

## **ENDANGERED SPECIMENS, ENDANGERED SKILLS: A MUSEUM CONSERVATION INITIATIVE**

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Although historically, anatomy and pathology collections have played a significant part in medical education in the UK, many of these collections have suffered neglect towards the end of the last century. As specimens were used less often for teaching and research, collections declined – and with them their documentation and the requisite preservation skills. Recent interest in object-based learning and practical teaching sessions has revived the use of pathology and anatomy collections, but there are fewer collections and staff available to facilitate this learning. This paper reports on a project launched by the Museums and Archives department of the Royal College of Surgeons of England which aims to safeguard both anatomy and pathology specimens and the skills required to preserve these.

### **THE PROJECT**

A three-year conservation initiative was launched by the Museums and Archives Department of the Royal College of Surgeons of England, generously supported by the John Ellerman Foundation and the Board of Trustees of the Hunterian Collection. ‘Endangered Specimens, Endangered Skills’ is in the process of training two new conservators, preserving 900 specimens from the College’s collections and injecting more ‘wet’ preparation skills into the sector through a bespoke training programme. Those involved in the project’s specialist-lead workshops and tutorials are custodians of similar collections, or entry-level colleagues seeking specific skills in conservation and collections care to ensure their future employability. Training is supported with the opportunity

to continue developing those learned skills through regular volunteering in the conservation lab – a key role in protecting the College’s own collections. Training sessions include the maintenance of acrylic and glass based collections, the conservation of preserved specimens and the preparation, fixation and preservation of new material.

## THE SPECIMENS

The Hunterian Museum is a surgical heritage resource which includes human and animal anatomy and pathology specimens as well as paintings, historical surgical instruments and archives related to the history of healthcare. A large part (more than 3000 preparations) of the displayed specimens was collected by John Hunter, who used these to teach the anatomy of the human body in the 18<sup>th</sup> century.

Some of the 18<sup>th</sup> century collection originated from St George’s hospital or were donated by contemporary surgeons or anatomists, but most of the specimens were prepared by Hunter himself. These include varnished dry specimens as well as wet specimens, some of which were injected with (red) dye to demonstrate intricate anatomical structures. Most of the wet specimens were fixed and preserved in alcohol and stored in glass jars. Specimens were suspended with threads to prevent them sinking to the bottom of the jars and tops of jars were sealed with layers of pigs’ bladder, tin and lead and painted over with pitch (Fig. 1).



**Figure 1.** Historical pig’s bladder specimen

In the 19<sup>th</sup> century, the jar tops were gradually replaced by glass lids, which were sealed using pitch, a tar-like substance, or, more recently, synthetic sealing methods such as silicone rubber. Over time, different fixation and preservation techniques have also been introduced, including the use of oil of turpentine, glycerine and formalin. In more recent years, some specimens have also been transferred to acrylic containers.

The different preservation methods used over time each present different conservation issues. For example, the historically used oil of turpentine cannot be used in conjunction with the currently used sealant method, silicone (Fig. 2).



**Figure 2.** Conservation problems in acrylic (left) and glass (right) specimens. LEFT: deformation of plastic container; RIGHT: problems with interaction silicone sealant and oil of turpentine and leaching of injected red dye causing discoloration

Today, the main conservation problems related to wet specimens are evaporation, discoloration and leaking (Fig. 2). Sealants can deteriorate over time, causing the preservation fluids to evaporate and requiring the containers to be refilled (Fig. 3). Added to this, as time passes, injected dyes can start to leach, causing discoloration and in such cases, fluid replacement is necessary (Fig. 2). The main cause of leakages in containers is the gradual deterioration and deformation of acrylic containers (Fig. 2). The potential for the tissue itself to deteriorate is also a concern for the long term future of 'wet' specimen collections and further research is required in order to develop methods that will reduce or eliminate 'biodeterioration'.



**Figure 3.** Evaporation of alcohol in glass jar before (left) and after (right) conservation

### INTERNAL TRAINING COURSE

As part of the project, two new conservators are being trained in order to preserve 900 specimens from the College's collections. Sessions have included manufacture of common fluid mixtures (Kaiserling III, alcohol), glass drilling and cutting, gelatine steaming, acrylic maintenance, museum documentation procedures and pest management (at the British Library Preservation Advisory Centre).

Over the first half of the project, around 400 specimens have been conserved. Conservation work included removal, handling and remounting of

often very fragile, historical human and animal specimens (Fig. 3). Further work is being carried out on research into freeze-drying and sealing methods.

## **EXTERNAL SHORT COURSES**

At the start of the project, it became apparent that an effective way of injecting skills into the sector would be through short, intense training courses. The first three conservation training sessions involved custodians of similar historical and modern medical collections and entry-level individuals seeking specific skills in conservation and collections care to ensure their future employability (Fig. 4). Topics of this three day course included specimen documentation, sealant removal, fluid identification, handling specimens, temporary labelling and storage and remounting. Other conservation problems, such as lipid leaching, lipid accumulation etc. were also discussed. One participant, Dr Claire Jones of the University of Leeds, promoted the project on the Leeds History of Science Museum blog; she and her colleagues found the ESES training ‘incredibly useful and the new knowledge and skills we now possess will be invaluable in developing a plan for Leeds’ wet specimen collection’.

## **THE FUTURE OF SPECIMEN PRESERVATION**

As a result of the project, some of the specimens at greatest risk are now stable for decades to come, and the visitor/researcher/user experience is richer. Natural science collections will always need care and attention. Through its internal and external training courses, publications and participation in workshops such as “New life of old skeletons and paper maché models”, organised by the European Association of Museums of the History of Medical Sciences at the University of Tartu, we hope that the ‘Endangered Specimens, Endangered Skills’ project will add to the sharing of practical knowledge about anatomy and pathology specimen conservation for many years to come.



**Figure 4.** Museum professionals at work during one of the conservation training courses

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