the class. Having no preconceptions of my own also made it all easier to swallow! Those with a specific responsibility for or an interest in specific fields, such as palaeontology or mineralogy, were less enthralled by subjects outside their immediate sphere of work. Yet this broad approach did ensure that a good general background knowledge was obtained by all. In any future course 'specialist options' could be included for those seeking more detail in certain areas.

The course provided a good general introduction to geological conservation, and in many cases covered 'state of the art' procedures. The course scored very highly by putting presently used techniques into some kind of historical context and outlining earlier methods. This meant that underlying principles and concepts could be explained to give a clearer understanding of the treatments employed, thus avoiding the 'cook-book' approach (manifestly loathed by some of the course tutors!). It is important to appreciate that no one treatment can be the solution to all ills and that each problem is a unique challenge.

After a general introduction by Course Director Chris Collins, outlining certain ethical considerations, the course proper began with a palaeontological bias. Ron Croucher of the Palaeontology Laboratory at the British Museum (Natural History) shared his experiences of field collecting and preparation by expanding on the information found in Croucher and Woolley (1982). A particularly useful aspect of this was the detail leant to describing and recommending particular pieces of equipment for the job. During the first afternoon William Lindsay took up the subject of chemical preparation and impressed many of us with the very fine work he had been able to achieve in the acid laboratory at the BM(NH) - perhaps not a facility we all have access to but nonetheless a valuable insight for those of us in the real world!

A bleary-eyed Tuesday morning dawned to what was really the first 'conservation' session. Rob Waller (National Museum of Natural Science, National Museums of Canada) took the day's sessions to discuss basically one topic - that of environmental effects on specimens. This is the most fundamental aspect of conservation - and so often played down when people drift off into the more dynamic restorative end of the subject. So much emphasis was placed on it throughout the course that surely no one was left in any doubt as to what lay behind the destruction of so much of their collections (not only geological). I certainly couldn't do justice to Rob Waller's comprehensive survey of this field by detailing it here, but suffice to say that through clear step-by-step teaching with enlightening demonstrations and slides he was able to put across this potentially complicated subject with some clarity.

Wednesday began with a session taken by one of the course participants, Jerry Fitzgerald (National Museum of Natural Sciences, National Museums of Canada), on storage. The factors which affect good storage of specimens were discussed, from security to environment to design of stores and

cabinets. Wood versus metal cabinets made for an interesting group discussion, as did the concept of fork-lift truck access! This session was again of general interest to all and therefore stimulated much discussion and sharing of individual experience. One interesting tip regarding RH came from this session: when recording the temperature/RH in your stores, try putting the thermohygrograph inside the cabinet, and you may find you have better stability than you thought.

The remainder of the day was taken up with mineral conservation by Bob King (National Museum of Wales, Cardiff). Dr King's insistent message was that development of minerals was both unethical and unnecessary, yet he proceeded to detail a variety of development methods for numerous mineral groups. I do, however, take his point that occasionally it may be necessary to use these techniques and it does no harm to realise that they exist. More useful were the methods for collection, cleaning and storage of minerals with specific properties and requirements. This inevitably had more of a 'recipe book' basis, an approach that no doubt endeared itself more to some members of the course than myself. One criticism of this section was the lack of slides which would have enhanced the subject enormously.

Thursday morning's talks by Frank Howie of the British Museum (Natural History) and Rob Waller were the major reason that many of the participants were there, since the subject of stability and conservation of sulphides is one close to our hearts. So what can we do with pyritised specimens? Frank explained the problems with sulphides and allied minerals and why they decay. Rob then went on to discuss how we can treat them and, perhaps more importantly, how the treatments work. Again no set solutions for our specimens' problems, but an understanding of why some treatments do (or should) work. Once more the importance of environmental control was emphasised. The 'ethanolamine thioglycollate' and 'ammonia' methods were both described and discussed. During the afternoon visit to the Palaeontology Laboratory at the BM(NH) the former method was strongly recommended by Adrian Doyle, who gave a short talk on the work he and Lorraine Cornish have done on the subject (Cornish and Doyle 1984).

