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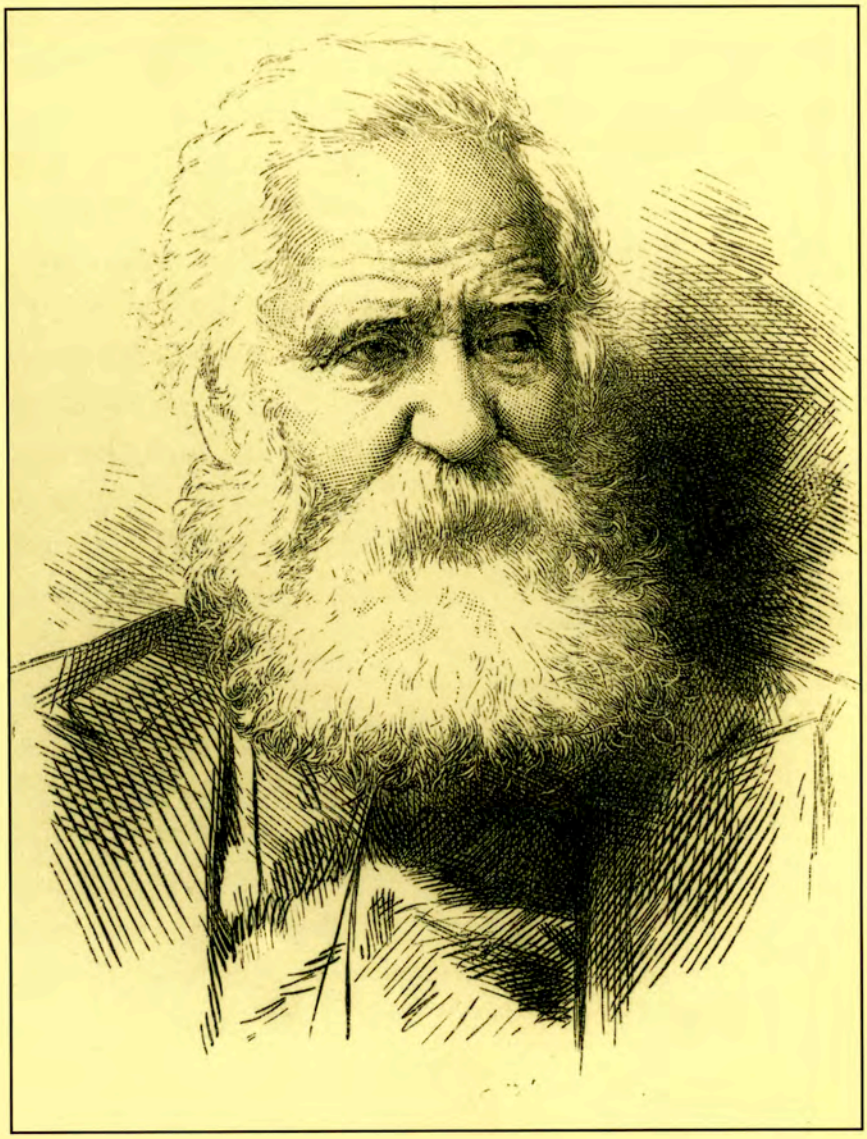

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THE CHARLES W. PEACH (1800-1886) COLLECTION OF CORNISH FOSSILS

by Peter R. Crowther

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In the 1830s and 1840s, 'amateur' geologist Charles William Peach (1800-1886) made a significant collection of poorly preserved Devonian fossils from Cornwall. He discovered specimens at many localities that had hitherto been considered unfossiliferous. Peach's material contributed to a better understanding of the then newly established Devonian System, and his collection's acquisition by the Royal Geological Society of Cornwall in 1850 was (and remains) a source of great pride to the Society. The Peach Collection's subsequent curatorial history is summarised in the context of the Society's changing fortunes, up to the present day.

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Introduction

Charles William Peach (1800-1886) (Figure 1) was born in Wansford, Northamptonshire, the son of a farmer and inn-keeper (see Smiles 1878 and Davey 1911 for summaries of Peach's life). He became a private in the mounted coastguard service in 1824 and was stationed first in Norfolk, where he developed a lifelong interest in natural history. After several moves within the county, Peach was eventually posted with his young wife to south-west England, first to Charmouth in Dorset, then to Beer at the mouth of the River Axe in Devon, and on to Paignton, before being posted in 1834 to Gorran Haven, near Mevagissey in Cornwall. Here the family remained for over 10 years, and it was the rocks of the Cornish coast that stimulated Peach's interest in geology. The received wisdom of the day was that the rocks of Cornwall were unfossiliferous. But geology was still a young science, and Peach decided to look for himself - with remarkable results.

Peach's fossils and their importance

The Royal Geological Society of Cornwall (RGSC) was established in Penzance in February 1814, making it the second oldest exclusively geological society in the world (after the Geological Society of London, founded November 1807). The RGSC's 24th Annual Report for 1836-37 was the first to refer to Cornish fossils, recording that the 'labours of the Society [had been] mostly devoted to fossils in the last year' and that previously 'no suspicion had been entertained that they occurred in so many localities and so commonly'. The name of Charles Peach appears for the first time (as an Associate Member and an 'Officer in the Preventive Service at Gorran') in that year's list of donors; he gave 'fossils from Fowey and Gorran'. Interestingly, since Peach is generally credited with the first discovery of fossils in Cornwall, the same year's donations also included Cornish fossils from Henry MacLauchlan (1791-1881) FGS (Corresponding Member) 'of the Ordnance Survey', who gave 'fossils from St Austell, Gorran and the north coast of Cornwall and Devon', while the Society's Curator (probably R. Quiller Couch) also donated local fossils.

It was a stroke of luck for Peach (and for the development of Cornish geology) that the 1841 meeting of the British Association for the Advancement of Science (BAAS) was held in Plymouth. The early annual meetings of the BAAS (established 1831) were dominated by geology, and although Peach had never prepared or given a paper in his life, he was determined to tell the scientific establishment about his discoveries (see Peach 1841). He was clearly well received by the geological establishment at Plymouth and he retained fond memories of the meeting until the end of his life (see Smiles 1878 and Davey 1911). He contributed papers to successive annual meetings of the BAAS in Manchester (1842), Cork (1843) and York (1844).

Peach caused quite a stir at the Cork BAAS in 1843 (Rudwick 1985, p. 392). According to Sir Roderick

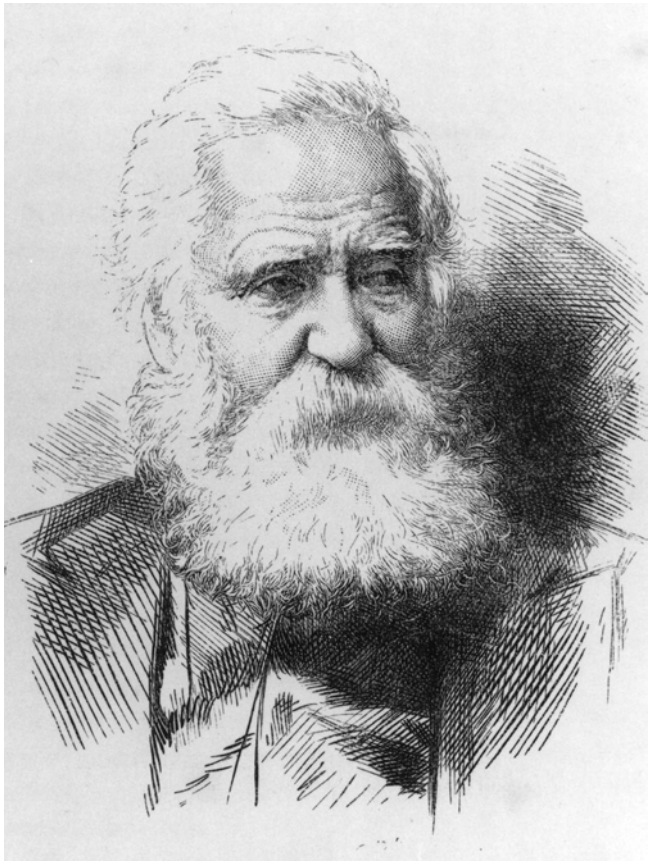

Figure 1. 'Portrait of Charles W. Peach, A.L.S., engraved by C. Roberts' (taken from Smiles 1878, opp. p. 238).

Murchison, who also attended the Cork meeting, Peach's paper 'On the Fossil Fishes of Cornwall' (see Peach 1843, 1844) confirmed 'in a very remarkable manner' the original Devonian interpretation of Cornish rocks made by Murchison and Sedgwick. John Phillips (then Professor of Geology, King's College London) agreed, and compared Peach's fossils with Old Red Sandstone fishes – making Peach's material the first fossil evidence for the equivalence of the Old Red Sandstone with the Devonian succession in south-west England.

A contemporary account of the 1844 BAAS meeting at York praises Peach for his studies, achieved against a background of poor wages and having to support a family (Chambers 1844, quoted by Smiles 1878). Peach so impressed William Buckland (Professor of Geology, Oxford University) that he pressed the Prime Minister, Sir Robert Peel, to find Peach a better paid post in the Customs Service. In 1845 Peach was duly promoted and moved from Gorran Haven to Fowey, where he became Landing Waiter (a customs officer who oversees the landing of goods from vessels).

Donations of Cornish material from Peach to the Society's Museum are recorded in the Annual Reports most years up to 1849, including fossils 'from Gorran Haven' (1841-42), 'of fossil fish' (1842-43), 'of *Orthoceras*' (1844-45), 'from St. Veep' (1845-46 and 1848-49), and 'from Looe' (1848-49).

Acquisition of the main Peach Collection

Much to the Society's regret, in 1849 Peach was posted to northern Scotland. It is therefore no surprise to read in the 37th Annual Report for 1849-50 that the Society purchased from Peach a large collection of well-preserved, well-labelled and well-localised fossils from south-east Cornwall. This collection of 'some thousands of specimens' was bought at a 'moderate price' with funds provided by the President, Sir Charles Lemmon, and three other Society members. The Annual Report states that Peach retained the fossil fish 'pro tem' so that he could show the material to Hugh Miller (the amateur Scottish authority on Devonian fish, of *Old Red Sandstone* fame).

The Society continued to acquire Cornish fossils from various sources (particularly the Cornishman C. Howard Fox FGS, 1836-1922) throughout the nineteenth century. Another famous local geologist, William Pengelly (1812-1894), was inspired by Peach's work and continued to investigate his fossil fish localities. Pengelly's first scientific paper, 'On the Ichthyolites of East Cornwall', was published in the Society's *Transactions* (Pengelly 1849). Pengelly regularly corresponded with Peach in Scotland, keeping him up to date with his Cornish research and seeking advice on collecting (see Pengelly 1897).

A new Museum and development of the RGSC's collection

The purchase of the Peach collection in 1849-50 turns out to have been a key moment in the history of the Society. Although earlier Annual reports contain many references to the need for more space to house the growing collection (a Building Fund had already been established in the 1840s), it was the acquisition of the Peach collection in 1850 that inspired Sir Charles Lemmon to pledge the sum of £300 towards the costs of a new building. This in turn spurred the Society to establish a Building Committee, whose work over the next two decades culminated in the opening in 1868 of the present building (Figure 2).

One of the main exhibits in the newly opened building was a selection of Cornish fossils, chiefly from the Peach collection, 'taken from drawers in which they have long sat'. Clearly the Society's Council was proud of its modern facilities, and in spring 1869 they persuaded Peach to return to Cornwall to spend a month in the Museum, identifying and arranging his own collection – almost twenty years after departing

Figure 2. Premises of the Royal Geological Society of Cornwall, St John's Hall, Penzance, built for the Society in 1868, and now known as the Cornwall Geological Museum. Photographed by David Freeman, July 2002.

for Scotland. The Annual Report for 1869-70 somewhat overstates matters by suggesting that Peach's visit 'will probably form an epoch in the history of geological science', but it nevertheless confirms the high regard in which the Society held his fossil collection.

The 1869-70 Annual Report records that, 'at Peach's request', a 'duplicate set' of Cornish fossils was made up from his collection and sent to E. Ray Lankester (1847-1929, Devonian fish expert, and later Director of the Natural History Museum in London). The same Annual Report records Lankester's initial reaction to the material, i.e. that while there was 'much of interest', the material was 'too fragmentary' to say more without further study. Two years later, the Annual Report for 1871-72 states that a report from Lankester was then 'expected soon', although I know of no such report surviving in the Society's archives.

