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Microscope Slide Mountants, 2nd May 1996 Natural History Museum, London

This one-day meeting, organised by the staff of the Entomology Department of the Natural History Museum, London, was one in their series with the overall title 'Collection Views'. The sponsors were the Museum, who provided the venue and facilities, and Merck who provided the refreshments. The meeting attracted a wide range of disciplines, including staff from the Institute of Archaeology, and museum professionals from as far away as Bolton.

One of the organisers, Paul Brown, gave two talks, one of which, was the opener for the day. He explained that he had no formal training in biochemistry or histology and preservation/conservation when he became custodian of the largest discrete microscope slide collection (of aphids) in the Museum. This collection forms a solid 12 cubic metres of glass on the top (!) floor of the Entomology building. It also showed itself to be the biggest conservation problem for the department. When Paul conducted a Museum-wide survey of microscope holding as part of his master's degree in Museum Studies. He found that the most widely-used mountants throughout the Museum were Canada Balsam and Euparal. These products have good track records, having been used from the 1830's and 1940's respectively. In his own area crystallisation and blackening of Berlese gum chloral were major problems and many slides have been re-mounted in Canada Balsam. However, Paul's findings suggest that there was no perfect mountant on the market and that proper preparation and ringing would ensure better long-term results. He also reminded us that, when making or re-mounting slides, we must write the mountant used and date of preparation on the label.

Mary Spencer-Jones (NHM) asked us to ask ourselves why we were making the slides and to fit the mountant to the job. A batch of slides for teaching purposes could be mounted in a product designed for a short life span whilst Museum collections need to remain in optimum condition indefinitely. She urged the use of Canada Balsam ringed with shellac and a note of the technique used written on the label. One tip for removing cover-slips on slides that need repairing is to flick them off after deep-freezing. She also advocated the use of wet/jelly mounts for cavity/deep-cell preparation of small delicate specimens.

Chris Jones (NHM) showed the (mainly) life sciences audience something very different - the techniques used for mounting thin sections of minerals so that they can be examined in cross-polarised light to assist in their identification and classification. Small fossils, resin-mounted, produced very beautiful images when viewed microscopically with polarisers both above and below the subject. In the past, with the larger range of mountants used, all presented some problems but, now, many of these have been solved with the advent of U.V. cure resins and epoxy resins. One that is used was originally designed to bond the layers of laminated windscreens.

The workshops too were of a high standard but unfortunately were not organised in Peter York (NHM) showed the equipment and techniques used for all aspects of photomicrography - and the resulting photographs. He uses video, cine, 35mm, plate and has set up a time-lapse system that he has set up, controlled by computer. More recent advances such as laser confocal scanning, magnifying up to 30 000 times, were explained, but he reminded us that optics may still be better in equipment that is 100 years old!

Simon Moore (Hampshire Museums Service) described the restoration of the Quekett slide collection at the Royal College of Surgeons. These 150-year old slides were of anatomical and plant material mounted in Canada Balsam and as glass cells of fluid. About 10% of the collection was cleaned, re-mounted and the labels touched-up over the period allocated; many slides presented new challenges so that the method for dealing with the problems evolved during the course of the work. An account of the techniques used was published in *Microscopy*, vol.33: 489-494, 1979.

Around the room were displays by Bigneat (ductless fume hoods), Merck (mountants and accessories and Zeiss (microscopes) as well as an explanation of the method used for preparing and mounting diatoms by Karen Webb (NHM) and posters detailing some of the work of staff in the NHM Entomology department.

The day ended with a lively general discussion, which included comments on the pros and cons of Euparal and slide storage - horizontal versus vertical. It was a well-organised and useful meeting and the organisers and sponsors are to be congratulated. May this series of one-day meetings on specialist topics continue and develop.

