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Author(s): Moore, S.

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doubly sure we'd seen every one, David also put each specimen under the video microscope for us to get a better look.

The final part of the workshop was a gallery assessment, which we had to carry out on Bird gallery 40. We were split into two groups and were asked to consider key issues such as:

- Collection type and risk
- Collection display cases and furniture
- Gallery environment
- Gallery uses
- Security

Putting into practice everything we'd learnt that day, we then had to assess the area and assign a risk zone.

Walking around the gallery we noted many points. There were mounted birds, eggs and skeletal material on display. The display cases were old, probably Victorian and were mostly unsealed. Many had false bases to them and others were very tall – too high to clean. There were drainpipes inside the gallery and under floor ducting covered with grills, all could harbour pests. The gallery was very warm and humid there seemed to be no environmental control there. Based on these factors we decided that it was a high risk (red) zone A. However, just when we thought we'd cracked it, we were told that because it was not a storage area, the risk is slightly reduced and the gallery should have been assigned zone B (orange). Interesting that both groups assigned zone A to the gallery. We know better now!

We left the workshop armed with IPM articles, copies of published papers, two posters and a copy of David Pinniger's book 'Pest Management in Museums, Archives and Historic Houses'. I thought it was a great day, well organised, friendly, relaxed and very interesting.

Some posters and snippets of information from the SPNHC, NatSCA Conference 2005 **- Simon Moore**

This year's bringing together of SPNHC and NatSCA for a first, and I hope not last, joint conference produced an amazing coalescence of research and knowledge. My only regret was having so short a time to view the posters before they were rather prematurely taken down.

In these days of shrinking budgets and quickly snapped-up grant-aid, the problem of having to assimilate such a wealth of knowledge over a few days has now become the norm which gives rise to having all these wonderful ideas but not enough time to put them into practice due to pressure of work after the few days away.

The poster session enabled many to put their latest ideas in conservation and curation technology up to scrutiny and many of these are pushing forward our knowledge of conservation technology.

Amandine Péquignot from the Smithsonian has been using her knowledge of biochemistry to investigate both the effects of tanning and fluid fixation on skins as well as presenting a poster about spot testing for Arsenic salts on taxidermy specimens. With her varying partners in these projects, ably tutored I suspect, by David von Endt she has updated some of the old tests and shown how they take care of the hazard.

In palaeontology conservation Lisa Kronthal, Christina Bisulca and Amy Davidson, also from the USA, have been testing consolidants with good penetration for fragmentary dinosaur bone. They used a product known as Conservare® OH 100 (ProSoCo Inc.) well-known as a flaky stone consolidant (since 2000), which due to low viscosity is an excellent penetrant. It contains tetra-ethoxy silane monomer, which polymerises *in situ* and has been found combine strength with long-term stability even outdoors. Although this application is still in its testing stage it looks good so far, as a future consolidant.

Many will know that Haselmere Museum has recently re-opened its natural history galleries to great acclaim. Julia Tanner, the curator, presented a poster showing the new galleries and some of the specimens including the previously mothballed Moa skeleton.

Other posters included:

- a method for detecting mercury salts in herbarium collections (ref. Hollenberg *et al.*) and the dangers of off-gassing but containing these by using special conservation grade folders.
- analysis of DNA condition in fluid preserved specimens, particularly comparing the results from formaldehyde and alcohol (ref. Amra Kazic *et al.*).
- a more accurate method for killing museum insect pests using domestic freezers (ref. Akerlund *et al.*), who concluded that larvae and adults of *Anthrenus* beetles are killed after exposure to minus 20°C for 72 hours, if adequate air circulation is ensured during freezing.
- conservation of a mounted leatherback turtle from Harlech beach that had seriously cracked during a low RH incident, showed how EDTA can be useful to chelate the carapace to make it more soft and manageable and the cracks filled using dental quality plaster mixed with PVA (ref. J. Carter).
- now that chemical agents have been banned from use in pest prevention, a programme of monitoring and trapping of insect pests in the Natural History Museum's botany department is vital (ref. Paul & Pinniger).
- the use of heavy metal salts in herbaria, their hazards and detection and gradual deteriorative mechanisms, combined the use of unacceptable naphthalene levels. By using a UV light at 366nm the salt deposits fluoresce, probably aided by the naphthalene presence, and are more easily detectable (ref. Purewal & Colston).
- From Denver Museum of Nature and Science, Paula Cushing & Joey Slowik have been testing alternative techniques that monitor degradation of specimens stored in contaminated or evaporation-diluted alcohols using leg torsion, embrittlement, unusual swelling and natural pattern degradation.
- Last but not least (I hope) was my own work on using Japanese tissues for making repairs and as a mounting medium in many avenues of Natural Sciences Conservation. A fuller version of this will be published in this issue so I will dwell no further.

A subject of great interest to me is Julian Carter's other project: the investigation of chemical changes in fluid-preserved specimens using Fourier transformed infrared spectroscopy. The process will detect hydrolysis of protein polypeptides, which can lead to molecular structural breakdown of tissues. The preliminary results have so far shown that tissues stored in formaldehyde and Defakald (DMDM hydantoin) show cross-linking of groups within proteins leading to gradual denaturation. Although this does not occur in proteins stored in alcohol its dehydration effect does affect stored water in tissues and alters the steric arrangement of proteins in tissues but without altering their functional chemistry.