Lankester's involvement in the early 1870s is significant because he had only recently helped to settle whether or not fossil fish really were preserved in the Devonian rocks of Cornwall. In the early 1850s, the identification of fossil fish in the Society's collection had been questioned, first by the palaeontologist Frederick M'Coy (*c*.1823-1899, Professor of Mineralogy and Geology, Queen's College, Belfast), who considered the supposed fish material to be the remains of sponges (for which he erected the genus *Steganodictyon*). Clark and Hughes (1890) record that M'Coy accompanied Adam Sedgwick (Woodwardian Professor of Geology, Cambridge University) on a visit to Cornwall in June 1851, to study Palaeozoic sequences. The weather was poor and inhibited fieldwork, so Sedgwick and M'Coy presumably took the opportunity to visit the Society's Museum and examine the (recently purchased) Peach collection. Clearly M'Coy was not convinced that the fragmentary remains were of fish, and said so in a paper published later that year (M'Coy 1851). Then in 1855 the German palaeontologist Ferdinand Roemer (1818-1891) put forward another alternative, suggesting that the fossils might be the remains of cephalopods (see Pengelly 1897, p. 39). However, neither Peach nor Pengelly, who had both studied the material more closely than anyone else, ever doubted that the fossils represented fish. Their views were eventually vindicated in 1868 by the intervention of three eminent palaeontologists: T.H. Huxley (*in* Woodward 1868), Henry Woodward (1868) and E. Ray Lankester (1868) all supported a fish origin for the Cornish material. The taxonomic consequences of these disagreements have been discussed by Tarlo (1961).

The 1874-75 Annual Report noted that an RGSC member, Benedict Kitto FGS, had that year carried out some relabelling of the Peach collection, by copying (but retaining) Peach's original labels. More worryingly, Kitto also asked the permission of Council to exchange the 'many duplicates' of Cornish fossils with dealers, collectors and other museums 'in order to increase the fossil collection at little expense'. Whether any exchanges proceeded is not recorded.

A notable event in the history of the Society in general, and the Peach collection in particular, was a ten-day visit to the Museum in the summer of 1877 by Robert Etheridge Snr FRS (1819-1903), then Palaeontologist to the UK Geological Survey. In the RGSC President's Report for that year, Sir Warrington Smyth (himself an ex-Survey man) gave a lengthy review of ideas about the Devonian System; he stressed the significant role played by the Society's collection in the past and its potential importance for future studies of European correlation. Etheridge was highly complimentary about the Society's collection of Cornish fossils, describing the Devonian collection as 'unrivalled as a series of local organic remains'. At the time, the Devonian material occupied five table-cases and Etheridge noted that much work

remained to be done; he recognised some new forms and corrected some names on labels. Etheridge was much less impressed with the Society's general fossil collection, and on his recommendation the Council agreed to spend at least £50 on acquiring a general stratigraphic series of British fossils.

With the Council's agreement, Etheridge purchased about 1,000 fossils (sources unrecorded) on behalf of the Society. He returned to Penzance for two weeks in October 1878 to arrange this collection in a new wall case, and was made an Honorary Member of the Society for his trouble. Etheridge was clearly still impressed with the Peach collection and the Society's other Cornish fossils, since he is quoted in the Annual Report for 1877-78 as follows: 'No series of Devonian fossils in Britain is equal to that now arranged in your Museum'. He encouraged the Society to build on this strength, and at the following Annual General Meeting it was resolved to employ a paid Curator for two days per week to produce a catalogue and make the Museum more attractive to visitors.

In November 1880, the Annual Report for 1879-80 boasted that the Society now possessed 'one of the finest provincial museums in the Kingdom', with the Peach collection at its heart. In the same year, Peach himself made his last donation of fossils to the Society before his death in 1886.

Subsequent curation of the Peach Collection

In terms of the curation of the Peach collection, a major development took place in the 1890s. The RGSC's Honorary Curator Joseph Henry Collins (author of *Handbook to the Geology and Mineralogy of Cornwall and Devon*, 1871) began to number, label, catalogue and mount the Cornish material (mostly ex-Peach) on wooden tablets (Figure 3); he also published a series of papers in the Society's *Transactions* called 'Notes on Cornish Fossils' (referring to many specimens by catalogue number). By November 1901, in the Annual Report for 1900-01, Collins could report that 'catalogued and mounted specimens have now reached no.1743'. After Collins's death in 1916, the Society's collection of Cornish fossils remained unchanged until a programme of improvements was initiated in the early 1990s.

The Annual Report for 1916-17 pays tribute to the work of both Etheridge (forty years previously) and Collins in creating 'the present arrangement' of the Society's fossil collection, and emphasised again the importance of Peach's Devonian fish. Nearly thirty years later, just after World War II, the Rev. F.C. Fox contributed a historical survey to the Society's *Transactions*, under the title 'The Royal Geological Society of Cornwall and Fossils' (Fox 1946), in which he identified Charles Peach, Howard Fox and J.H. Collins as key figures in building up the Society's collections. Collins was singled out for his work in cataloguing and attaching the fossils to tablets, thereby making them available for study.

This brings our story to within living memory. It is clear that until the rescue curation of the 1990s and the accompanying renovation of the Society's premises, little changed after Collins's death. The Annual Reports refer to the occasional cleaning of display cases and their contents, and rare visits by academic researchers (e.g. Michael House, in 1956 and 1957, then of Durham University). But it was Collins's numbering system, hand-written labels and characteristic blue-papered tablets that provided the basis for the current collections management regime (Figure 3). It is a credit to Collins's curation that so much material survived to the present day; the specimens and their accompanying data provide a vital link with the pioneering work of Charles Peach and the dawn of Cornish palaeontology.

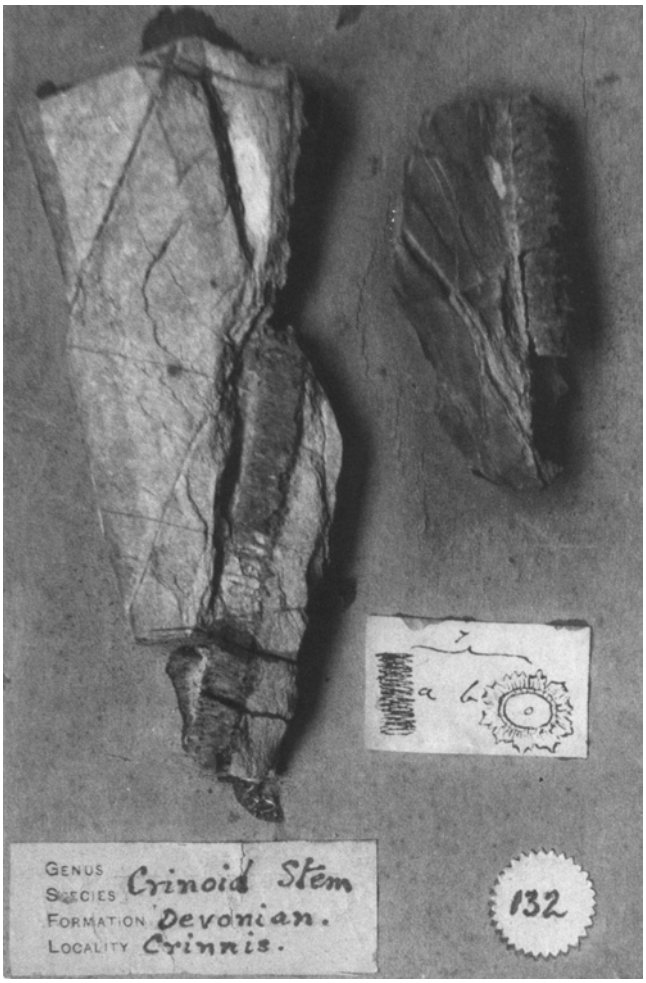

Figure 3. Typical example of the Charles W. Peach Collection of Devonian fossils, mounted on labelled, wooden tablets. No.132, 'crinoid stem' from Crinnis [Carlyon Bay, near St Austell, Cornwall]. Photographed by David Freeman, July 2002.

Epilogue

And what of Peach after he left Cornwall? His contribution to the development of geology was far from over. He became well-known to his geological contemporaries in Scotland, professional and amateur alike. He shared a passion for Devonian fish with Hugh Miller and Robert Dick (the 'Baker of Thurso', see Smiles 1878), both of whom became his friends. Peach also played an important supporting role in helping to decipher the complex geology of the Northwest Highlands: he discovered the first fossils in the Durness Limestone and, in the summer of 1858, accompanied Sir Roderick Murchison (then Director General of the UK Geological Survey) on a tour of several key localities in northwest Scotland. Peach's contribution is referred to by David Oldroyd in his splendid book *The Highlands Controversy* (Oldroyd 1990), while his friendship with Robert Dick has been covered in detail by Smiles (1878).

Charles Peach was father to an even more illustrious geologist, Ben Peach (1842-1926), whose life's work for the UK Geological Survey, mostly in Scotland and in collaboration with John Horne (1848-1928), has become the stuff of legend – particularly their famous joint memoirs on the Northwest Highlands and the Southern Uplands. Oldroyd (1990, p. 268) records that Sir Roderick Murchison personally arranged for the young Ben Peach to study science at the Royal School of Mines in London, as a gesture of thanks to his father for discovering the Durness Limestone fossils.

In the year 2000 the Royal Geological Society of Cornwall marked the bicentenary of Charles Peach's birth by erecting a commemorative plaque on the Old Custom House at Gorran Haven. Despite the determined efforts of Christine North (Cornwall County Archivist) and Professor Colin Bristow (pers. comm.), it has not proved possible to identify with certainty the Gorran Haven house where Peach and his family lived from 1834 to 1845, and where Ben was born in 1842.

Acknowledgements

I was privileged to be curatorial advisor to the Royal Geological Society of Cornwall from 1990 to 1995. My too infrequent trips to Penzance during that period not only introduced me to Peach's material and the history of the RGSC's collection, but also brought me into contact with a dedicated band of Society members committed to rescuing their museum from decades of benign neglect. The exertions of the late Ivor Moyle had already laid important foundations for a recovery, and it was a pleasure to encourage Ivor's successor Honorary Curators, Martin Mount and David Freeman, and their small team of volunteers, to continue the work. At all stages during my association with the Society, my friend Colin Sparrow (Chairman of the Museum Committee, and later President of the Society) was tireless in his devotion to the cause.

I am grateful to David Freeman for supplying two photographs (Figures 2 and 3) and to Dr Elizabeth Loeffler (Department of Earth Sciences, University of Bristol) for key information.

I thank Norman Butcher (Edinburgh), Professor Colin Bristow (St Austell, Cornwall) and Philip Doughty (then National Museums & Galleries of Northern Ireland) for their helpful comments on an earlier draft of this paper.

References

CHAMBERS, R. 1844. [Review of the 1844 York meeting of the British Association for the Advancement of Science]. *Chambers's Journal*, 23rd November 1844.

CLARK, J.W. and HUGHES, T.McK. 1890. *The Life and Letters of the Reverend Adam Sedgwick* (2 vols.). Cambridge University Press, Cambridge.

DAVEY, F.H. 1911. Charles William Peach, A.L.S. *Transactions of the Royal Cornwall Polytechnic Society* **1** (3), 469-499. [Reprinted by Royal Geological Society of Cornwall, September 2000.]

FOX, F.C. 1946. The Royal Geological Society of Cornwall and Fossils. *Transactions of the Royal Geological Society of Cornwall* **17**, 247-255.

LANKESTER, E.R. 1868. On the Discovery of the remains of Cephalaspidian Fishes in Devonshire and Cornwall; and on the identity of *Steganodictyum*, M'Coy with genera of these fishes. *Quarterly Journal of the Geological Society of London* **24**, 546-547.

M'COY, F. 1851. On some new Devonian fossils. *Annals and Magazine of Natural History*, ser.2, **8**, 481-489.

OLDROYD, D.R. 1990. *The Highlands Controversy*. University of Chicago Press, Chicago and London.

PEACH, C.W. 1841. An Account of the Fossil Organic Remains found on the South-east Coast of Cornwall, and in other parts of the County. *Transactions of the Royal Geological Society of Cornwall* **6,** 12-23.

PEACH, C.W. 1843. On the Fossil Fish of Cornwall. *Transactions of the Royal Geological Society of Cornwall* **6,** 79-83.

PEACH, C.W. 1844. On the Fish of Polperro in Cornwall. *Report of the British Association for the Advancement of Science* 1843, 56-57.

PENGELLY, W. 1849. On the Ichthyolites of East Cornwall. *Transactions of the Royal Geological Society of Cornwall* **7** 106-108, 115-120.

