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## NSCG Newsletter

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## Natural History Conservation Some Problems (a discussion paper)

Natural history collections can be perceived as the poor relation of the museum world. Collections, even those of great scientific or historical value, generally have a very low market value and in consequence:

low market value = low prestige = low finance

Furthermore there is little recognition of many of the problems inherent within collections and in many institutions any conservation which exists is *subsumed within* natural history departments, there being little distinction from curatorial areas. An interesting comparison is *The Natural History Museum* with *one* conservation laboratory (within Geology), as opposed to *The National Gallery* with its large conservation department.

Linked to the above, research to date has been minimal and there is yet no formal training or qualifications.

Much conservation is 'display led' repair and/or refurbishment of mainly vertebrate mounted specimens.

The private sector may not yet be the most suitable environment for the freelance natural history conservator who, unlike a freelance taxidermist seeking work in a variety of markets, is basically dependent upon the museum/public sector.

Insufficiency of museum/public sector work may prevent investment in premises suitable for work on large or environmentally sensitive items, which in turn may lead to even further reductions in requests for work. (Many taxidermists work out of garden sheds or garages!).

Most of the leading freelance taxidermists recognise that even in the age of compulsory competitive tendering (CCT) some museum taxidermists are essential to maintain a pool of high standards, skills and development.

In-house natural history conservators are needed for these reasons, especially as much of the work could be of a development/research nature. Already, botany conservation is mainly suited to institutions where work can be undertaken in conjunction with paper conservation.

The number of natural history technicians/taxidermists in museums has probably decreased by as much as 40% in the last 20 years whilst the number of natural history curatorial posts would appear at least to have remained static. The ratio of curatorial : technical posts has certainly increased many times over.

Martin Elliott, Senior Conservator (Natural History),  
North West Museums Service, Griffin Lodge, Cavendish Place, Blackburn, BB2 2PN

This paper is intended to raise discussion. Any views should be sent to the Group Editor, Simon Moore for inclusion in the next issue.

## NSCG Conference and AGM

Ipswich Museum, 27-28 March 1996

Although the actual venue was slightly different Ipswich welcomed back the group for its second meeting since the *Life After Death* conference in 1992. Mike Evans the Head of the County Museums Service welcomed the group to Ipswich giving some background history to the museum which was originally a natural history museum when it opened its doors in 1853, the only museum at that time to have a mounted gorilla specimen and a cased giraffe!

There followed a series of high-quality talks throughout the day started off by Diana O'Sullivan from the Horniman Museum who spoke of the Care of Collections Forum which was evolved by a group of curators at the Getty preventative conservation course. The forum covered as wide a constituency as possible including the management of environmental monitoring systems, data, documentation and low-cost storage solutions. She continued about the Horniman's strategy to secure protective and supportive situations for collections on display and loan, also for reserve/research collections against dust and pollutants (especially from the nearby South Circular road), staff weaknesses, temperature, RH, light and pest infestations.

Simon Moore spoke about his experimental project of setting up a mycoherbarium at the Hampshire County Council Museums Service. As Hampshire contains such mycota rich areas as the New Forest it seemed sensible to set up a herbarium of freeze-dried slices of fungi so that their

anatomy could be more easily examined scientifically and that the collection of herbarium folders would take up much less space than a collection of entire specimens. He mentioned, however, that entire specimens, more for display purposes, already existed. He welcomed suggestions as to how such a herbarium could be improved.

Paul Radcliffe from Chris Collins' geological conservation unit at Cambridge University spoke of a project to conserve a badly-degraded ichthyosaur whose matrix was cracked and crumbling. This was conserved using an effective but expensive mixture of CIBA-GEIGY resins and phenolic microballoons, backed onto aluminium foil with cornuba wax both as a support and separator.

The degradation of certain microslide mountants over time formed the basis of Paul Brown's talk. Although balsamic mounts were still OK after 150 years, gum chloral and phenol balsam were found to blacken irreversibly and dissolve cuticle. Gum chloral was also found to crystallise (reversed by rehydration) although the crystals had often disrupted specimens. He also advocated the use of phase contrast microscopy when using balsam mountant since its refractive index was close to that of insect cuticle. He wound up advising slide mounters to use the correct solvent for mountants: xylene should not be used for the excellent mountant 'Euparal', Euparal Essence should always be used (obtainable from: Asco Labs, 52 Levenshulme Road, Gorton, Manchester, M18 7NN).