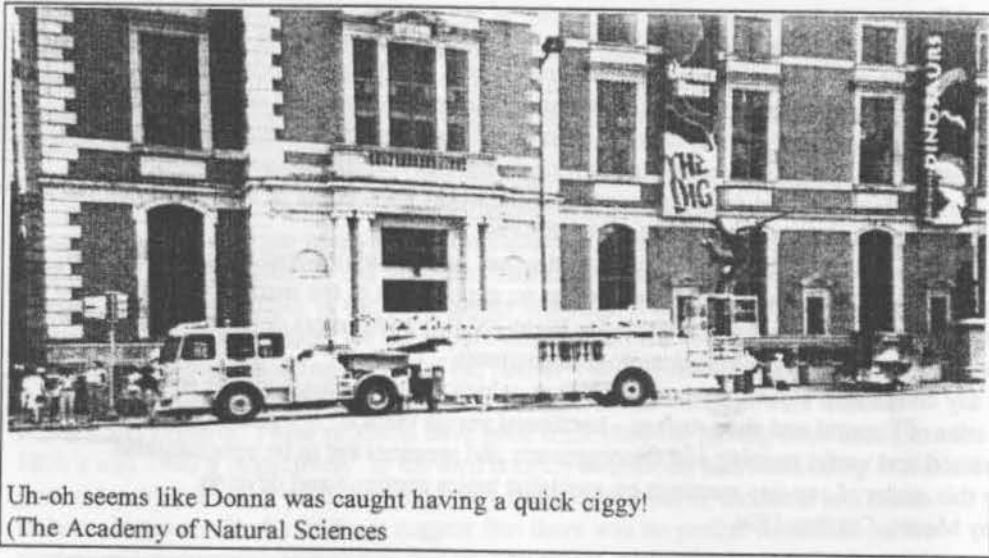
Jenny Moore, October 1996.

The SPNHC Conference, 1996 Academy of Natural Sciences, Philadelphia

This year's SPNHC (Society for the Preservation of Natural History Collections) conference was held at the Academy of Natural Sciences in Philadelphia, USA. The conference had a central theme based on 'Historic Natural History Collections', and a workshop on the 'Valuation and Insurance of Natural History Collections'. Fewer Brits made it to this year's conference than last year's at Toronto, probably reflecting on both tighter budgets and the Cambridge WCCR to be held in August.

The talks occurred over two days and were then followed by the workshop. The whole event was surrounded with organised tours of other institutions and the Academy's collections. A particularly interesting tour was held at the end of the first day's talks. Called the 'Historic Museum Round Robin Tour' it took in two museums. The first was the 'Wagner Free Science Institute' which is set in one of Philadelphia's less salubrious neighbourhoods. The natural history museum part of the Institute is remarkable in that it

has not changed in over 100 years, and consists today of both original cases and style of specimen presentation. The next museum was the Mutter Anatomical Museum which was not to the taste of all, but certainly fascinated most of us! It was difficult to know whether to be impressed or disgusted at the displays, though the best material was in store! The end of conference banquet was particularly fine being held in the academy's Dinosaur Hall, with an excellent spread of food and a free bar!



Uh-oh seems like Donna was caught having a quick ciggy!
(The Academy of Natural Sciences)

The talks started with **Meredith Lane** of the National Science Foundation (NSF) discussing the changing views of natural history collections. The main issue comprised the bringing together of all the available collection data of all institutions and that a state of co-operation not competition was required. NSF is working on the development of computers in natural history collections, but finds there is the problem of standardising both the database and the fields used.

The delegates were encouraged to 'think of new and expanded ways to contribute and make relevant to society the output of natural history collections'. The act of any museum trying to database its entire collection as a whole is daunting, but which can be started by putting selections of an institution's collections onto the World Wide Web.

Robert Waller (Canadian Museum of Nature) discussed preventive conservation planning, specifically for large and diverse collections and relating this to implementing and being responsible for funds directed towards preventive conservation measures. Robert outlined the means for setting up such plans with the objective of creating pragmatic method for setting priorities which adopts or adapts existing systems. The plan looked at three systems:

Risk assessment and management.

Categories of specimens.

Collection profiling.

It was concluded that several frameworks must be applied which require a great deal of information, but which can be done in a manner which is possible. The advantages of planning means effective use of resources, accountability, a sense of accomplishment and overall success.