PENGELLY, H. 1897. *A Memoir of William Pengelly*, etc. John Murray, London.

RUDWICK, M.J.S. 1985. *The Great Devonian Controversy*. University of Chicago Press, Chicago.

SMILES, S. 1878. *Robert Dick, Baker of Thurso: Geologist and Botanist*. John Murray, London.

TARLO, L.B. 1961. *Rhinopteraspis cornubica* (McCoy) with notes on the classification and evolution of the pteraspids. *Acta Palaeontologica Polonica* **6**, 367-402.

WOODWARD, H. 1868. Fish remains in the Lower Devonian of South Devon and Cornwall. *Geological Magazine* **5**, 247-248.

A LARGE SCALE 'MICROCLIMATE' ENCLOSURE FOR PYRITIC SPECIMENS

by Adrian M. Doyle

Doyle, A.M. 2003. A large scale 'Microclimate' enclosure for pyritic specimens. *The Geological Curator* 7(9): 329-335.

Current environmental conditions within the Palaeontological Department of The Natural History Museum are unsuitable for the safe storage of humidity sensitive, actively pyritising plant specimens. The collections cabinets, timber framed with laminated composite doors, offer a limited amount of buffering against small environmental fluctuations, but were not designed to compensate for larger humidity changes. As an alternative to purchasing a costly environmentally controlled cupboard, a department standard free standing collections cabinet was wrapped in a moisture resistant barrier film, Marvelseal® 470, to provide a large scale 'microclimate' using Art-Sorb® as an environmental control. This wrapped cabinet currently provides a favorable humidity level of approximately 45% with a range of +/- 4.5% relative humidity, compared to the general collections area of 50% with a range of +/- 16.9% during the four month trial period. The cabinet has provided space for the installation of over three hundred humidity sensitive plant specimens whilst a systematic long term conservation programme can be undertaken. In addition, it provides a suitable storage area after conservation prior to the installation of new environmental control equipment.

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Introduction

The Palaeontological collections of the Natural History Museum (N.H.M.) contain specimens that are sensitive to changes in relative humidity, specifically those from the British Lower Carboniferous and the London Clay horizons.

Of these, over 300 fossil plant specimens have been identified as requiring conservation to prevent significant deterioration due to iron pyrite decomposition; the so-called 'pyrite decay'.

These specimens, which contain microcrystalline iron pyrite, are sensitive to high humidity, specifically over 60%. Current storage conditions within the Palaeontology Building are inadequate to ensure that humidity is maintained at suitable levels (i.e. between 40% and 60%) which reduces the risk of pyrite decay (Newman 1998, Waller 1990).

Traditionally, microclimate enclosures such as desiccators and Stewart's® boxes (Figure 1) are used to place specimens in more suitable environmental conditions.

More recently, microclimate enclosures made from barrier films (Burke 1996) sealed with heat sealers have been successfully used on humidity sensitive reptile material from the Oxford clay.

However, the sheer number and volume of specimens needing attention, combined with limited expansion space has prevented their widespread use within the collections. A solution had to be found that would provide a suitable stable environment for these specimens, thereby slowing down the rate of reaction, to allow sufficient time for a long-scale systematic conservation programme to be undertaken.

Background

There are many well-documented examples which show that high and fluctuating humidity levels can cause pyrite decay and damage due to volume expansion of hygroscopic minerals within certain fossil groups. This can result in severe irreversible damage to specimens, surrounding matrix and labels, (Cornish and Doyle 1984, Stooshnov and Buttler 2001).

A typical example of pyrite oxidation can been seen in this specimen of *Lepidostrobus fimbriatus,* which shows the characteristic yellow and white crystalline growth decay products completely destroying features of the specimen (Figure 2).

Due to the effects of age and serviceability, the N.H.M. Palaeontology Buildings humidity,

Figure 1. Specimens placed in a range of Stewart's® boxes lined with Plastazote® and with Art-Sorb® for humidity regulation.

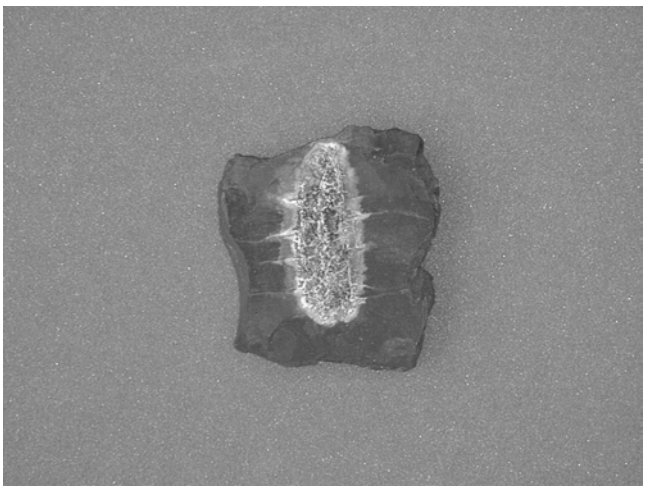


Figure 2. *Lepidostrobus fimbriatus* V12574 with typical pyrite efflorescence.

ventilation and air-conditioning (H.V.A.C) system is unable to provide adequate temperature and humidity control in the collections storage area. Fortunately, the N.H.M. has recently secured funding from the Treasury and is addressing this situation.

An immediate problem was apparent however when 300 palaeobotanical specimens were identified as requiring urgent attention as they were actively decomposing due to the unsuitable storage environment.

Figure 3. A standard free standing collections cabinet.

The chosen solution was to alter a standard collections cabinet (Figure 3) to provide environmentally suitable conditions for the 300 specimens at particular risk.

This was the preferred option for several reasons but specifically on the grounds of cost, the currently effective manufacture of microclimate enclosures using barrier films, and the need to act quickly.

The procedure

Since this was an experimental project, three discrete stages of work were devised for the cabinet upgrade prior to installation of any specimens:

1. Improve the structure of the existing cabinet with closer fitting doors and improved seals to minimize air leakage

Due to the age and the composite nature of construction materials, the cabinet had slightly warped over time and the two doors did not closely fit the frame. The Museum's in-house carpenters were able to 'square up' the cabinet and to realign the doors. This involved attaching steel angle metal bracing to the topmost edges to pull the cabinet into 'true' and adjustment of the door hinges to allow the doors to close against each other as precisely as possible.

2. Identify a monitoring system to compare the exterior and interior environments of the cabinet

Since it was the intention to keep the cabinet doors closed as much as possible in order to maintain a constant environment, experiments were undertaken to establish the suitability of radio telemetric relative humidity and temperature monitors.

Trials were carried out using a Meaco® 458MHz telemetric data logger. Unfortunately, it became apparent immediately that the aluminium layer of the chosen barrier film would not allow radio waves to penetrate sufficiently to transmit a signal to the receiver station situated three floors below.

To solve this problem, a Rotronic Hygroclip® a humidity and temperature probe with an accuracy of 1% relative humidity (Figure 4), was placed in the centre of the cabinet with the cable running through a small hole drilled in the cabinet wall. This was sealed with self-curing silicone rubber (to prevent compromising the environment) and allowed the radio transmitter to be placed alongside the cabinet, outside the barrier film.

As an additional precautionary measure during the experimental stage, Tinytalk® data loggers, accurate to 3% relative humidity and programmed to take readings every 90 minutes, were placed inside and on top of the cabinet for additional statistics and as a backup for the radio telemetry unit.

As part of a standard departmental environmental monitoring programme, information from the centre of the cabinet would be compared on a monthly basis to the open storage environment in the general storage areas to determine its effectiveness.

3. Enclosure of the cabinet in a barrier film

After considering other options including wrapping the cabinet with polyethene sheeting and various brands of barrier film, it was decided to wrap the cabinet with Marvelseal® 470 which is a bonded laminate composed of polyethylene, aluminium and polypropylene. This barrier film was chosen specifically because of its moisture - resistant properties, strong puncture resistance, tear strength and low cost (Burke 1996) as well as previous experience; it is also part of a current research project by the P.C.U. and Imperial College with regard to its heat sealing properties.

Prior to wrapping, 10 cm wide strips of Plastazote® were attached to the edges and corners of the collections cabinet with bonded fabric self-adhesive Gaffa® tape. This was used to help prevent the barrier film from puncturing on the cabinet sides and corners and to allow the barrier film to be pulled taught over the cabinet (Figure 5). Although not conservation grade, this tape was chosen after testing since it had good adhesion to both the Plastazote® and the cabinet laminate (a conservation 'grade' substitute is currently being sought).

The design of the barrier wrapping was subject to much change due to the size of the cabinet with exterior dimensions being 2.13 metres high, 1.30 metres wide and 0.76 metres deep; internally approximately two cubic metres volume.

The original plan was to manufacture a 'sleeve' by sealing the edges of the sheets of pre-cut barrier film with a Crossweld® heat sealer, as is common practice when making barrier film microclimate enclosures. However this proved unworkable due to the

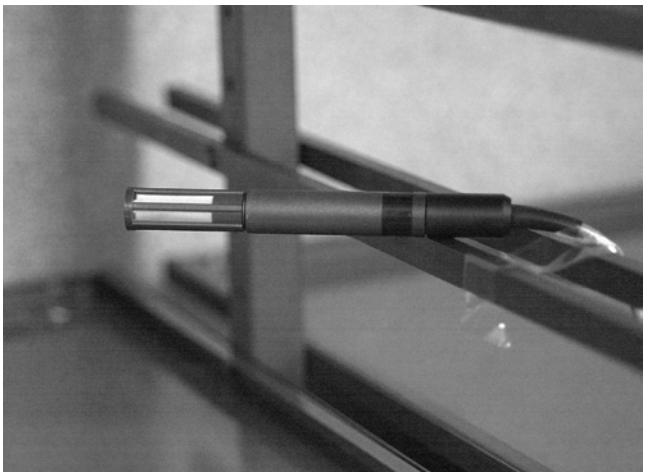


Figure 4. Hygroclip® positioned in the centre of the cabinet.

Figure 5. Applying Plastazote® to the cabinet sides with Gaffa® tape.

Figure 6. Gaffa® tape was used to secure the barrier film to the floor.

dimensions of the heat sealer and the proportions of the cabinet and was soon abandoned.

The chosen alternative approach was to cover the cabinet with the barrier film from the roll in a style that would minimize the need for sealing the edges, since the seals would tend to be the weakest points and compromise the integrity of the environment.

A simple plan was adopted that used the complete width of the barrier film by wrapping the cabinet with only two lengths of film. Since the cabinet was free standing, it was a simple task to place film from one side to the other and back to front.

The width of the roll was sufficient to enable door flaps to be created without the need to make additional seals. Since there was a need for access, the front door flaps could not be permanently sealed. It was also decided to allow an overlap of 20 cm to attempt to limit moisture ingress (this was also limited by the width of the roll).

Since the cabinet could not be lifted, permanent seals to the vinyl covered floor and between the barrier film sheets were secured with Gaffa® adhesive tape (Figure 6).

To enable access to the cabinet interior, Velcro® strips were placed along the edges of the barrier film where flaps overlapped the cabinet doors (Figure 7). When pressed together tightly it was hoped that this would act as a suitable seal.

Environmental Control Measures

Although the barrier film would act as a humidity barrier, the actual humidity level in the cabinet needed to be reduced and stabilized to a level more suitable for the intended collection.

Although it is usually recommended that pyrite-damaged specimens are placed in low humidity levels,

Figure 7. Applying Velcro® to allow access via the door 'flaps'.

specifically 40% or lower, it was decided that the shale and slate composition of the specimens might suffer from cracking. A compromise humidity of 50% was therefore chosen which was not excessively dry but would be a significant improvement on the general collection environment. In addition, the non-fluctuating nature of the new environment would also be an important advantage over the existing environment.

To provide this humidity level and to help maintain a stable environment, a cassette of Art-Sorb® humidity control agent, purchased pre-conditioned at 50% relative humidity and sufficient for controlling the environment for a volume of two cubic metres, was placed inside the cabinet (Figure 8).

Art-Sorb® is available in a variety of forms, namely sheet, cassette and beads. The significant advantages over silica gel is that it is much easier and safer to use, can both absorb and desorb moisture in a closed environment and can be purchased at a range of humidity levels between 40% and 70% relative humidity.