In the Laboratory we were given the opportunity to 'play' with the various pieces of equipment previously mentioned by Ron Croucher. We were also able to see the acid labs in use and judge the practicality of such techniques for ourselves. The visit gave us an invaluable insight into 'state of the art' techniques, and also provided the only practical session of the week. My strongest criticism of the course was the lack of 'hands on' experience. Though difficult to set up it is so much easier to learn by doing and so gain a clearer picture of the practicalities behind some of the techniques. (Even a sniff of ethanolamine thioglycollate would have spoken volumes!)

Health and safety were covered by Frank Howie on Friday as a reminder that all the techniques discussed are potentially harmful to the conservator and that care should always be exercised. The final two talks were given by Helena and Richard Jaeschke (both freelance archaeological conservators). The first was on chemicals for use in conservation (e.g. consolidants), while the second covered the conservation of sub-fossil bone; the latter, by Richard, came across almost as a case study for the techniques outlined by his wife. This helped me to assimilate some of the wealth of information fired at us earlier. To simply hear about one adhesive after another was confusing (try reading Rixon 1976, Ch.2 to see what I mean) and it is here that more practical work would have come up trumps. Failing that, more case studies throughout the course would have helped. At least during Richard Jaeschke's talk we were able to look and handle the specimens he referred to.

The course finished with a discussion and the results of our 'homework' - an exercise to design a conservation report form with more detail about specific treatments than is usually present. This was a useful (if vague) exercise to point out the importance of recording all details of treatment undertaken by the conservator. The aim was to make the job of reporting simpler, with very specific treatments listed on the report to be ticked or filled in. Perhaps a sample of our efforts might be published some time to help anyone wishing to design their own standard reporting system.

The day wound up with one of the most important aspects of the course - an exchange of addresses. To get such a variety of conservators from all around the world together was in itself a useful and worthwhile exercise; even more so when, for the first time, their collective expertise covered such a great variety of techniques employed in geological conservation. The aim was to have geological conservation taught and recognised as a distinct and important aspect of conservation generally. This course can only have given that cause a great boost and it is hoped that enough support will be shown to continue this initiative in the future. There is room for improvement but it's already very good as it stands. For myself, I am now much more confident about the survival of the geology collections in my care. I will still seek specialist advice where needed, but at least now I will understand it!

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Typescript received 24 September 1987

GEOLOGICAL CURATORS' GROUP

13TH ANNUAL GENERAL MEETING 1986

Friday 5 December 1986 at Manchester Museum.
40 members present.

1. Apologies for absence

Peter Crowther, Hugh Torrens, John Cooper, Tony Cross, Andrew Newman and Bob King.

2. Minutes of 1985 AGM

They were approved and signed by the Chairman.

3. Matters arising

There were no matters arising.

4. Chairman's Report - from Phil Doughty

There is not the slightest indication of a loss of momentum in the Group's activities and long term plans stretch as far into the future as they ever have.

The first major meeting of the year was our truly international conference
The Conservation of Geological Material. Attended by over 100 delegates representing nine countries the two day event alerted the profession to geological conservation, its importance, its problems and its lack of formal organisation and structures in a way that nothing in this country has previously achieved. The final discussion session produced excellent proposals subsequently relentlessly pursued by Mike Taylor and Chris Collins to the point where we are likely to see a National Conservation Centre and guidelines for geological conservation within the very near future.

It is perhaps also worth recording that our primary interest in collections and the pressures we attempt to maintain to see real improvements continue to pay dividends. Our last AGM was in Dudley where a fine collection, in a classic geological setting, was sadly in need of full-time professional curation. I would like to believe that the addition of our voice to the local chorus of geological interests played some part in subsequent developments. Within the space of a year a proposal for a geological curator was made, accepted, costed, established, advertised and only last week filled. Simon Knell's work in AMSSEE is as much appreciated as that in the South West and we have just heard that British Gas is to provide substantial grant aid over the next two or three years to ensure that the South-East has a full and detailed record of collections in the area. That, of course, is recognised as simply the starting point of the next phase of activity.

The 'Thumbs Up' campaign, another of our initiatives, was superbly launched to a mass audience on 13 February and the reaction almost swamped us initially. It is a great tribute to everyone involved but particularly Tristram Besterman whose idea it was, Peter Crowther who has seen it through the development and production stages and John Martin who provided the vital television link. I extend congratulations to everyone involved. A large volume of solid work and representation has gone on and will continue as other reports will show. Undoubtedly important long-running issues will be in the fields of professional training and the developments around NCC's document Earth Sciences Conservation in Britain. Our relationship with the Museums Association has again emerged as an issue and Committee has discussed its relevance to practising professional curators, their work and aspirations, and would welcome members' views.