Dick Hendry from Glasgow Museum outlined the preparation and mounting of the museum's St Kilda exhibition; how two houses were reconstructed using light-weight plastics, plaster and papier-mâché for the exhibition and how children and adults could extract island artefacts and natural objects from a beachcombing 'lucky-dip' and then identify them by comparison to a range of objects on display in an adjoining room. The home of the St Kildan wren, mouse and Soay sheep had much to offer visitors, especially to those who thought that St Kilda was a Pacific Island!

After an excellent lunch in a nearby pub there was a chance to look around the museum or view the Hanwell environmental monitoring system and see how the museum's galleries suffered from low RH (30-45%) - obviously a good case for displaying freeze-dried specimens! Julian Carter filled the post-prandial slot and most ably prevented us from drifting off by showing the importance of using the correct buffer for formaldehyde in fluid-preserved collections. Although he does not advise the use of formaldehyde as a fixative, especially due to its DNA-masking property, he showed how certain buffers will halt or slow down carbonium ion production, essential for continuing fixation and preservation of tissues. Using elasmobranch intestinal tracts, notoriously difficult for long-term preservation due to their lipid content, he showed the effects of adding sodium acetate or using buffered formol-saline (whose pH dropped from 9.0 to 4.5!). He advised the use of sodium hydrogen phosphate mix, or better, sodium  $\beta$ -glycero-phosphate as the best buffers for formalin.

The final two talks were palaeontological and it was refreshing to have such a wide range of disciplines. The first, by Gordon Turner-Walker of Norwich Museum concerned the discovery and subsequent removal of most of an elephant skeleton from the 600K year old deposits that form the cliffs at West Runton. The bones and skull were covered with a wet tissue compress and embedded in a plaster jacket with aluminium foil. This technique preserves the bone well enough for SEM examination but is unadvisable for long-term storage since the sealed in moisture gives rise to pyrite decay.

Lorraine Cornish of the Natural History Museum completed the day's talks explaining the techniques for casting fossil material and the dilemma that many museums face when required to make casts for display or when offered sums of money for making casts of *Aepyornis* eggs, skeleton of *Hypsilophodon* (tree dwelling dinosaur) or *Archaeopteryx* but which takes conservators away from their real work. She then explained the important steps of making a 'master-cast' of important but fragile specimens, how the flash line should be preserved to facilitate future mould making. She also gave much useful information in the form of tips: cracks and holes in bones should be filled with soluble plasticene (Rixon, 1976 see below), the use of Teepol W as a separator and methylene chloride as a solvent for removing old varnish. She also outlined a new technique whereby a laser can cut out the shape of a skull, including its internal morphology, using a stereo-lithograph software system.

Formula for water-soluble putty (Rixon, 1976):

polyethylene glycol	70g
glycerol	23g
water	15ml

Mix cold, then warm slightly and stir into a smooth paste, allow to cool and then thicken slowly with 29g of precipitated chalk for every 100g of the mixture.

Rixon, A.E. (1976): *Fossil Animal Remains* Athlone Press, University of London.

The groups first AGM followed and apart from Paul Brown no-one volunteered for any of the committee posts. Paul replaces Clare Valentine who resigned as a committee member, James Dickinson was also dropped from the committee as his post of meetings co-ordinator had been

subsumed by those whose own venue for meetings automatically volunteered then for this duty. The meeting formally thanked Clare and James for their past services on the committee. The effect of the long day had taken its toll on many and although the formal business of the AGM was discussed and concluded, it seemed to be less well ordered than usual and I hope that members and intending members were not put off. The conference was quite well attended despite late publicity and the standard of the day's talks was high showing that, as a group, we have much to offer. The group has been asked to mediate at a conservation workshop on the Thursday evening of the Cambridge Conference in August.

Simon Moore

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Julian Carter has kindly allowed me to reproduce a shortened version of an article that he submitted to *Collection Forum*. The full length version has been paraphrased as a part of the fluid preservation chapter in the forthcoming Butterworth-Heinemann publication *Conservation of Natural History Collections* (Eds D Carter and A Walker). Watch this space for more details of this work which should appear in 1997 (Simon Moore).

## The use of formaldehyde as a preservative

Recent conservation work on a fish parasitology collection held at the National Museum of Wales has demonstrated the problems of acidity occurring in formaldehyde solutions when used as a preservative. The collection mainly comprises intestinal tracts, largely from elasmobranchs, which have remained in their original 4% formaldehyde fixative solution since the material was collected in

1990/91. Checks on the material in the collection revealed an acid pH developing, often less than 4.0, combined with a substantial yellowing of the formaldehyde solutions indicating the occurrence of chemical changes such as protein dissociation and lipid leaching. Since the parasites contained in the intestinal material have been found best preserved in formaldehyde for subsequent work by light