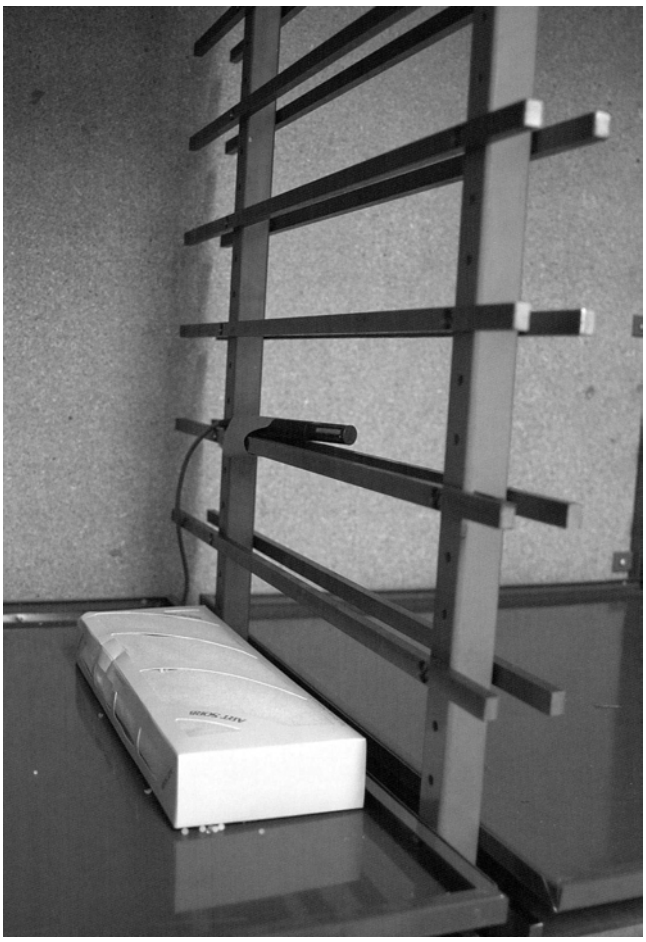


Figure 8. Art-Sorb® cassette used to provide humidity control.

Subsequently, if after monitoring, the humidity level within the cabinet remained too high, an alternative Art-Sorb® with a lower relative humidity could therefore be substituted. Finally, since this was a working collection requiring access, the long-term effectiveness of Art-Sorb® would be subject to review, since it would have to compensate for the occasional opening and closing of the cabinet doors.

Results

Prior to installing any specimens, a test period of one month was allowed to elapse to enable the environment in the cabinet to level and to adjust the Art-Sorb® if necessary. It was also necessary test to reliability of the telemetric monitoring system (Figure 9).

Although we expected the cabinet to buffer against extreme humidity fluctuation, the results from the initial test were more stable than predicted.

Figure 10a shows a plot of the relative humidity between the inside and outside of the cabinet over a period of 1 month using Meaco Tinytalk® data loggers. July 2000 shows a slight variation between 43%-44% relative humidity in the cabinet (depicted by largely straight line) compared with a high variation

Figure 9. The completed wrapped cabinet with the door flaps sealed.

in humidity of 39%-56% in the general collection area outside the cabinet.

Figure 10b shows the difference in relative humidity between the cabinet and the outside (collection) environment over a four month period. The relative humidity has remained consistently between 40.0%-44.5% (depicted by a largely straight line), a fluctuation of 4.5% in the cabinet compared to 27.6%-61.4%, a high fluctuation of 33.8% in the general collection area outside.

During the test run, the cabinet doors were opened for several 15-minute intervals to monitor the effects on the environment within the cabinet and the ability of the Art-Sorb® to compensate for the differential in humidity. Initial results indicate that the environment in the cabinet returns to the required level after a relatively short time, seemingly in a few hours.

Although it was expected that the results would be favourable, it was originally thought that additional

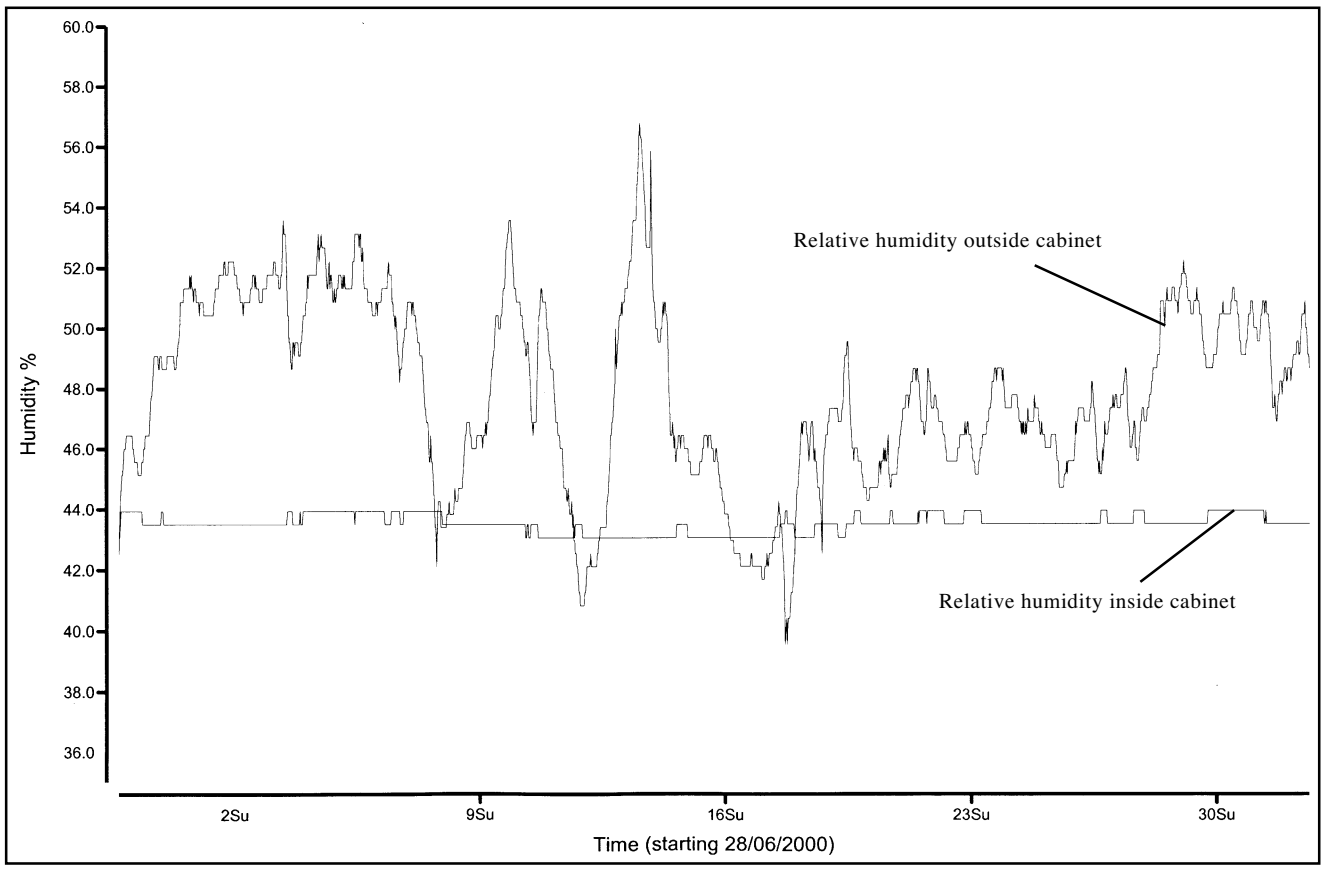


Figure 10a. Plot of the % humidity inside and outside of the storage cabinet measured over a period of one month (July 2000) using Meaco Tinytalk® data loggers.

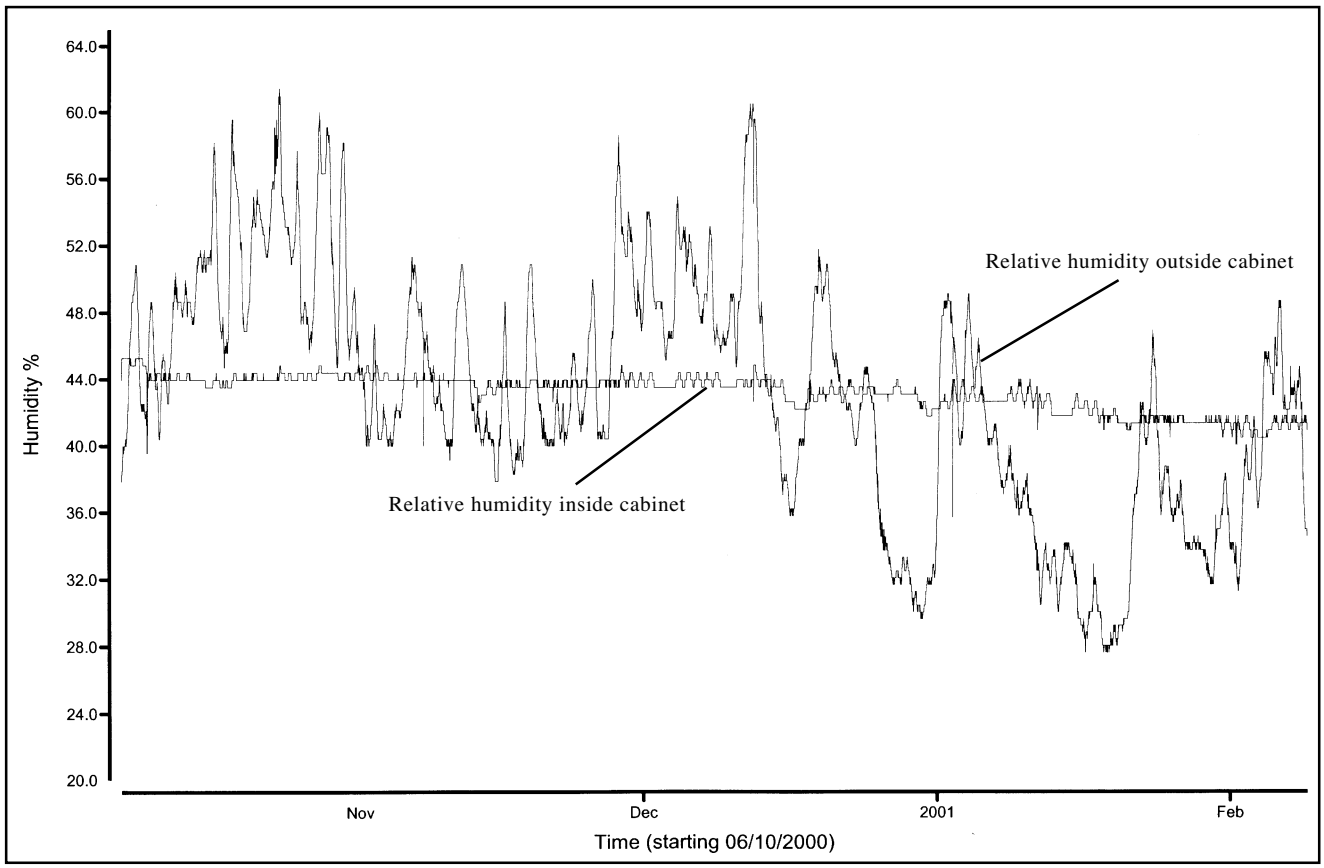


Figure 10b. Plot of the % humidity inside and outside of the storage cabinet measured over a period of four months (late October 2000 - early February 2001) using Meaco Tinytalk® data loggers.

Art-Sorb® or upgrading of the seals would be necessary to maintain the desired humidity level.

After four months, it was concluded that the barrier film and Art-Sorb® were controlling the environment within the cabinet to the desired humidity levels, and a decision was made to commence installation of the three hundred selected specimens.

Discussion

Since the specimens were installed, the cabinet has shown itself to be effective in providing the required low and stable environment, irrespective of the external environmental levels in the department, which is more suitable for the actively decaying pyritic specimens.

In addition, the introduction of the drawers and specimens has not had an appreciable effect on the internal environment. The Art-Sorb® maintains the relative humidity at the desired level and the cabinet 'recovers' from being opened within a few hours. (As a 'fail safe', records are kept of the time and the duration of the cabinet being opened which can be compared with the environmental graphs in case of unsatisfactory levels).

Finally, despite the need to access the collection and the fact that the cabinet is in an often-used corridor area, the barrier film has not punctured or been subject to damage.

The modified cabinet has allowed a systematic remedial conservation programme to be established on the more damaged specimens by providing a suitable store for those specimens awaiting treatment and has not impinged on access to the collections.

If the need arises, it could also provide a suitable store for all humidity sensitive specimens until new environmental control equipment is introduced in the Department under The Natural History Museum's Palaeontology Building Refurbishment project (B.U.R.P.).