I will close with a temporary setback, presenting a new challenge. Our research proposal on the development of geological documentation practice has failed to find a sponsor so far. In these times perhaps over £40,000 for a two year project is too much to seek. It may be that by revising and rephasing we can take some work on ourselves, leaving a cheaper package seeking finance. We have at least secured a pump priming offer.

This is the end of my period as Chairman of the Group. It was an honour to be invited to the office. It has been a privilege to serve in it and I am proud of my association with what I consider to be by far the most active and productive of specialist groups. That is only because of excellent and active officers and the generous support of all members. To you all my grateful thanks.

5. Secretary's Report - from Geoff Tresise

Group meetings held in 1986 were: 'The Conservation of geological materials' at the British Museum (Natural History) in January; a Cornish meeting based at the Camborne School of Mines in May; 'Promoting museums' at Bath in October; and 'Geology and the media' at the Manchester Museum in December.

The meetings programme for 1987 consists of a visit to the National Museum of Wales to see the Chinese dinosaur exhibition on 23 February; 'Geology in Dorset' at Dorchester Museum on 24 April, to be followed by a field day; a meeting on a specimen conservation theme at Ulster Museum during the week of 24-28 August (to coincide with the British Association meeting); a joint meeting with the Palaeontological Association and the Geological Society at Burlington House on 1 and 2 October; and the Annual General Meeting at Liverpool Museum on 4 December. Plans for 1988 include a visit to the British Geological Survey at Keyworth in April, and to the Royal Museum of Scotland in September.

1985 had marked the culmination of two major projects: the publication of Guidelines for the curation of geological materials, and the launching of the 'Thumbs Up' campaign. Both have had pleasing results in the current year: the former has produced a spate of new members for the Group, while the latter has resulted in the dinosaur logo gracing the doors of accredited museums throughout the country. (The Geological Museum have even laid claim to a double logo at their entrance.)

Following the successful culmination of these projects, 1986 has seen new initiatives get underway. It was felt that the Group should attempt to raise public awareness of the importance of the science. The Manchester meeting was organised with this in mind, and the post of Public Relations Officer established to promote this aim. Increased emphasis was also placed on the problems of specimen conservation following the very successful meeting at the British Museum (Natural History) in January. Mike Taylor has produced Guidelines for the establishment of geological conservation services in museums, and Chris Collins has drafted a report on the need to establish a national centre for specimen conservation. Both these reports are likely to be of seminal importance and our thanks are due, not only to Mike and Chris, but also to their collaborators, Rosemary Roden and Simon Knell.

The Committee have also met Roy Clements to discuss closer liaison with the Geological Society's Conservation Committee. The Burlington House meeting next October is one result of these deliberations, and the Group has also been invited to nominate an additional representative to serve on the Conservation Committee.

The Nature Conservancy Council invited the Group's comments on their strategy document Earth Science Conservation in Britain which is due to be published next spring. Reservations were expressed and a number of amendments suggested to the draft document.

The Chairman has submitted a paper to the Museums' Association's new Director General stressing the need for the Association to promote the interest of the specialist groups. Graeme Farnell has accepted our invitation to attend the January committee meeting to discuss what might be done to improve the situation.

Finally my thanks are again due to the Group officers and members of committee who have willingly undertaken a large proportion of the work which might otherwise have fallen to the Secretary.

6. Treasurer's Report - from Tom Sharpe

(i) Membership

The Group welcomed 52 new subscribers this year (27 UK Personal Members; 13 UK Institutions; 9 Overseas Personal Members; and 3 Overseas Institutions), bringing our total membership to 453 as follows:

UK Personal Members: (including 2 Honorary Members)	256
Overseas Personal Members:	43
UK Institutions:	100
Overseas Institutions:	54

In addition, we distribute 12 complimentary copies of the journal.

(ii) Finance

The accounts for the period 19.11.85 - 3.11.86 are attached.