Useful snippets of conservation information gleaned from posters and presentations

I must apologise for the brevity of these statements. I hope that they may be useful but I would advise further investigation prior to using them.

- Use of Gore-Tex as a humidifying medium.
- Acid-burns on deteriorated taxidermy fish-skin neutralised using ethanol swabs and BEVA 371 used as an infill agent.
- Plexiglass rod used to give a vertebral column added strength and some flexibility.
- Use of Kaiserling III (comprising dilute [aqueous] glycerol with dissolved potassium acetate) with addition of 5% formalin can be used as a balanced fixing agent for fluid preservation.
- 70% IMS is the best concentration to store specimens destined for DNA recovery.
- 75% isopropanol is the best strength for using as a fixing agent.
- Formalin cross-links with protein giving rise to a gel layer making rehydration harder than from alcohol-fixed protein.
- Freezing at -18°C for two weeks proved to be the most effective for eliminating active insect pest infestations.
- Greatest risk time from insect pests is June to September.
- *Anthrenus sarnicus* can complete a generation in only one year whereas *A. verbasci* takes two years.

- Change from Halon in non-wetting fire extinguishing systems to use of inert gas (*Inergen*).
- ArtSorb can be recycled by microwaving on full power for 1.5 minutes
- Pyrite decay acids on geological specimens are neutralised by ammonia vapour using polyethylene glycol 400 as a suspension base, and bulky poly-hydrate salts are dehydrated by the process.
- A split-V pen can be used as a spot-focusing device for ultrasonic cleaning.
- MODOSTUC putty can be used as a neutral gap-fill for palaeontology specimens.
- Jesmonite resin can be effectively used for making rubber moulding jackets for casting.
- Stereo-lithography is useful to enlarge or reduce castings.
- *Smooth-On Smooth Cast 300Q* is useful as an easy-pour and fine-grained casting resin.
- The Darwin 1 building maintains a cool atmosphere just below the flash-point of IMS to eliminate spark-ignition risk.
- Darwin 2 will be cooled to 17°C (lower at night) and maintained at 45% RH to lower the risk of pest infestation.

The NatSCA Sessions - Wednesday 15th: A Personal View

- Maggie Reilly

Having left Glasgow on the Easyjet red-eye at 6.00 am on Tuesday morning, I was a little bleary shuffling thro' Stansted at the other end. However by the time I got to Cromwell Rd, the sight of the utterly magnificent edifice of the NHM lifted my spirits. I found the cheery efficient welcoming team on the registration desk and launched myself into the whirlwind of this special anniversary conference. I am reporting on the NatSCA sessions of the conference and these took place on the Wednesday afternoon. I must say that, as ever, I enjoyed the departmental tours in the morning – after all who doesn't like a good snoop in other people's cupboards..... Despite numerous business visits to NHM in recent times I had never managed a tour of the Darwin Centre so was pleased to do that and mightily impressed with the new tank room for large specimens. A recently acquired giant squid in the process of being preserved was lurking in a polythene tent and apparently is destined for storage in a specially made massive glass tank. Damien Hirst, eat your heart out!

On to the Special Collections Department of the Library where some of its treasures were laid out for our delight - beautifully illustrated books, drawings and prints. The drawings made by the Scottish artist Sydney Parkinson on Captain Cook's first voyage of discovery to the South Seas had special resonance as we have specimens associated with the Cook voyages in the Hunterian in Glasgow and we are much steeped in the history of the voyages.

The lecture sessions were got off to an optimistic start with Nick Gordon reporting on the recent successful Subject Specialist Network bid to support and further develop existing natural sciences specialist networks. Nick emphasised that SSN's had to deliver a product that was of benefit to audiences but those audiences could be not only the public but might be academic researchers or other curators. Collections and people who use them are the key to this. Nick recommended to those that haven't already done so, read the MLA's 'Inspiring Learning for All' to understand more of the framework in which successful networks will operate.

The introduction of institution wide collections management standards and policies in a multidisciplinary museum potentially could restrict the use of natural science collections where there are time-honoured and useful practices peculiar to the nature of these collections e.g. we lend to non-museum borrowers or permit (even encourage) long term research loans. Anne Fahy and Donna Young of National Museums of Liverpool spoke about formulating their collections management policy and meeting the needs of natural science collections. Close collaboration between curators, conservators and registrars is necessary. In a smaller multidisciplinary museum such as my own where we have no registrar or specialist conservators, we found wide consultation with all our curatorial and technical staff to be essential.

Members may be familiar with the 'ten agents of deterioration' risk analysis technique and Kate Andrew described the application of this technique to the development of two new collection stores in Ludlow and Hereford. It was extremely useful to hear about these case studies where practical examples of the risks posed to collections by light, pests, flood, fire and the other agents were worked through and pragmatic and cost-effective means of mitigating the risks sought.