Discussion with other conservators and curators suggests that this technique could be adopted for collections requiring a high humidity by using Art-Sorb® pre-conditioned to a higher humidity. Specimens containing an organic component such as sub-fossil bone, which are particularly susceptible to low relative humidity specifically below 40% (Doyle 1987), could be placed in a cabinet with Art-Sorb® conditioned to a higher level.

Another significant factor was that the cabinet cost upgrade was significantly lower than purchasing an equivalent purpose built climate controlled cabinet; the main cost being the staff time (approximately 2 people for a full day), a roll of Marvelseal®, some off-cut strips of plastazote® and a roll of Gaffa® tape.

Before this strategy can be adopted for other collections in the Palaeontology Department, further work is needed to determine the effectiveness of cabinet wrapping for disaster and salvage treatments, in non air-conditioned storage and during specimen transportation.

Acknowledgements

Thanks go to The Natural History Museum Photographic Unit, in particular Phil Hurst, staff from Mansfield Wahl for the Cabinet modifications, Paul Davis (Natural History Museum) for his curatorial skills and especially Dervilla O'Dwyer from De Montfort University for her help during this project.

References

BURKE, J. 1996. *Anoxic microenvironments: a simple guide*. S.P.N.H.C. Leaflet 1(1), 1-4.

CORNISH, L. and DOYLE, A. 1984. The use of Ethanolamine Thioglycollate in the conservation of pyritised fossils. *Palaeontology* **27**(2), 421-424.

DOYLE, A.M. 1987. The conservation of sub-fossil bone. *The Geological Curator* **4**(7), 463-465.

STOOSHNOV, A and BUTTLER, C.J. 2001. The treatment of specimen labels affected by pyrite decay. *The Geological Curator* **7**(5), 175-180.

Appendix 1. Materials and Suppliers

Preservation Equipment Limited, Shelfanger, Diss, Norfolk IP22 2DG, U.K.

- Marvelseal® 470 film
- Crossweld® heat sealer
- Art-Sorb® cassette

Meaco, Unit 8 Smithbrook Kilns, Cranleigh, Surrey GU6 8JJ, U.K.

- Tinytalk®, hygroclip and Telemetric data loggers with supporting software.

RS Components Ltd., PO Box 99, Corby, Northants NN17 9RS, U.K.

- Gaffa® Tape
- Velcro® Tape

Polyforms Ltd., Cherrycourt Way, Stanbridge Road, Leighton Buzzard, Bedfordshire LU7 8UH, U.K.

- Plastazote®

Merck Ltd., Merck House, Poole, Dorset BH15 1TD, U.K.

- Silicone rubber RTV 732

BOOK REVIEWS

Various authors. ***Discovering Geology: the Fossil Focus series (Trilobites, Brachiopods, Bivalves, Corals, Plants).*** **British Geological Survey. Price: £1.95 each.**

These guides, produced by the British Geological Survey, are intended as a basic introduction to the fundamentals of palaeontology and are aimed at wider audiences. Each in the series is dedicated to a specific group of fossils and various specialists were recruited in as technical advisors for each guide. Considered in this review are Trilobites, Brachiopods, Bivalves, Corals and Plants.

Each individual guide is produced on A3 full colour durable glossy card which is folded twice to produce a 14x29.7cm, 6 panel layout. The presentation of information is extremely attractive and they are intended to be both easy to read and easy to digest. The level of detail, in particular with regards to taxonomic information, is kept to a minimum. In terms of their general scientific content they can't really be faulted because they are pitched at such a general basic level and because of the relevant expertise of the people employed as advisors to each project.

There is, however, a bit of variety in terms of the quality of illustration used throughout the series. Watercolour dioramas produced by Richard Bell appear in all of the guides mentioned above (with the exception of corals) and they are used to great affect to give the reader an impression of the palaeoenvironmental setting and mode of life of particular groups of organisms. The coral guide features excellent series of full colour computer generated block diagrams illustrating the development of an atoll around a volcanic island. In the brachiopod guide there is a beautifully drafted graph in full colour showing the relative diversity of brachiopods through time which can easily and effectively be correlated to the colours of a simplified geological map of Britain alongside it. Compare this to the rather simplistic geological column and geological map of Britain in the bivalves guide, which tells the reader nothing really about the history of the group (apart from the fact that they have been around since the Cambrian) and you get the impression that there has been a real missed opportunity there.

Photographs of actual fossil specimens are generally good, although in places they appear rather small on the page and are surrounded by quite a lot of 'white space'. For a publication of this kind the illustrations need to be as big and as clear and unambiguous as possible. In a few areas, however, the photographic illustrations are unfortunately really quite poor indeed. The cross-sectional view of *Lithostrotion basaltiformis*, a Lower Carboniferous colonial rugose coral, does not show the septal structure of the corallum well at all. In fact, the species name *basaltiformis* is actually no longer valid and has now been replaced by *vorticale*. The illustration of *Fungia*, a Recent scleractinian solitary coral, looks as though it has been hastily cut out around its edges and appears small and unimposing on the page. In the plant guide, several of the photographic illustrations could have been enlarged and the specimen of *Cooksonia*, perhaps one of the most important and famous of the early vascular plants known from the Lower Devonian, has been so badly cut out, the main central specimen on the slab is missing the tips of its spore sacs – a key feature of the structure of the plant.

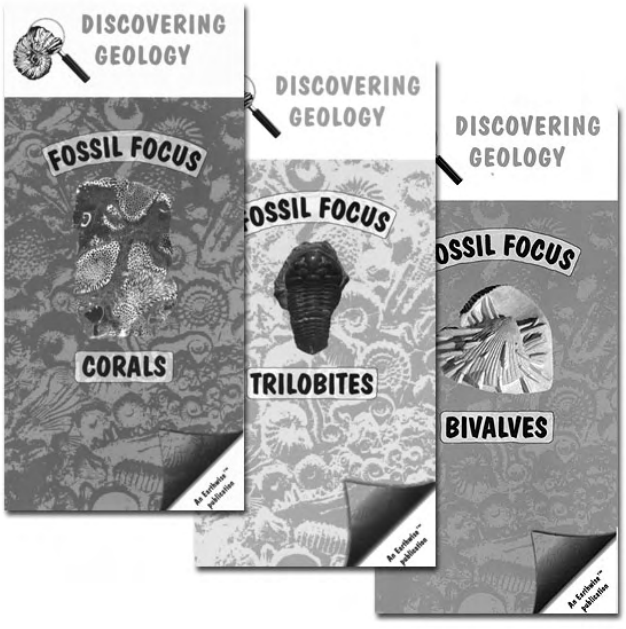
On a more technical note – the corals guide contains a half page section documenting the old coral zonation scheme of Vaughan for the British Lower Carboniferous. The aim here was to show how fossils can be used for biostratigraphy. However, this scheme has largely been abandoned and is not in use any more by anyone working on Lower Carboniferous stratigraphy. Several of the ranges for the coral genera on the scheme are also inaccurately shown. The plants guide also fails to explain how plants might come to be fossilised (which I'm sure is something which might intrigue any member of the general public) and only a brief mention is made to plant remains from the Carboniferous coalfields.

The general layout of the guides is also slightly awkward and cumbersome. These folded A3 cards are not designed to be particularly portable or pocket-sized. It would perhaps, have been more advantageous to produce each guide as a 'partwork' which builds together into a larger folder which, with tasteful design, would look attractive on any bookshelf. This would doubtless have made each of the separate components all the more collectable. I suspect that many in the series, such as ostracods and foraminifera *(not reviewed here),* will not have universal appeal and thus will not sell as well as say trilobites or ammonites. This is by no means a reflection of poorer production – rather a reflection of general public awareness and mass appeal.

Having said all that, the guides are, in themselves, great to look at and read through and they are a superb attempt to educate the general public to the delights of palaeontology, and perhaps pull in a few new converts! Undergraduate students, I'm sure, will also find the guides invaluable when revising for exams. A nice touch to the series is a selection of four or five interesting 'fossil facts' on the last page of each guide. Readers are informed, for example, how corals have been used, through careful counting of their daily growth ridges, to demonstrate that the Earth year during the Devonian consisted of 400 days. Another nice story concerns a group of Native American Indians from Utah who used to collect Cambrian trilobites to wear around their necks as lucky charms. Apparently they were great at warding off both sickness and even bullets!

The real winner for the guides here, however, is the cost – at £1.95 each they really do represent very good value for money and should sell well in any museum shop.

John Murray, Department of Geology, Trinity College, Dublin 2, Ireland. 4th April 2003.



A NEW TOOL FOR FOSSIL PREPARATION

by Paul A. Selden

Selden, P.A. 2003. A new tool for fossil preparation. *The Geological Curator* 7(9): 337–339.

A new tool for the preparation of fossils, especially those which preserve fine detail in soft matrices, is described. Its benefits are that it keeps the working area clear of rock debris whilst working at high magnification under the microscope, is simple to make and use, and is inexpensive.

Paul A. Selden, Department of Earth Sciences, University of Manchester, Manchester M13 9PL, UK. *Received 24th April 2003.*

Introduction

Laboratory preparation of fossils for study usually involves removal of rock matrix to expose parts not initially visible on field collection, and most preparators use mounted needles to prize away the concealing matrix, gently or firmly depending on the hardness of the matrix. Harder rocks require the use of vibrating tools, small circular saws, and other equipment, but for general purposes, and in soft matrices, a mounted needle is generally sufficient. However, this process usually results in a small pile of debris, a micro-scree, covering the very parts one wishes to expose. A swift exhalation of breath is normally suffcient to remove this debris, but this involves taking the specimen away from the microscope and then having to reposition it to continue work. With soft matrices, and at high magnification, this becomes tiresome because the micro-scree builds up rapidly, and using high magnification means a difficult repositioning procedure every few minutes. This is certainly the case with the mainly Mesozoic arthropods preserved in Plattenkalks and other soft lacustrine sediments with which I have been involved over the last few years (e.g. Dunlop and Selden 2003; Selden 1990, 1996, 2001, 2002; Selden *et al*. 1999). A solution to this problem came with invention of the tool described here, and first mentioned briefly in Selden and Shear (1996): the Aeroneedle.

Construction of the Aeroneedle

Construction of the Aeroneedle is simple and straightforward. Only two items are necessary: a small air-pump such as used to aerate water in a small aquarium, and a steel hypodermic needle (Figure 1).

The air-pump

The air-pump needs to deliver only a gentle breeze at the needle tip, sufficient to blow away loose debris, although during this process some degree of further erosion may also occur as the debris effectively 'sand-blasts' the specimen. Debris which is already loose, and other stray matter such as hairs and dust, are removed by the airstream without any physical abrasion with the needle. Indeed, it is useful to use the aistream simply to remove dust and hairs before any microscope observation or photography, whether dry, under alcohol, coated with ammonium chloride, etc. Many different makes and models of air-pump are available from aquarists. The smaller pumps (*c*. 70 l hr^{-1}) work perfectly adequately. It is convenient to add a switch to yurn the pump on and off instead of using the plug (these pumps are designed for continuous operation). The air-pump should be equipped with standard flexible plastic tube which fits neatly over the base of a hypodermic needle.

The hypodermic needle

I use old, re-usable hypodermic needles recovered from an early 20th century general practioner's medical case, although new ones would be equally functional. Re-usable needles have greater strength and, in particular, metal barrels which fit neatly into the flexible tube from the air-pump. Strength is required because the needle has not only to deliver air to the working site but also to pick away at the solid matrix, which may be quite hard. The end of the needle is bevelled, which provides a sharp, wedge-shaped point, which is useful for prizing open cracks in the matrix. The needle size I generally use is XX, but larger or smaller sizes may be used as necessary.

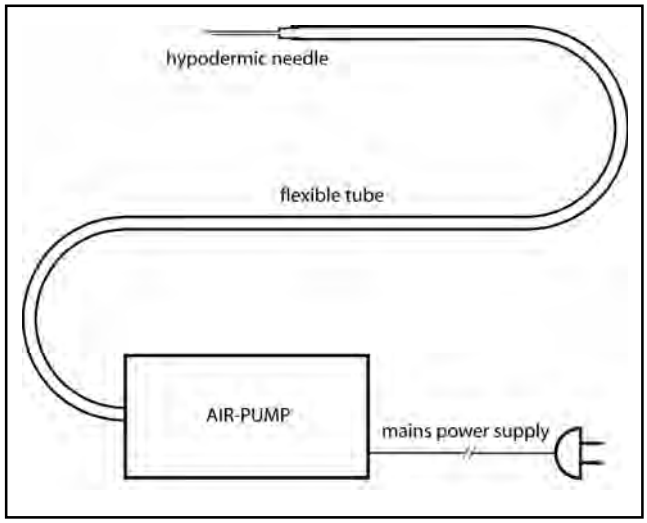


Figure 1. Diagram showing construction of the Aeroneedle.