Income: The increased membership has increased subscription income, £2862.24 compared with £2351.23 last year. Income from the sale of backnumbers, advertisements and authors' reprints has also increased to a total of £713.55 compared to £424.99 in 1985. Orders for 'Thumbs Up' leaflets and stickers brought in £196.92, much of which was spent on postage of these materials. In accordance with Bye-law 4, a small fee was levied at several of this year's meetings to offset meetings expenses, and this brought in £164.41. (This includes only the balance of the Cornwall meeting plus all income at the Bath Meeting.) Total income for the year was £4356.50 compared with £3110.24 in 1985.

Expenditure: Printing and postage of the journal comprised over £2000 of our expenditure this year (although the postage bill also includes the postage of 'Thumbs Up' materials and backnumber orders). Other costs in the production of the journal and the revised 'Thumbs Up' leaflet totalled £164.99. Meetings expenses totalled £61.80; this is an element which I am sure will figure regularly in our accounts from now on. Corporation Tax for 1985 amounted to £88.80.

Total expenditure for 1986 is £2588.93 compared with £2963.09 last year. The surplus of income over expenditure for 1986 is therefore £1767.57.

The total cash in the bank at present is £5088.31; however, we have not yet paid for any 1986 issues of the Geological Curator (Volume 4,Nos.7, 8 and 9). The publication costs of Vol.4,No.7 will be covered by the Conservation Conference Account, so once our committed expenditure on Nos.8 and 9 and the amount owed to us in unpaid subscriptions and outstanding invoices are taken into account, about £1739 (including £159 of advance subscriptions) will be carried forward into 1987.

The Group is therefore comfortable financially at the moment.

7. Editor's Report - from Peter Crowther

(i) 1986

Two issues of the the Geological Curator (totalling 128 pages) have been published this year:

Vol.4, No.5 (Issue 2 for 1985), pp.247-306, published February 1986

Vol.4, No.6 (Issue 3 for 1985), pp.307-374, published July 1986

Vol.4,No.7 (Issue 1 for 1986), 'The Conservation of Geological Materials' is the proceedings of the Conference held at the British Museum (Natural History) in January 1986. This is now at paste-up stage and will go to press before the end of the year. Delays have been due to my move from Leicester to Bristol in the summer, the very large size of this issue (c.110 pages), and one or two minor hold-ups with authors (although most of the thirteen contributors produced original and revised versions of their papers, and corrected proofs, to tight deadlines, for which I am very grateful). Publication will now be early 1987. The cost of this issue is being covered by a grant from ICCROM.

(ii) Thanks

In Leicester John Martin (Keeper of Earth Sciences, Leicestershire Museums Service) continues to put up with the storage and distribution of back stock, while for the present the journal will still be printed by Leicestershire County Council's Reprographics Unit and distributed from Leicester - thanks to John, Chris Collins, Gill Weightman and Kate Pontin. The Group continues to employ Judy Marvin for her top quality word processing and she is able to make use of Leicestershire Museums Service's hardware with the generous agreement of the Service's Director, Dr Patrick Boylan. David Price and Mike Dorling kindly produce major headings using equipment at the Sedgwick Museum. I am grateful to all for finding it possible to continue, in spite of my own south-westerly relocation from July.

Inside the covers, the year's major change has been the departure of Tony Cross from 'Notes and News' after nine years service. Many thanks to Tony, and to Mike Taylor, who will be taking over from vol.4, no.8. Otherwise we continue to be indebted to Hugh Torrens and Don Steward for 'Lost and Found', while Don has also instigated the CING column as an offshoot of his responsibilities as GCG Recorder.

Finally and obviously, thanks to all our contributors who despite being overworked and underpaid, continue to provide high quality copy in abundance!

8. Recorder's Report - from Don Steward

(i) State and Status

The up-dating of information concerning the geological material held at British museums and institutions is progressing satisfactorily; 72 current status returns have been received (approx. 25% of the national total). I would specifically like to thank Kathryn Sykes (North of England Area Service region), Geoff Tresise (North West Area Service region) and Mick Stanley (East Midlands Area Service region) for their prompt responses as regional coordinators. Summaries of the revised data will be appearing regularly in the CING columns of future Geol. Curator issues.