Robert Huxley (Natural History Museum) described the reorganisation of posts at the NHM to the assembled audience, many of whose institutions had or were undergoing similar changes. It was explained that curation had been recognised as an activity in its own right which had led to the development of a more co-ordinated collection management structure allowing museum wide programmes (pest control, training, data capture) with overall co-ordination by a cross disciplinary steering group.

John Simmons (Natural History Museum, Kansas) explained the setting up of the US Organisation for Biodiversity Information, US-GOBI, in April 1996 with the aim of setting up the infrastructure required to organise the information derived from biological collections and associated biodiversity for maximum accessibility - 'biological collections to function as a community in response to the global biodiversity crisis'.

Onto historic collections. **Jane Pickering** (Oxford University Museum) considered the items surviving in the Tradescant Collection from the 17th century. Of the original '12 cart loads' of specimens making up this collection only 40 specimens, all zoological, have survived. Using the risk assessment system developed by Rob Waller, the collections survival over the last 400 years was considered, showing that most damage has occurred as a result of pest infestation and custodial neglect.

Robert Huxley (that man again) gave his second talk of the day (a bit keen!) on the challenges facing the large historical herbarium collections at the NHM. Some 200 000 specimens were collected before the 1800's. The current state of access and storage to this material is unsuitable.

The collections were open to the usual risks such as fire and theft, although some collections had the additional risk of pirates plundering the ships when returning to Britain! The collections need to be properly assessed and prioritised to direct remedial conservation work such as reinforcing paper mounts, separating prints from drawings and methods to reduce handling. The hope is to set up a special collections room with the collections themselves being digitised and collated on a database to allow greater availability of information.

On a different type of historic collection **Tom Strang** (Canadian Conservation Institute) described the work the CCI had been carrying out on a permafrost fossil tree site in Northern Canada which has intact but fragile, unpetrified cones, needles, tree stumps and leaf remains. The CCI has been using PEG (polyethylene glycol) to try and conserve the fossil material as it is similar to wet archaeological wood. They have also been using parylene coating technology to try and consolidate this very delicate subfossil material. The greatest threat to the site now appears to be 'ecotourism' trampling over the site. Already visitor damage has occurred at the site which has no protected status.

Anatomical collections featured quite strongly at this conference. **Thomas Crist** (The Wistar Institute, Philadelphia) described the conservation work carried out on the fluid preserved collections at the Wistar Institute, and the health and safety plans developed so that this work could go ahead.

Problems with fluid preserved anatomical collections were also discussed by **Andries van Dam** (Museum of Anatomy, Leiden). Problems encountered are decreasing fluid levels, loosening of lids, and warping of plastics. These can be related to the usual environmental changes and diffusion effects. To combat temperature variation Andries recommends the following to reduce the effects of increased pressure: fill container with ethanol based solutions to 90% of volume and aqueous fluids to 95% volume.

With diffusion effects it has been noted that silicon rubber sealants gives rise to a greater water loss than sealants such as Tixophalte (Shell). This is important to consider since a negative pressure can be caused by diffusion, especially with plastic containers which will ultimately deform. The result is that plastic containers tend to require regular venting, but to do this regularly is time consuming. This has led to the development of a two way valve to prevent pressure changes in such storage vessels.

Gretchen Anderson (The Science Museum of Minnesota) described the use of conservators in 'visible labs' as a means of raising public awareness.

The theme of fluid collections was continued by **Lisa Palmer** (Smithsonian Institution) who discussed the importance choosing the correct type of storage container and how this affects fluid quality. A survey of a whole variety of container types was carried out. Overall it was found that there was little difference between types of glass jars. Most differences appear to relate to container volume, particularly the fluid to specimen ratio. Plastic containers were found generally to be unsuitable for long term storage for ethanol based fluid collections. It was noted that the greatest variable in this study related to collection management, the need to standardise and not rely on folklore.

Janet Waddington (Royal Ontario Museum) talked about the problem of a white efflorescence which has been observed on calcitic echinoderm and some bivalve fossils from the Silurian. The fossils are stored in wooden draws of oak or plywood with many variants in finish. Much testing has been done, but overall no conclusion to the cause of

the efflorescence could be found though it is thought possible that the cause could relate to a one off event such as a past period of very high humidity.