Should the needle become blunt, it can be replaced with a fresh one or sharpened with a small grinder or emery paper.

The Aeroneedle in use

Figures 2A and 2B show an example of a specimen respectively before and after preparation using the Aeroneedle. The matrix of this specimen is a soft limestone which is easily removed by a scraping action using the bevelled tip of the needle. The continuous air flow keeps the fine detail (e.g. hairs, spines, trichobothria) visible, thus preventing their accidental removal, whilst also removing loose matrix and, to a certain extent, sand-blasting the matrix with already loosened debris.

Harder, less weathered matrices require the needle to be used as a general picking device; the airflow is useful here to clean up the preparation site following removal of more sizeable chunks of rock. A useful enhancement to the aeroneedle if hard matrices are to be prepared regularly would be to provide a more substantial grip. The choice of needle is also important here: one with a hard point and firmness, especially where the needle joins the base, is most useful.

Conclusions

Many hours of preparation on a variety of matrices and types of fossil using this tool have been rewarded with excellent results: exposure of fine morphological details quickly and easily without damage and with the ease afforded by being able to see the results instantly, and without having to stop preparation at regular intervals to blow away loose debris, have made this tool indispensible in this type of preparation work. The new tool is recommended to preparators and other palaeontologists who work with delicate specimens in relatively soft matrices. I should be delighted to hear from others who employ this tool, and learn of their experiences and any enhancements they might suggest.

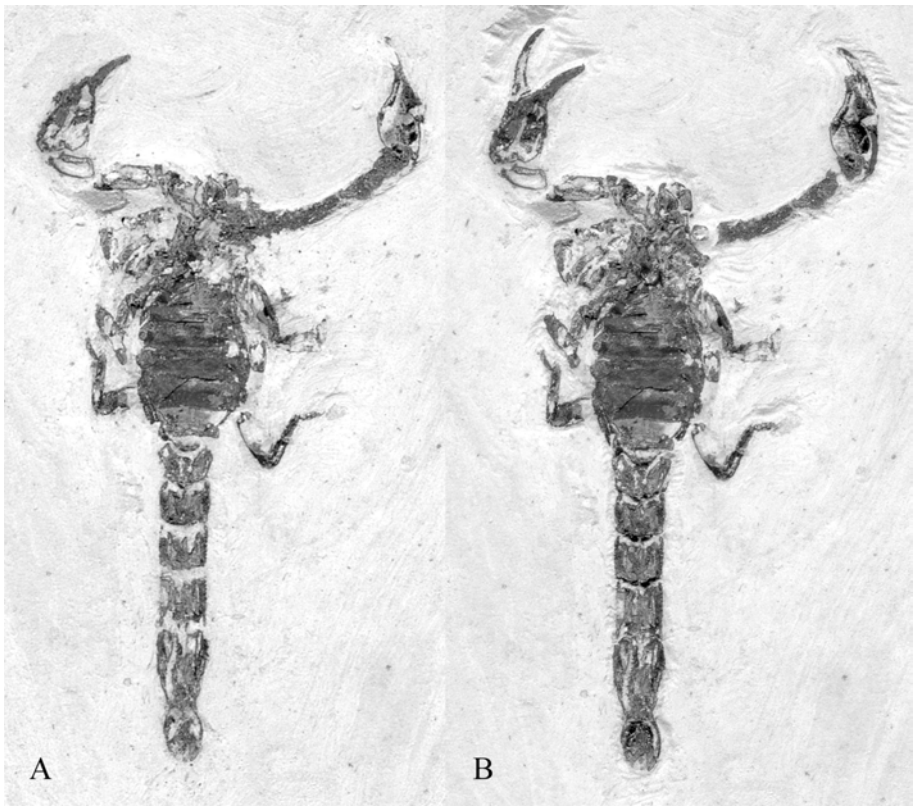


Figure 2. Undescribed scorpion, ventral side, Crato Formation, Chapada do Araripe, Brazil; UMM LL.12484 (x2). A. Before preparation with Aeroneedle. B. After preparation; note sediment cleaned from between tail segments and coxal region, exposure of movable fimger of right chela (on left), and excavation left pedipalp (on right) revealed that, apart from the chela, much of this appendage is faked with coloured wax.

Acknowledgements

I thank Dave Martill and Bob Loveridge (University of Portsmouth, UK), and Dong Ren (Capital Normal University, Beijing), for encouragement that this tool was a novel design and worth sharing with other palaeontologists.

References

DUNLOP, J.A. and SELDEN, P.A. 2003. A trigonotarbid arachnid from the early Devonian of Tredomen, Wales. *Palaeontology*. In press.

SELDEN, P.A. 1990. Lower Cretaceous spiders from the Sierra de Montsech, north-east Spain. *Palaeontology* **33**, 257–285.

SELDEN, P.A. 1996. Fossil mesothele spiders. *Nature, London* **379**, 498-499.

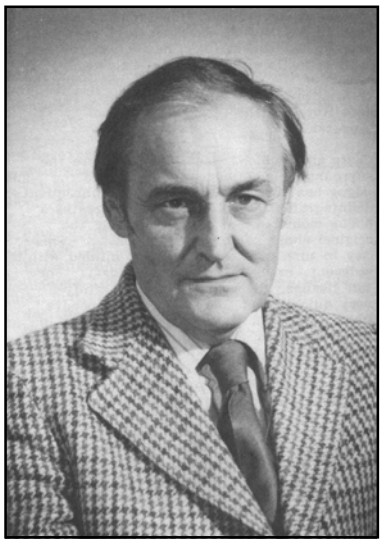
SELDEN, P.A. 2001. Eocene spiders from the Isle of Wight with preserved respiratory structures. *Palaeontology* **44**, 695–729.

SELDEN, P.A. 2002. First British Mesozoic spider, from Cretaceous amber of the Isle of Wight, southern England. *Palaeontology* **45**, 973–983.

SELDEN, P.A., ANDERSON, H.M., ANDERSON, J. M. and FRASER, N.C. 1999. The oldest araneomorph spiders, from the Triassic of South Africa and Virginia. *Journal of Arachnology* **27**, 401–414.

SELDEN, P.A. and SHEAR, W.A. 1996. The first Mesozoic Solifugae (Arachnida), from the Cretaceous of Brazil, and a redescription of the Palaeozoic solifuge. *Palaeontology*, **39**, 583–604.

RICHARD MICHAEL CARDWELL EAGAR 1919-2003



Michael Eagar was born on 26th November 1919 at Thornhill near Wakefield. He attended Aysgarth and Shrewsbury schools before winning a place at Magdalen College, Oxford, to read Classics, switching to Geology halfway through his course. He died 19th February 2003.

The outbreak of the Second World War was suddenly to rewrite the script of his life; whilst in an army camp at the age of 21 he caught cerebrospinal meningitis and, although lucky to live, was left permanently and totally deaf. Michael Eagar was a fighter and in the words of his son "wasn't going to let his sudden isolation put him in the background". After gaining a First at Oxford he moved to Glasgow where he worked under A.E. Trueman on the non-marine bivalves of the Upper Carboniferous, being awarded a Ph.D. in 1944.

In October the following year he joined The Manchester Museum as Assistant Keeper of Geology, (succeeding Dr J. Wilfred Jackson who had held the post since 1907), his title being changed to Keeper in 1957. Michael held this post for 42 years, eventually retiring in July 1987, although often later bemoaning the fact that - had he realised that his contract allowed it - he could have stayed until September!

For all of this time Michael developed his research on freshwater mussels, working initially in northern England, then in South Wales and Ireland, extending into western Europe (Spain and Portugal) and eventually to North America, becoming the world expert in this important field.

Eagar's name became synonymous with non-marine bivalves and with The Manchester Museum, where his collection now comprises approximately 20,000 specimens - including more than 500 status specimens. From 1976 to 1977 Michael was also Acting Director, and from 1977 until his retirement, Deputy Director of The Manchester Museum.

Michael's retirement did not mean the end of his research. Right up until his death he continued to publish new research. His final paper (his 101st, and which, he promised us, would be his last!) will be published in the next issue of the *Geological Journal* is a monumental work: in many ways a summary of his life's work.

But Michael will be remembered for much more than his research and for his huge contribution to the University of Manchester. He was the archetypal University eccentric, absent-minded and totally engrossed in his current research. Many anecdotes are related, most of which seem to include an enormous bunch of keys. He was also a charming man and a warm man, full of respect for others and respected by all in return. His particular sense of humour is evinced by his own parody of Carroll's *Father William*:

You are old, Dr Eagar, a student can tell,
And your hair has become very white.
Yet you work all the day and the evening as well,
And they say you work much of the night.

In my youth, I replied, I examined with care
The dark life of the freshwater clam.
I measured each shell when I came up for air,
And then had it on toast with smoked ham.

Michael received many honours for his work, including the Daniel Pidgeon Fund (1943) and the Lyell Fund (1952) of The Geological Society, the Silver Medal of the Liverpool Geological Society (1962), the John Phillips Medal of the Yorkshire Geological Society (1970) and the degree of D.Sc. from Glasgow University (1969). He was made Life Member of the Manchester Geological Association.

He is survived by his wife Enid, by their two children, Richard and Jennifer, and by four grandchildren.

John Nudds*

(*I am indebted to Michael Bishop s article published in *The Geological Curator*, v. 4, 1986 from where the portrait is taken, and to his son Richard for providing additional information.). This article is reproduced with the kind permission of the Geological Society.

GEOLOGICAL CURATORS' GROUP

28th Annual General Meeting

5th December 2001 at the Oxford University Museum, Parks Road, Oxford.

1. Apologies for absence

Received from Andrew Newman, Mark Evans, Mike Taylor, Camilla Nichol, Roy Clements, Rosemary Roden, Helen Fothergill, Margaret Green.

2. Minutes of the 26th and 27th Annual General Meetings held in 1999 and 2000

Minutes of the 26th AGM held at Trinity College, Dublin on 4th December 1999. Accepted as a true record of the meeting. Acceptance proposed by Tony Morgan, and seconded by Nigel Monaghan.

Minutes of the 27th AGM held at the Yorkshire Museum, 4th December 2000. Accepted as a true record of the meeting. Acceptance proposed by Mick Stanley, and seconded by Paul Ensom.

3. Matters arising

None.

4. Chairman's Report from Tom Sharpe

It has almost become tradition for every retiring Chairman of GCG to comment on the rapidity with which his three years have passed. I see this as a reflection of how active the Group is; it keeps its Chairman so busy that he no longer notices the passage of time. Or, it could just be age.

During this time, the Group celebrated its 25th anniversary, and in the course of our celebrations, I was reminded me that while GCG was formed through a concern for the standards of care of geological collections, it was most concerned at the time with the fate of geological *curators*. Then they were seen as an endangered species, and, as far as I can see, with a few notable exceptions, geological curators are still close to the brink of extinction in some habitats. Pressure of work and widening breadth of responsibility means that, increasingly, curators are spending more time away from collections; who is doing collections research these days? In addition, geology, along with other natural science collections, is still typecast as Cinderella, and we still have a long way to go to counteract the arts bias of so many of our museums' governing bodies, and to achieve the resources needed to care for our natural science collections. This year, Glenys Wass, our Recorder, has circulated a questionnaire to museums with geological collections so that we can see whether or not things have improved for geology in museums since Phil Doughty's ground-breaking survey of 20 years ago. We should see the results of this new survey early in 2002. But my gut feeling is that we have gone backwards, and not forwards. Phil's survey highlighted the large number of geological collections not in the care of a geological curator; I doubt that the situation has improved. I hope I will be proved wrong when Glenys publishes the results of her survey.

As ever, GCG Committee has discussed, and been in correspondence with, institutions where we believe geological collections deserve better treatment. A case in point is the plan by Nottingham City Council to remove their natural history collections from Wollaton Hall. We have expressed reservations about the outline strategic plan for the museum and we now await a view of the final project plan. We have also expressed our concern for the future of the collections at the Cornwall Geological Museum in Penzance. The museum has now closed to the public and is looking to vacate the present building and for a new home for the collections.