FENSCORE: the annual meeting took place at Manchester Museum on 5 June. Progress has been made in the distribution of data to 'daughter' data bases' in the various CRU areas. This decentralisation means that the individual workload is much reduced and that the National Database held at Manchester needs only to be updated about once a year. Publication of the North of England register was announced, and it was hoped that this would soon be followed by ones from Scotland, Yorkshire and Humberside. Changes to the constitution were agreed to tidy and clarify the wording; the Wales CRU was apparently not functional at present and was (hopefully) temporarily deleted from the list of member CRU's with voting rights. Four officer posts were created to replace the original two, the new committee is now: Chairman - John Burnett (Royal Museums of Scotland); Secretary - Margaret Hartley (CRNYH); National Database Manager - Charles Pettitt (Manchester); and Type Survey Coordinator - Geoff Hancock (Kelvingrove Museum).

(ii) CING

Articles under this heading now form a regular feature in the Geol. Curator; up to and including 4(8), 36 entries have been made. Items relating to the opening of new galleries, acquisition of material and other collections 'gossip' will be gratefully received for publication.

The GCG prompted articles on the theft of geological items by John Whitehouse appeared in Museums Journal 86(2); subsequently reports have been received that the defendant also visited Hereford Museum and Cheltenham Museum but no identifiable 'foul-play' occurred.

Good news from Dudley Museum is that the appointment of a Curator of Geology is now at the interview stage. After many years of applied geological canvassing by various groups (including GCG) it is pleasing to see this important collection has now been recognised as such by Dudley Council.

(iii) Lost and Found

Up to and including Geol. Curator 4(8), 191 entries have been made. Of major interest this year has been the quest for specimens figured in The Silurian System (Murchison 1839) for J.D.D. Smith of the International Commission on Zoological Nomenclature. Again Hugh Torrens is to be thanked for the great deal of time that he has devoted to making the content of the columns so informative.

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

ANNUAL REPORT FOR 1986

This report summarizes the holdings and uses of site records at Geological Locality Record Centres for the period 1 January 1984 to 31

December 1985 and notes other happenings during 1986.

(i) Records. A total of 20,241 site records were held by the 43 Record Centres at the end of 1985. This represents an increase of just over 6% since the last published annual report for 1984 which appeared in Geol. Curator, 4(2) when 19,000 site records were held. The increase is again lower than that reported in 1980 and is probably due to a number of factors including staff changes (q.v.), a smaller number of Centres using MSC staff and more detailed recording of sites already held. Not surprisingly those Record Centres using MSC staff have again seen the greatest increase in numbers of site records viz:- Shropshire, Warwickshire, South Hertfordshire, East Kent, Dorset, Hampshire and Angus. The obvious advantages of employing MSC teams to record sites cannot be overstressed and all Record Centres are urged to consider applying for MSC assistance.

(ii) Enquiries and uses. The number of enquiries show an overall increase from previous years with 7 centres having 10 or less, 10 with 10-20, 2 with 20-30 amd 5 with more than 30. The enquiries are often difficult to enumerate and do not indicate the number of times the sites files are consulted; the picture is even less clear as only 24 Record Centres replied to the questionnaire.

The majority of enquiries were made by individuals, with planning authorities a close second, together with colleges and schools. In previous years the main user was NCC but with the bulk of the work completed on the GCR the number of enquiries is tailing off.

Significant requests for data noted from questionnaires is as follows:-

Bradford - NCC provisional schedule of site and publication on a local quarry.
N. Herts. - N. Herts District Plan and Herts. County Council Ecological Action Programme
S. Herts. - County Structure Plan and four District Plans
Sheffield - Lower Don Valley - wildlife and geology report
Hampshire - Coastal defence works at Barton-on-Sea
Angus - Dundee and Angus Structure Plans
Perth - NCC for GCR vertebrate sites
Staffordshire - Reports for Staffs. Nature Conservation Trust re. purchase of site, and National Trust
Dorset - B.P. oil pipeline planning application
Warwickshire - NCC, BGS and Institute for Terrestrial Ecology (Mosses on Bromsgrove Sandstone)
West Devon - Plymouth Local Plan
Manchester - Manchester G.A. for sites in local Parks guides

(iii) New Record Centres. One new centre has been recruited to the National Scheme since the 1985 Annual Report: Cambridge (South of Huntingdon and Peterborough), Cambridge College of Art and Technology, Geology Section, East Road, Cambridge CB1 1PT. Current enquiries from Peterhead and Paisley Museums and requests to Nottingham and Ipswich may result in new centres for Banff and Buchan, Renfrewshire, Nottinghamshire and Suffolk.