Staying on the subject of efflorescence, **David Von Endt** (Smithsonian Institute) revisited Byne's disease, raising some interesting questions. Byne's disease forms on mollusc shells as a result of volatile acids released from wood leaving a white efflorescence on the shells which essentially consists of a calcium formate - acetate complex. Various materials were tested for their ability to induce Byne's disease: oak; pine; poplar; masonite; paper trays; cork; cotton. Mass spectrometry was used to examine chemical change. Overall, only cotton wool did not induce Byne's disease on the shell material. However in only one case was the calcium formate - acetate double salt found, which was considered to be the main component of Byne's disease. The efflorescence was found to be composed primarily of calcium formate and calcium acetate, and another related but previously undescribed mineral. SEM studies also showed the presence of micro-organisms on some of the shell samples, which may suggest another mechanism for the formation of this efflorescence.



Don't you wish we could store our fossils in cabinets like these!

The conference finished with a series of talks related to computers and the utilising of databases which essentially consisted of people demonstrating their various systems.

The morning of the second day also saw an amusing 'interlude' billed as 'Video presentation: A different kind of science and conservation at the Academy'. In the first clip the video shows the catching of a new species in Yellowstone National Park - a "Barney". The next clip showed Earle Spamer and Ned Gilmore of the Academy looking very serious and sitting in immaculate lab coats being interviewed on the Canadian 'Discovery' Channel about the discovery of this new species, "Barney" (-a cuddly purple dinosaur) and how they tracked its movement to a shopping mall by following press reports! How a straight face was kept whilst being interviewed.....

Overall a good conference which was worth attending, even if it meant having to check numerous American bars and late night diners!

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Second World Congress on the Preservation and Conservation of Natural History Collections. 20th to 24th August 1996, University of Cambridge

This meeting was well attended by the Museum community from around the world and promised to be exciting for that reason alone. It was a wonderful opportunity to see how things are done elsewhere and to make useful contacts. However, the common theme uniting the delegates soon became clear. Lack of funds, lack of understanding of their role by the public and government alike and subsequent lack of confidence in the future. Despite this, the work on show in the excellent range of posters and workshops was heartening and the individual's commitment to their collections undeniable. I was not alone in feeling that there was too much emphasis in the oral presentations on senior management strategies for maintaining their institutions, important though this obviously is. More presentations of hands-on work by innovative curators and conservators would have been welcome. It was hard to find everyone you wanted to talk to AND find time to view the contents of the many poster rooms during the breaks. However, the general impression was of a high standard of organisation, presentation and entertainment set in splendid venue; the organisers and sponsors are to be congratulated on their efforts to give everybody a good time. However, one small niggle about the University catering as related to cost must be mentioned. The meals were imaginative but quite expensive, on one occasion I was given the smallest main course I

had ever been seriously offered anywhere (and anyone who knows me will realise how unfortunate that was!).

Jenny Moore, October 1996.

Cambridge 1996 - The International Congress - an overview

En garde Chris Collins! I recall his talk at Toronto (SPNHC 1995) where he glibly told the assembly that the Cambridge Congress would comprise less talking and more doing, less 'suits' and more solving of conservation problems. In reality there were many suits from as many different nations who mostly had the same basic message 'If only there was more money/positive political attitude towards the excellent work being achieved by museums that were currently so undervalued....' Apart from preaching to the converted (alas!) many of the speakers were repeating this theme from their own point of view, some with accents that were hard to follow. Despite this the talks were, generally, of a high standard and showed the progress of taxonomy and the achievements of using hi-tech equipment to reveal all sorts of hitherto-undiscovered data about museum specimens.

More specifically, Sir Robert May mentioned the problem of too many students bettering themselves with post grad. qualifications but which were unsuitable for the more essential posts of collections managers. This statement on its own was significant since there are still those who unfortunately maintain that museum collections are an expensive luxury and that all data from them could be logged into databases and then the specimens disposed of. Bearing in mind what modern day computer viruses can do and have done to any institutions I can scarcely start to understand this attitude; more of this later.

The second day's talks centred around using collections as a resource, particularly for raising money from industry using geological material; the question of who, in reality,



Richard Leakey in full flow