There have been some steps in the right direction, however. In my report last year I referred to our concerns that Peterborough Museum was without a geologist to care for the important palaeontological collections there. They are now in safe hands; our Recorder, Glenys Wass, took up the post of Collections Manager at Peterborough in February. We now have Philip Doughty on the British Geological Survey Collections Advisory Committee, and I hope that through Phil, GCG can help give BGS the curatorial advice it requires. I hope that we will hear more about the progress of BGS's ambitious plans to have a public access database for all their collections ready within the next year or two. We have been invited to nominate a representative to sit on a new advisory panel for natural history collections which is being established by Birmingham Museums and Art Gallery, and I am delighted that Paul Smith from the Lapworth Museum has agreed to act on our behalf. We have also written in support of plans to establish a local museum in Jarim in Brazil to house fossils of the Santana Formation from that region.

There are still many challenges ahead for the Group, amongst which are several important issues arising from the very successful meeting on ethics held in Manchester earlier this year. These are being followed up, and I hope that we shall be in a position to take soundings from the membership early in the New Year. There is also a move for the merger of the natural science specialist groups. BCG and NSCG are starting to look at how they might combine as one organisation and there has been some suggestion that GCG should join with them in this merger. This was discussed at our last Committee meeting, and the feeling was that GCG should remain a separate organisation, at least for the time being, but that we would sit in on the discussions between BCG and NSCG so that we are fully aware of the issues. Your Committee will keep a close eye on progress and report back to the membership at an appropriate stage. GCG maintains close

links and enjoys a good relationship with BCG. We are fortunate that we have Steve Thompson who sits on both Committees as our common link.

GCG has always been lucky to have Officers and Committee Members who are committed to the Group and who put in a lot of their spare time to keep the Group running smoothly; this year is no exception. I would like to express my thanks to all of my colleagues on Committee for all they have done on behalf of the Group during my Chairmanship and for putting up with ever lengthening committee meetings.

Mandy Edwards, as Secretary, keeps us organised, and Andy Newman, our Treasurer, keeps us in cash. Both are retiring at this meeting, having served the Group for 8 years and 12 years respectively. I would like to thank them for all they have done on behalf of GCG over the years. Steve McLean, our Programme Secretary, provides us with a full and busy programme of seminars, workshops and study visits. This year has taken us to Manchester for a very (perhaps too) lively meeting on ethics and the trade organised by John Nudds; to the Natural History Museum for a workshop on identifying bivalves with Jonathan Todd and for a joint meeting with HOGG on 150 years of the Geological Museum; and of course, here to Oxford for our AGM. I am grateful to Steve for all his hard work, to all the local coordinators who have helped to put the programme together and to all our speakers. Our now annual overseas study tour this year went further afield, to the American Museum of Natural History in New York. Ten members (8 from the UK, 1 from Ireland, and 1 from the USA) had a very enjoyable and informative tour of the museum, its facilities and its magnificent collections. We are especially grateful to Chris Collins, now Director of Collections at the AMNH, for arranging our visit and to all of his colleagues for making our New York trip such a success. A special vote of thanks is due to Ros Gourgey, who organises all our overseas study visits, for arranging our travel under the difficult circumstances following the events of 11 September.

Patrick Wyse Jackson continues to produce and distribute regularly *The Geological Curator*, a quality journal of which the Group can be proud. To the membership I say: remember that it is there for publishing on all aspects of geology in museums, from full papers to short notes, so please consider using it to publish on your curatorial work and collections research (if you get the time to do any). And don't forget the exceptionally useful *Lost and Found* column which has proved its value over the years in locating and publicising collections.

As I mentioned earlier, our Recorder, Glenys Wass, has been busy this year with the questionnaire which by now, I hope, all of your museums will have returned, and she is now turning to the task of interpreting the results. Tony Morgan, our Minutes Secretary, somehow manages to keep a true and accurate record of our meetings and represents GCG on the Geoconservation Commission. We have been looking at ways to improve our website, currently hosted at Manchester University, and Camilla Nichol has been, and will continue to be, busy with that in the coming year. Thanks, too, to Committee and Coopted Members Giles Miller, Helen Fothergill, John Nudds, Steve Thompson, Susan Cooke and Ros Gourgey all of whom have contributed to the full and busy meetings we have had this year. We continue to look at our membership base, and a new membership leaflet prepared by Susan Cooke is close to completion. Thanks are due to Susan for the work that she has put into this, and for manning our stand at the Museums Association Conference on London.

GCG is the sum of its membership, and I would like to thank you, the members, for your support and help during my tenure as Chairman. Your attendance at our meetings and your contributions to our newsletter and journal (and of course, your subscriptions) all contribute to the success of the Group. It has been a pleasure to serve as your Chairman for the last three years, and I know that under our first overseas Chairman, GCG will go from strength to strength.

Mandy Edwards pointed out that she had served on the Group for 10 years, and not 8 as stated in the report.

The report was accepted on the general "aye".

5. Secretary's Report from Mandy Edwards

The report was read by Mandy Edwatrds.

The Committee have met three times in 2001; at the Geological Society, London, at the Department of Earth Sciences, Manchester University and the Natural History Museum, London. We have been concerned with membership matters again this year. Susan Cooke has been working on a new membership leaflet and other ways of encouraging extra people to join and our existing members to stay with the group. Members who have paid their subscriptions promptly for 2002 will have already received their membership cards and a receipt, so people should be able to check easily if they have paid their subs. Our membership numbers are down again this year as we have stuck to the policy of removing members from the group if they have not paid by April. Of course we can reinstate members quickly so nobody should miss out on any publications or events. Camilla Nichol has taken over the web site and work is underway to bring the site up to date - watch out for further developments next year. 2001 has seen the formation of our own e-mail discussion list, which is hosted by JISC mail and administered by Frances Wall at the Natural History Museum. If you are not already a member of the discussion list and you would like to join please contact Frances (f.wall@nhm.ac.uk). After the very lively meeting on "The commercial trade: ethics versus science" held at the University of Manchester in May we have created a small working party to look closely at the very important aspects that this meeting highlighted. Things they will be considering are possible Codes of Practise; fossils as cultural property and how petrological and mineral samples are to be included in any guidelines.

Hopefully Committee should be able to report back to the membership quickly. Finally I would like record how much I have enjoyed my time as Secretary to GCG and working with the past four chairmen, John Cooper, Paul Ensom, John Nudds and Tom Sharpe.

Subscriptions should now be sent to the incoming Secretary.

The report was accepted on the general "aye".

6. Treasurer's Report from Andrew Newman

The report was read by Tom Sharpe.

Financial Report

The accounts for the period 4/12/00-5/12/01 are attached. The Geological Curators' Group has financial assets of £11689.30. It is important to thank C.JC. Burhouse for their continued sponsorship of *Coprolite*. The Manchester meeting was kindly supported by English Nature, the Geological Society and JNCC. It will be noted that the income from subscriptions is lower in 2000/2001 than 1999/2000. The reason for this is that about 45 of the institutional invoices have yet to be paid and fewer individuals have paid their membership fee this year. The group has successfully registered with the Inland Revenue for the Gift Aid scheme. It is proposed that the subscriptions be raised to the following.

Personal UK	£12
Personal Overseas	£15
Institutional UK	£16
Institutional Overseas	£18

Membership Report

The totals for the Group now are

UK personal	169
UK institutions	88
Overseas personal	37
Overseas institutions	34
Complimentary	10
Total	338

Steve Howe asked why costs for committee meetings had gone up steeply. Tom Sharpe replied that this is due to fewer institutions paying for members to attend meetings. Members at the AGM agreed the increase in subscription levels.

The report was accepted on the general "aye".

7. Programme Secretary' Report from Steve McLean

The report was read by Steve McLean.

4-5 December 2000 Yorkshire Museum, Museum Gardens, York GCG Seminar and 27th AGM and Field trip: Dinosaur tracks, too big for their boots! This meeting provided an opportunity to discuss the importance of trace-fossil collections and some of the problems associated with their collection, conservation and storage. There was an opportunity to view the Walking with Dinosaurs exhibition produced by the Yorkshire Museum in conjunction with BBC Worldwide, and the second day saw participants venturing down the cliffs at Port Mulgrave to view the Lower and Middle Jurassic sequences and to look for fossils.

My sincere thanks to Phil Manning for organising an excellent two-day session and to all the speakers for their contributions. They are: Mike Romano, Paul Ensom, Neil Clark, Steve Howe, Alistair Bowden and Phil Manning.

12 March 2001. Department of Geological Sciences Collections, UCL. GCG Training: Brush up your rocks! Unfortunately, this meeting was cancelled.

16 May 2001. Manchester Museum, Oxford Road, Manchester GCG Seminar and Study Visit: Ethics Versus Science This was an important seminar providing participants with the opportunity to debate the arguments surrounding the collecting of geological material (in this case mainly fossils). As predicated the seminar included much lively discussion and a detailed report was published in the last edition of Coprolite.

There was also the opportunity to view the new Fossils Gallery which formed Phase 1 of the Manchester Museum's £19 million capital redevelopment.

My very grateful thanks to John Nudds for organising an excellent seminar and to all the speakers who contributed to the important collecting debate. They are Tristram Besterman, Dave Martill, Neal Larson, Jonathan Larwood and Maurice Davies. l am also especially grateful to the Geological Society of London, English Nature and JNCC for providing funding.

27 June 2001: Natural History Museum, London. Joint GCG and HOGG Seminar: 150 years of the Geological Museum. Celebrating the 150'h anniversary of the opening of the "Museum of Practical Geology" this was a joint meeting with the History of Geology Group. It explored the history of the Geological Museum, its architecture and current role and of course its links with the Geological Survey.

My thanks to the organisers Simon Knell and Peter Tandy, and to all the speakers, Adrian Rushton, Jim Secord, Sophie Forgen, Shuna Gibson, lan Mercer, Bob Bloomfield, Eric Robinson and Simon Knell.

8-12 November 2001: GCG Study Visit: New York! New York!
Despite the obvious difficulties in arranging a visit to New York post September 11th, GCG spent four days in New York this year, two of which were devoted to visiting the American Museum of Natural History (AMNH). The two-day programme was organised by Chris Collins (formerly of the Sedgwick Museum, Cambridge) and included visits behind the scenes to view collections and facilities, and guided tours of the galleries and exhibitions.

My sincere thanks to Chris Collins, our convenor, and to Ros Gourgey who undertook the painful job of organising accommodation and travel arrangements with her usual precision. Grateful thanks are also extended to all the staff at AMNH who gave up their time to show us around. They are Mark Noreli, Andrew Turk, Ben Burger, Chris Norris, Bushra Hussaini, Ivy Rutzky, Denny Diveley, Gloria Villalobos and Jim Webster.

November 2001: Natural History Museum, London GCG Training: Identifying Fossils: No. 1: Bivalves. This was the first, of hopefully many, training sessions providing members with the opportunity to brush up on their fossil identification skills. The day's session was organised by Dr Jonathan Todd of the NHM who re-introduced the group (of 8 members) to the intricacies of bivalve morphology as well as providing practical opportunities to use bivalve identification keys and to view the collections.

My grateful thanks to Jon Todd for providing the training session and to Paul Ensom for helping with the organisation and agreeing to let GCG use the facilities at NHM.

The programme for 2001/2002 has now been set and includes an exciting series of events. The first session of the year is to visit "Dinosaur Isle" the new museum of Isle of Wight geology. This is followed by a joint meeting with the Geological Information Group at Keyworth on Geological databases, GIS and the World Wide Web. The next training session is at the National Museum of Wales and will be on ammonite identification and it is hoped that GCG's overseas study visit next year will be to the National Natural History Museum in Prague. Finally, our AGM will take place at the Sedgwick Museum, Cambridge, where there will also be the opportunity to view the new gallery developments scheduled to open in the summer of 2002. I look forward to seeing some of you there.

The report was accepted on the general "aye".

8. Journal Editor's Report from Patrick Wyse Jackson

The report was read by Patrick Wyse Jackson.

Two issues of *The Geological Curator* will be published this year: Volume 7, Part 5 (issued August 2001) and Volume 7, Part 6 (to be issued late December 2001).

Volume 7, Part 6 has been unfortunately delayed - but will be mailed after the Christmas break. The first issue for 2002 will follow rapidly on its heels.

Volume 7(5) contained three papers and an obituary of G.A. Cooper.

'Dinosaur tracks, helicopters, and broken bones' by Neil Clark

'A mineral collection in the Ulster Museum matched with a lecture syllabus of Sir Charles Lewis Giesecke (1761-1833)' by Kenneth James

'The treatment of specimen labels affected by pyrite decay' by Alison Stooshnov and Caroline Buttler

Volume 7(6) contains the following thematic set of papers on the commercial trade in fossils that were originally presented at a one-day GCG Conference held on 23rd May 2001 at the University of Manchester, as well as a gallery review of the new Dinosaur Isle attraction on the Isle of Wight by Tony Cross.