(iv) Site clearance. If Record Centre staff have a particular site which is sufficiently important but is obscured by vegetation and/or talus contact Dr Keith Duff at NCC, Northminster House, Peterborough PE1 1UA (0733 40345) who should be able to help under their site clearance scheme. Be prepared to make a good case for its clearance, stressing its importance to the geology of the area/ county; 'alternative' sites especially welcome.

(v) Staff changes at Record Centres

Lancashire - Neil Turner has moved to Wollaton Hall, Nottingham and a new centre for Notts. is hoped for. At the time of writing a replacement at Clitheroe Castle Museum is awaited.
Bolton - Alan Howell is now working in Guernsey and his replacement is Mark Simmonds.
Norfolk - Di Smith has taken over at Bath Geological Museum and her replacement is Dr Tony Stuart.
Derbyshire - Nick Moyes and Bill Grange have been in post about a year.
N. Herts. - Note the change of address to Old Fire Station, High Street, Baldock SG7 6AR.
S. Herts. - The new Keeper of Natural History is Philip Collins.
Avon etc. - Dr Peter Crowther is now in charge of the Record Centre following the retirement of Dr Mike Curtis.
Essex - Miss F. Talbot has succeeded Mr G. Ward.
Kirklees - Dorothy Harding has taken over a post frozen after the removal of Nick Moyes to Derby.

(vi) 'Record of the Rocks'. 13,000 leaflets have been distributed over the past two years to the geological societies and associations of the British Isles. Leaflets are available for Record Centres and requests should be addressed to Mick Stanley. Many enquiries to assist in the National Scheme have been received in response to the leaflet and details of Local Record Centres and the data required given a reply.

(vii) Conservation Committee, Geological Society. The committee met four times in 1986 in February, May, September and November; the main topics for discussion included:

a) Earth Science Conservation in Great Britain. A draft document from NCC the reply to which engaged much time and an extra meeting in September. The document is currently being revamped in line with the many and varied replies received from the consultees.
b) 'Ways and Means' booklet for geological conservation. Probably will be fifty pages at A5 of eight chapters on the how

and why of practical site conservation.

c) Geological Conservation Review. The present, past and future position.

d) Geological Record Centre. A proposal has been put forward which after initial discussion is currently being re-written. Details will appear in a future issue of Geol. Curator.

(viii) Co-ordinator for National Scheme. After ten years of involvement with the National Scheme, the time has come for a new Co-ordinator to take over my position. If any members of the Group or interested parties within the National Scheme wish to become involved, please contact myself at the address shown below.

10. Amendments to Constitution

Copies of the Constitution which had been sent to the Charity Commissioners for approval were circulated. Tom outlined the minor amendments that the Commission requested. There were no comments from members present so Howard Brunton proposed that the Constitution be adopted, Steve Tunnicliffe seconded and this was carried nem. con.

11. Election of Officers

The Committee's nomination for Chairman for the next three years was Mick Stanley, there being no other nomination Mick was declared Chairman. All the other officers were willing to stand again and there being no other nominations they were declared re-elected. The Committee's nomination for the new post of Publicity Officer was Hugh Torrens and there being no other nomination he was declared elected. The Committee's nominations for the two vacancies for Ordinary Committee Members were Monica Price (Oxford University Museum) and Simon Knell (AMSSEE) and there being no other nominations they were declared elected.

12. Auditors

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

13. Any Other Business

Phil Doughty, the retiring Chairman, expressed his thanks to the Committee for their help while he had been Chairman and he wished Mick Stanley all the best in taking over GCG.

14. Date and venue of 14th AGM

To be Friday 4 December 1987 at Liverpool Museum.

The meeting closed at 5pm.

