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Author(s): Campbell, P.

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## **Taxidermy Workshop - 13<sup>th</sup> February 2007**

**In association with the Guild of Taxidermists, The Lancashire Conservation Studio, Lancashire Museums, Preston.**

Patrick Campbell, Natural History Museum, London

Lancashire Conservation Studios is the conservation section of Lancashire County Museum Service. It is a shiny, new, purpose built studio within a beautiful historic grade 2 listed Church. The studios are considered a landmark development to promote conservation to the public and to enhance facilities for collection care training across the North West of England.

Most of the delegates made the trip up to Preston the night before and were booked into the Travel Lodge conveniently situated yards from the Studios.

### **'Art, Science and Bad Taste'**

**Dr. Pat Morris**

#### **History of Taxidermy**

After Registration and morning tea, we were given a presentation by Pat Morris entitled 'Art, Science and Bad Taste'. His talk charted the History of Taxidermy centering on his definition of Taxidermy; 'The Preservation of an animal in a lifelike pose, attempting to recreate life'. Based on this definition one can leave out mummies as they clearly do not represent the animal as it appeared in life. This enables us to arrive at a definite start date for Taxidermy of about the middle of the 17 century (post mummification). Birds, mammals and fish were first attempted (poorly) and kept by noblemen as curios. Pat traced some of the earliest specimens with difficulty as although museums had a lot of the material (Calceolarian museum 1622, Wormian museum 1655); sometimes these were not labeled correctly or not labeled at all. Horses were important status symbols a long time ago so the oldest extant mammal found was a stuffed horse. This horse had been cherished like a prized car when it was alive by its owner Archduke Albert and adored in death as it took a bullet for him in the neck when the Archduke was ambushed one day.

The oldest bird found by Pat was the Duchess of Richmond's parrot 1702 in Westminster Abbey. It died 6 weeks after the Duchess and instructions were given that it should be stuffed and put with the Duchess's effigy. However, the Abbey has no proof that this was the actual parrot and not a replacement. This particular specimen was radiographed by Pat revealing an intact skeleton in its entirety (including the skull and brain) suggesting a technique not typical of 19th century preparation, hence it was likely that this was the original and not a substitute. By the 19th century, taxidermists knew that most of the problems connected with decay of their preparations were because of insect attack, so to combat this they removed all the soft parts, including muscle tissue and the brain. This parrot was kept in a crypt, which being fairly cold, offered refrigerated preservation. Insect life cycles can not be completed in these conditions. The first books were published by the French 1740-50's then they were translated into English after which they were circulated more widely.

Insect attack was the chief problem back then. Nowadays, with central heating and drier atmospheres, this problem just does not exist - at least on pre-1950 specimens, which were covered with chemicals. Preservation of the skin from insect attack was combated using arsenic oxide. This turns into a gas in damp conditions leading to self fumigation, very effective in keeping bugs away in a sealed up case, which when opened, smells of garlic. However, taxidermists soon turned their backs on this form of preservation due to its poisonous nature. Other forms of preservation were then used, they included the use of such chemicals as mercurous chloride, Phenol and Benzene all of which are now classed as hazardous. We were then shown images of the type of damage caused by moths, in the absence of arsenic, which were quite alarming. Pat was of the opinion that there is no proof that taxidermists were more at risk of early death due to their exposure to arsenic. The average age of Taxidermists dying was 73 years old, better than average at the time.

Despite having solved the problem of how to preserve the animal preparations by the 19th century, some of the older examples were poorly prepared. Common faults included the following abnormalities; legs too far

back, neck too stretched, wings drooped in birds. Interestingly these faults were duplicated by artists in their pictorial representations of animals back then and also more recently by photographers today!

By the time of the Great Exhibition in Crystal Palace in 1851, John Hancock did for Taxidermy what J.J. Audubon did for bird illustration; showing 'action' poses. Taxidermy then became much more widespread and people had preparations in their homes leading to a development of commercial taxidermy. (This is why the UK has so many decorative cases). The late 19th century was the great age of taxidermy (around 1895 the peak) tapering off some years later. Shaw's shop in Shrewsbury was quite an 'eye catcher'; many towns had shops with windows decorated with an assortment of stuffed animals. In Glasgow alone there were 18 businesses in 1880, and Edinburgh had similar numbers. Birmingham had 16 and London had about 200-300 about that time. Many small towns did not have enough work for taxidermists hence many people had two or more trades advertised on their business cards:

- W. Alderton; Hairdresser and Picture Framer
- James Ocock; taxidermy, cook, cake manufacturer, ornamental pastry, carving, gilding etc.

Hairdressing was quite often a second trade for taxidermists suggesting that hair taken from customers may well have been used as material for stuffing.

Some of the work carried out by these taxidermists, however, was not of the highest quality; animals were often squeezed in small boxes and a lot of the early work was unlabeled. Some, the larger London taxidermy firms, created work which was colourful and elegant. This was intended for home ornamentation only and not for scientific use and was usually consisted of displays of birds from different parts of the world.

Scientific preparators tried to look at variation for comparative purposes reflecting the scientific questions of the day (Darwin's evolution etc). Later, early 20th century preparations tried to answer questions about ecology and behaviour. Specimens were often demonstrated showing something of their daily behaviour. Other taxidermists put their birds in empty cases so as to turn the focus towards to animal itself without the peripherals. Anglers also had an interest in taxidermy, wanting to preserve their catch as a souvenir not a scientific preparation, often in bow-fronted cases and labeled typically with the weight of the specimen, when it was obtained and where it was obtained. If one was to look a little closer though, it could be seen that these often were not scientifically correct (for example reeds, which were often added to Fish trophy cases, do not flower in water).