'Ethics, science and the trade: let's get together!' by John Nudds

'Frontiers to science: free trade and museum ethics' by Tristram P. Besterman

'The trade in Brazilian fossils: one palaeontologist's perspective' by David Martill

'Fossils for sale: is it good for science?' by Neal L. Larson

'Commercial fossil trade: good or bad for sites of special scientific interest?' by Jonathan Larwood

'Phoney Stones' by Maurice Davies

There has been a welcome increase in receipt of copy: eight papers were received for consideration this year, and these are either going through the revision process at the moment or will be returned to authors shortly. I am grateful to the authors for their patience in waiting on editorial decisions during the latter part of the year during which your Editor has been busy with the hosting of an international conference among other things.

Recently the first issue of a new mining heritage journal has been published in Dublin. This closely resembles *The Geological Curator* in layout which must be taken as a compliment!

I am ever grateful to ColourBooks who do a fine job of printing *The Geological Curator*, Matthew Parkes my dependable proof-reader, and my colleagues on the GCG Committee and in Trinity College for their continuing support.

The report was accepted on the general "aye".

9. Newletter Editor's Report from Tom Sharpe

The report was read by Tom Sharpe.

2001 saw completion of the 12th year of publication of *Coprolite*. As usual, three issues (Numbers 34, 35 and 36) were published, totalling 60 pages, in March, June and November.

Do remember that *Coprolite* is <u>your</u> newsletter and I need your news, views, scandal and gossip. If you have a new publication, event, exhibition, acquistion, or job, don't keep it to yourself - let your colleagues know. Otherwise I will rely on unconfirmed rumour and speculation or just make it up. Thank you to everyone who contributed news

this year. I would also like to express my thanks to our printers, Barnes Print Group, and especially to Hugh Barnes, for the rapid turn-around and distribution of every issue.

We continue to receive the generous support of Clinton Burhouse of Burhouse Ltd of Huddersfield, for which we are grateful.

The report was accepted on the general "aye".

10. Recorder's Report from Glenys Wass

The report was read by Glenys Wass.

The last year has seen the completion and distribution of the questionnaire for the Geological Curators' Group State and Status Survey 2001.

This survey aims to:

- Review the current condition and extent of geological collections in museums in the UK
- Identify the main problems currently facing collections
- Compare the results with the last full survey completed in 1981 to ascertain progress made
- To make the results available to a wide audience

The questionnaire was sent out to all museums listed as having geological collections in the DOMUS survey in addition to all GCG institutional members in the UK. Since the questionnaire was sent out we have received over 160 retums. I would like to thank all those who have made time to complete the questionnaire and helped to ensure we get as accurate a picture as possible.

Reminder letters have gone out over the last month to all those we have not yet received a questionnaire from. I would like to apologise if you have received a reminder but have already sent back the survey. I am aware that this has happened in some cases, and would like to apologise for any inconvenience caused.

The results from the survey are currently being entered onto an Access database and the intention is to start processing the results early next year, ready for publication in the GCG journal.

The report was accepted on the general "aye".

11. Election of Officers and Committee for 2001

Patrick Wyse Jackson was nominated as the new Chairman of GCG.

Two other Committee posts are vacant due to the resignations of Andrew Newman and Amanda Edwards. Susan Cooke and Giles Miller have agreed to take on these posts. Sara Chambers and Mark Evans have been nominated by Committee to fill the two vacancies.

In the absence of any other nominations, the aforementioned were declared elected.

The Chair then passed to Patrick Wyse Jackson, who said a few words about priorities for the next few years and he thanked the outgoing Officers for all their hard work.

12. Incoming Chairman's ramblings

I am highly honoured that the Group has considered me suitable to serve as your Chairman for the next 3 years. I follow in the footsteps of Tom Sharpe who I think you will agree has done a huge job in a most efficient manner. I am sorry to lose the services of Mandy Edwards and Andy Newman who between them have carried the burden of the running of the Group for some considerable time. Thank you Mandy and Andy. I look forward to working closely with Giles and Susan as well as the other members of the Committee.

For me what are the priorities for the next three years? As always there has to be continued monitoring of orphen and at-risk collections. Secondly I look forward to being able to compare the findings of Glenys Wass's *Status* report with that of Phil Doughty's published 20 years ago. What challenges will it present to us? I am also looking forward to putting together the revision of *Guidelines* with Tom and John Nudds, and we hope that it will appear within two years. Finally I am concerned with the falling membership of the Group. Recently a bloody cull of members who had not paid subscriptions was carried out. I believe that the Group has the potential to have 500-800 members. We need to haul in as many as possible of those members that we have lost, and we all should encourage new members to join. As your first 'foreign' chairman I would particularly like to see an increase in the number of foreign institutions taking *The Geological Curator*. Recruitment is an area that will be considered carefully by the Committee and acted on.

13. Nomination of Auditors

Simon Knell and Paul Ensom were proposed by Tom Sharpe and seconded by Paul Clasby to be the new auditors.

They were appointed on the general "aye".

14. Any other business

None

15. Date and venue of the next AGM

10th December 2002 at Sedgwick Museum, Cambridge.

Annual Accounts for the period 4th December 2000 to 5th December 2001

	2001	2000
Treasurers Account Income		
Subscriptions	2789.00	3488.05
Sale of backnumbers		31.00
Advertisements/Sponsorship	1685.00	600.00
Meetings fees	548.00	1391.10
Misc income (interest & VAT)	177.90	387.35
Total income	5199.90	5897.50
Balance on 5/12/01 and 4/12/00	12475.91	12195.94
	17675.81	18093.44

	2001	2000
Treasurers Account Expenditure		
Geological Curator		
Printing	2585.47	1215.59
Coprolite		
Print and post	1562.00	2822.00
Meetings		
Committee	303.90	38.32
General	996.24	1471.09
Other expenditure		
Misc. (Status suurvey in 2001)	498.90	50.53
Bank Charge	40.00	20.00
Balance on 5/12/01 and 4/12/00	11689.30	12475.91
	17675.81	18093.44

A.G. Brighton Funds held in Treasurers Account	
Balance on 4/12/00	1754.12
Income (2001)	12.60
Balance on 5/12/01	1766.72

2000/2001 Total Surplus/Deficit		
Total Income	5199.90	5897.50
Total Expenditure	5986.51	5617.53
	(786.61)	279.97

[signed] A. Newman *GCG Treasurer*

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

PRESENTATION OF THE A.G. BRIGHTON MEDAL TO H. PHILIP POWELL

Address by Tom Sharpe, Chairman of the GCG at the GCG AGM, 5th December 2001

Since 1992, it has been the pleasant duty of the retiring chairman of GCG to award the AG Brighton Medal, and it gives me great pleasure to make this award to Philip Powell.

The medal was the inspiration of the late Dr David Price and commemorates the life and work of Albert G. Brighton, Curator at the Sedgwick Museum between 1931 and 1968. In that time he catalogued some 375,000 specimens at an average rate of over 10,000 a year. With this in mind, the Terms of Reference and Rules of the award specify that it is given to recognise actual achievement over a long period, and that it shall be given to someone who has devoted a significant part of their working life to the actual care of geological specimens.

Philip Powell, you are Assistant Curator of the Geological Collections here at Oxford University Museum of Natural History, a post you have held since 1962. Born in Lancashire, but brought up in Cheshire, you were of the last generation to do National Service, serving as an infantryman from 1956-58. During this time you roamed a camp at Wrexham with a vast bunch of keys, clearly a portent of your future career in museums. In October 1958, you entered Oriel College, Oxford, graduating in 1961. While in Oxford, you got to know James Edmonds, Curator of Geological Collections at the University Museum, and began cataloguing work for him, before moving north to Scunthorpe Museum. While in Scunthorpe, you were awarded the Museums Diploma, but you returned to Oxford a year later, to marry. At about that time, Edmonds advertised for an assistant in the Oxford University Museum. Your application was successful, even though you did not meet one particular requirement of the post. In your application you wrote to Edmonds, "I see that you are advertising for a woman graduate for your assistant. Though I cannot fulfil that condition, I still wish to say that this is a job I should like to have". You took up your post on 3 October 1962, at the princely salary (before tax) of £750 a year, i.e. 14 pounds, 8 shillings and 5 pence ha'penny a week. Since then, it would seem, you have taken no sick leave (except for the occasion on which you broke your leg while ice skating on Port Meadow).

Working first with James Edmonds then, since 1976, with Jim Kennedy, you have maintained, as E.A.

Vincent notes in his *Geology and Mineralogy at Oxford 1860-1986*, Edmonds' "meticulously painstaking approach to curatorial matters". Through your work on the collections, over a period of almost 40 years, the Museum now has several hundred thousand carefully documented specimens in its catalogues. Your years of meticulous care, conservation, restoration and cataloguing have rescued countless numbers of Oxford's neglected treasures from obscurity and risk.

Your hand can be seen clearly in this. For it is a very distinctive and beautiful calligraphy (and this is your normal handwriting!), to be found not only in every drawer, archive box and file in the geological collections of the Museum, but also in the stygian gloom of your offsite store at Nuneham Courtney church. In fact, your handwriting is known all over the world; it was reported to me recently that in pride of place amongst displays of the wonderful fossils of the Santana Formation in the little museum in Crato in NE Brazil, there hangs a letter in your inimitable handwriting.

Although thoroughly competent at making and using quills, you have wasted no time getting to grips with computers, and have applied equally high standards to ensure that the Museum's new databases are just as meticulously correct.

In addition to tackling the curatorial backlog of decades, if not centuries, you have still found time to collect thousands of fossils from temporary exposures along the M40, at Didcot Power Station, and in drains, ditches, septic tank pits and transient quarries across Oxfordshire and beyond. Wherever there was a rabbit hole, you would be there collecting for the Museum.

With Edmonds and Kennedy, despite limited resources, you began a series of displays which have exploited the richness of the collections and which have been enjoyed by the public while providing plenty for those with a special interest in palaeontology. And in keeping with the theme of this meeting today, these displays were sympathetic to the wonderful architecture of the museum building.

You are an enthusiastic and easy communicator with a deep knowledge of our subject, and visitors and inquirers, whether they be students, amateurs or professional geologists, speak of your unsurpassed knowledge of the collections, your courtesy and your helpfulness.

You have taken this enthusiasm for geology beyond the Museum, and for 30 years you have been involved with the Oxford Geology Group, organising their programme and leading field excursions for them as well as for other groups. However, I have heard that, although you have lived in Oxfordshire for so long, it is only recently that you have recognised the important correlation between geological field excursions and real ale. This realisation came about, I believe, as the result of a Damascene conversion in a pub in Northamptonshire.

Your skill as a geological curator is but one of many talents. You are also Chief Beekeeper to the Hope Professor of Zoology, having maintained an observation beehive in the Museum since the 1960s, notwithstanding an allergy to bee stings. Your rural crafts, I hear, extend to hedgelaying, drystone walling, and tree felling. With no little help from your wife, Jennie, you have raised goats, ducks, chickens, four children and a growing gang of grandchildren. In Cumnor, where you live, you are the village mole catcher [whose rate, by the way, is one bottle of red wine per mole]. To most people, moleskin clothing is made of a thick, twill-weave cotton. To you, it is the real thing, and a perk of the job.

You maintain an office of almost Bucklandian disorder, and the inadequacy of its soundproofing has allowed your colleagues to appreciate, over the years, your skill with the bugle, bagpipes, Baroque flute and recorder. To this should be added your reputation as a skilled Highland dancer; I believe your sword dance is the stuff of legend.

James Edmonds wrote that you were modest, almost to a fault. As everyone who knows you will testify, yours is no false modesty. I doubt if few of my predecessors have had such trouble persuading the Brighton Medallist to accept the award. I more or less had to tell you to lump it; you're getting the medal, and that's final!

We have not seen a lot of you at GCG meetings over the years, but in reviewing your activities I can fully understand why. You, of course, have a more prosaic explanation: it is, you say, because you are an unsociable bugger. I'm afraid, though, that no one here will believe you.

All of your friends and colleagues, both here and in museums around the UK, describe you as thorough, accurate, meticulous, clear thinking, quiet, self-effacing, endlessly helpful, supportive, enthusiastic. They tell of a curator without equal, a curator of the highest calibre.

Philip Powell, in recognition of the outstanding curatorial work you have done in Oxford University Museum for nearly 40 years, it is my great pleasure to present to you the A.G. Brighton Medal of the Geological Curators' Group.