Diana Smith
GCG Minutes Secretary

GCG ACCOUNTS, 19 November 1985 - 3 November 1986

Current Account

Income		Expenditure	
Subscriptions	2862.24	Printing: 4(4),(5),(6)	1617.00
Sale of backnumbers	502.49	Printing Membership forms, meetings card	50.45
Advertisements	105.00	Postage	542.39
Thumbs up orders	196.92	Stationery	80.39
Sale of reprints	106.06	Typing and xeroxing	61.60
Meetings fees	164.41	Thumps-up typesetting	23.00
Guidelines orders	22.00	Engraving	34.50
NCC postage	45.50	Meetings expenses	61.80
		Guidelines orders	22.00
		Corporation Tax 1985	88.80
		Returned cheque	7.00
	4004.62		2588.93
Transfer from HICA	500.00	Transfer to HICA	1500.00
	4504.62		4088.93
Balance 18.11.85	139.42	Balance 3.11.86	555.11
	4644.04		4644.04

Deposit Account

Interest (estimate)	6.09	nil	
Balance 18.11.85	95.62	Balance 3.11.86	101.71
	101.71		101.71

HI Cheque Account

Transfer from Current Acc	1500.00	Transfer to Current Acc	500.00
Interest (estimate)	345.79	Balance 3.11.86	4431.49
	1845.79		
Balance 18.11.85	3085.70		
	4931.49		4931.49

Income due		Committed expenditure	
Unpaid subs (58 personal members)	498.00	Geological Curator (8), (9)	c 1200.00
Outstanding invoices	187.00	Postage	c 380.00
	685.00		c 1580.00
Stocks of Geological Curator	c 4500.00	Advance subscriptions	159.00
	5185.00		c 1739.00

T. Sharpe, GCG Treasurer

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

THE GEOLOGICAL CURATOR

PUBLICATION SCHEME

Three issues of the Geological Curator are published each year; a complete volume consists of nine issues (covering three years) and an index. Because of recent delays in publishing, four issues will be published in both 1988 and 1989, 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 margin. Two copies should be sent to the Editor, Peter Crowther, City of Bristol Museum and Art Gallery, Queen's Road, Bristol BS8 1RL (Tel. 0272 299771). Line drawings should be prepared in black ink at twice desired publication size. Photographs for halftone reproduction should be printed on glossy paper and submitted at approximately final size. Both drawings and photographs should be proportioned to utilise either the full width of one column (85mm) or two (175mm). References in the text follow the Harvard system i.e. name and date '(Jones 1980)' or 'Jones (1980)'. All references are listed alphabetically at the end of the article and journal abbreviations should follow the World List of Scientific Periodicals where appropriate. Authors will normally receive proofs of text for correction. 50 reprints can be purchased at cost (details from the Editor). Major articles are refereed. Copyright is retained by authors.

REGULAR FEATURES

LOST AND FOUND enables requests for information concerning collections and collectors to reach a wide audience. It also contains any responses to such requests from the readership, and thereby provides an invaluable medium for information exchanges. All items relating to this column should be sent to Michael Taylor, Leicestershire Museums, Art Galleries 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, Art Galleries 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, Art Galleries and Records Service, 96 New Walk, Leicester LE1 6TD (Tel. 0522 554100).

BOOK REVIEWS contains informed opinion of 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.

ADVERTISEMENT CHARGES

Full A4 page	£50 per issue)	
Half A4 page	£35 per issue)	Discounts for space bought in three or more issues
Quarter A4 page	£20 per issue)	

Further details from Diana Smith, Curator, Bath Geological Museum, 18 Queen Square, Bath BA1 2HP

Inserts such as publishers' 'flyers' can be mailed with issues of the Geological Curator for a fee of £50. 500 copies of any insert should be sent to the Editor by the required copy date.

SUBSCRIPTION CHARGES

UK Personal Membership	£6 per year
Overseas Personal Membership	£8 per year
UK Institutional Membership	£8 per year
Overseas Institutional Membership	£10 per year

All enquiries to the Treasurer/Membership Secretary, Tom Sharpe, Department of Geology, National Museum of Wales, Cathays Park, Cardiff CF1 3NP (Tel. 0222 397951).

BACKNUMBERS

Backnumbers of the Geological Curator (and its predecessor, the Newsletter of the Geological Curators' Group) are available at £2.50 each (£5.25 for the double-issues Vol.2, Nos.9/10 and Vol.3, Nos.2/3; £7.50 for Vol.4, No.7 Conference Proceedings) including postage. Orders should include payment and be sent to the Treasurer (address above).