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The University of New Mexico Herbarium Links Page
<http://biology.unm.edu/~herb/herblink.htm#Section3>

The Internet Directory for Botany maintains a list of herbaria, botanical museums and natural history museums listed by country or just those in the USA in alphabetic order.

Directories of Collection Managers, Herbaria and Plant Taxonomists. Herbaria Online, is a searchable database.



Book Announcement

Nurturing Conservators: The Early Careers Paths of Conservation Graduates

N. Jagger & J. Aston

Report 362, January 2000, 1-85184-291-8, pp. xii+72 £17.50

The increasing levels of self employment amongst conservators is changing the skills and attributes required for professional development. Internships provided an important head-start for conservators' careers, with the acquisition of valuable hands-on experience as well as a range of useful contacts and the imprimatur of the host institution. Despite relatively low wages and great career uncertainty there is a striking commitment amongst these graduates to conserving the nation's heritage. This report presents the results of a comprehensive study undertaken for the Museums & Galleries Commission.

The report may be purchased from Grantham Book Services Ltd, Isaac Newton Way, Alma Park Industrial Estate, Grantham NG31 9SD. Tel. 01476 541080, Fax 01476 541061.

Website: <http://www.employment-studies.co.uk/pubs/362.html>

Anoxic Environments, Oxygen Scavengers and Barrier Films

29th – 30th November 1999 at the Museum of Welsh Life.

Julian Carter, National Museum and Galleries of Wales, Cathays Park, Cardiff, CF1 3NP

This two-day conference was hosted by the National Museum and Galleries of Wales in co-operation with the Geological Conservation Unit Cambridge, the British Library and Conservation by Design. The conference explored the developing field of using inert atmospheres to aid in pest control and artefact conservation, with talks covering both theory and practise.

The conference was given a good start by Dr Ian Fallis (Cardiff University) who gave an excellent talk covering the chemical principles of oxidation. David Howell (Textile Conservation Scientist) further illustrated the effects of oxidation and light on textile pigments, and David Pinniger (Consultant Entomologist) spoke about the potential uses of anoxia in insect control. The conference then went on to explore some of the practical elements in setting up anoxic systems such as nitrogen generators; oxygen scavengers; types of barrier film available; and the types of oxygen analysers that are available.

On the second day of the conference talks and demonstrations were held by a number of companies and museum conservators on projects using anoxic atmospheres. This included the use of the Rentokil Bubble, the anoxic/heat system of Thermo Lignum and the Archipress system marketed by Conservation by Design. Conservator based projects included storing pyritised fossils, colour photographs and papyrus scroll fragments. In addition, a talk on the use of inert atmospheres in fire control was presented by Alan Elder (ADT Fire and Safety) who covered the use of a developed gas called Inergen to replace the Halon based fire systems.

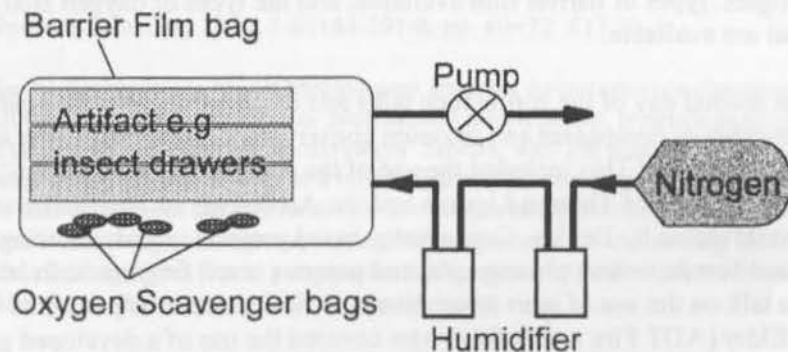
Dr Brian Davies (Consultant Chemist) gave one of the last talks of the conference. This was an excellent presentation that covered the role of

Carotene's and similar compounds in plants, which are used to control reactive species of oxygen produced from photosynthetic reactions. Brian then went on to illustrate how medieval illuminators used such plant extracts to stabilise certain pigments.

The conference was well attended, with over 100 delegates and speakers from throughout the UK, Europe and even as far as Japan! Overall, a very worthwhile conference that was of great value to those who attended.

Following the conference, a demonstration was given by Chris Collins of the Geological Conservation Unit, Cambridge on how to set up and use a barrier film bubble for creating an anoxic atmosphere. Figure 1 shows the principles of the set-up, which can be used to form atmospheres with an oxygen content as low as 0.2% for 30 days. This set-up offers a practical system for use in museums. In Sweden a portable system has been put together for use by multiple museums, a set-up which the Area Museum Councils in the UK should perhaps consider repeating.

Figure 1. Anoxic Environment Set-up



Basic Procedure;

1. Remove excess air with pump.
2. Flush atmosphere in bag with nitrogen to begin removal of oxygen.
3. Add oxygen scavenger to reduce oxygen levels to below 1%.

The use of anoxic environments for pest control and artefact storage certainly has great potential in the museum world, although there are still disadvantages in the cost of setting up and maintaining the environments and the treatment time required. There are also further long-term concerns over the effects of the environments on some materials such as pigments and the stability of the barrier films for long-term storage. However, such concerns are being researched, and as the use of anoxic environments has input from commercial companies such as Rentokil and Mitsubishi Gas Chemical, there is the prospect of continued development of the materials used in the process of anoxic environments.

Two conservation problems

Simon J. Moore, Conservator of Natural Sciences, Hampshire County Council Museums Service, Chilcomb House, Chilcomb Lane, Winchester, Hampshire S023 8RD.

At the 1999, NSCG Conference in Leicester two conservation problems were highlighted for which no one had any answer. The first came out during a tour around the collections where I was shown a mounted stoat in its ermine coat that had gradually yellowed. I have also noticed that fixing a freshly dead or freezer specimen in formalin has an even more dramatic effect - within 24 hours all the white fur has turned a bright buttercup yellow, which change appears to be irreversible.

Does anyone have any idea why and how this (presumed) chemical change occurs? and can it be reversed?

The second problem was put forward by Jenny Bryant at the Conservation Surgery and which had just been written up by New Zealand Museum researchers Nelson & Falshaw, 1999. Certain carageenophyte marine algae, some of which had been in herbaria for over 100 years, suddenly started to deteriorate dramatically and irreversibly. The polysaccharides in the thalli