Taxidermist customers also included collectors who often wanted rarities and oddities (albinos etc). E.T. Booth was a wealthy gentleman collector who collected birds and started his own museum in Brighton. However, this kind of collector often attracted fakes. Large mammal collectors then moved towards producing dioramas which reproduced whole scenes showing the natural habitat of the stuffed animal, Denver Museum, American Museum of Natural History (probably the biggest and best) and the Natural History Museum in London (dismantled about two years ago) have some excellent examples.

### **Mammalian Taxidermy**

In mammalian taxidermy some of the more initial methods used could be likened to 'stuffing a pillow' which produced lifelike results. Sack-like representations are still on display in some museums. Modern methods use 'bound up bodies' (a mummified 'pillow' mimicking the actual shape of the animal being prepared, this was inserted inside the skin, or the skin was pulled over it) for smaller mammals. Sometimes clay was used under the skin in order to reproduce skin folds to make it easier to show facial features in expressive animals such as dogs and primates. However, the downside is that clay would make the preparation quite heavy. Hunting trophies were a big physical problem; the skins were usually very heavy in large mammals such as walruses. Fox hunting was particularly popular and the taxidermist could almost guarantee being offered a selection of fox heads over the winter (the hunting season) to work on. Snarling foxes, although inaccurate, were often demanded by the customer. Whole foxes could be produced but were rather expensive as they needed larger cases. Hutchings devised a neat way of fitting a large fox in a small case and his work could easily be recognized by the specific way in which he did this. Taxidermists had trademark methods of preparation and display which makes identification of a particular preparation easy because their work was so distinctive.

### **Moulds and Mannequins**

Modern methods use mannequins. This involves skinning the animal, making a clay model out of it and then creating a mould. With this mould you can then produce mannequins out of paper mache or foam. This can be used as a base over which the skin can be pulled. Every one of these is a one-off. The finished product depends entirely on the skill of the person who made it originally. With this method mass production is possible; the skill is invested in making the mould from which many mannequins can be made. Once this has been done, a relatively unskilled person can then be employed to put the skin on top of these mannequins later, the time consuming part of the process. In America it was claimed that this method started as far back as 1901. In the UK Peter Smicers of Lymington started making mannequins out of plaster of Paris in cast iron moulds in the first world war (deer heads, otters and so on). Van Ingen and van Ingen used the method during the time of the Raj.

### **Practical demonstration - Preparing a small mammal study skin**

**James Dickinson, Conservation Officer, Lancashire Museums and Chair of the Guild**

#### **Making a traditional museum rounded cabinet skin and preparation of a small bird**

A lot of the skins used to produce the backup for species lists and inventories are prepared in the field. Before the work is carried out standard measurements are taken; head and body length, tail length, size of the ear (this varies according to latitude particularly within a species, you get smaller and smaller ears with higher latitude) the hind foot length and body weight. This field data will stay with the specimen when it is put in the collection finally.

#### Methodology:

- Acetone was used to de-fat the animal, water injected into the tail (sometimes a mixture of water and acetone). If the specimen (small shrews for example) is more than a few hours old they start digesting themselves with their own digestive juices and fur comes out in chunks which makes it difficult to get a good skin preparation. Borax used whilst carrying out the preparation, also helps to keep the hands dry. It is also a good preservative on small skins but not so good at combating insect attack. After about 1920 it became readily available but unless it was mixed with an insecticide was ineffective in fighting decay.
- The skin is pulled backwards from the tail. Tail bones need to be removed and replaced with wire or a piece of wood when removing the skin, to keep the shape. Mice (especially dormice) are particularly bad as the tails tend to fall off.
- The skin is taken off 'like a sock' once it is separated fully from the rest of the body with a scalpel. When you get to the shoulders the process can get a bit tricky. You need to break or cut through connective tissue here and around the ear close to the skull, leaving a big hole then you can cut around the eyelids to release the skin from that part of the anatomy. Cut as near to the eye as possible. In the tropics when this type of work is carried it is quite common to run into difficulties because many of the small mammals there have incredibly thin skins (having the consistency of wet tissue paper) and their connective tissue is often much stronger than the skin leading to inevitable tearing. Injecting the skin with formalin strengthens the skin enabling it to come off in 10-15 minutes, in the UK though most small mammals have quite thick skins, so this is not such a problem.
- The lips and the nose are the last attachments - once these are cut through the skin comes away from the body fully. Inside out the skin reveals dark patches which are moult patterns - the pigment for the fur is actually still resident in the skin where the new skin is growing, this should be recorded (the stage of the moult) as this is not always visible from the outside. Also sexing the animal (looking for eggs) when opened up like this and recording the data is useful. Turn the legs inside out, leave as little flesh in the skin as possible.

#### Tips:

- Tearing tends to occur when you pull at the skin excessively. This will cause stretching which is difficult to get rid of later, especially when you want it to look lifelike.
- There is not much need for skinning fish in this way. It is much more useful from a scientific point of view to keep the whole specimen pickled in alcohol, while for display purposes models can be made.
- It's difficult to keep specimens dry in the tropics (very humid); skins can be hung on lines to dry or on the front of cars/trucks near the radiator. Drying skins over fires is not such a good thing because you tend to get them going hard – however all is not lost, they can be relaxed

using water.

- Filling out the space taken up by the bone in the tail can be done using cardboard (as a long thin strip, straws could be several mm wide)
- The skin can be filled using cotton wool, try to avoid using hay or some other natural material which may harbour pests.
- There is no approved insecticide institutionally for helping to preserve the skin, but for home use borax can be mixed with an approved non volatile insecticide like pyrethrum which will help to some degree to make it insect and bacteria proof.

### **Flat Skins - for teaching purposes recognition and to learn about furs**

**Pat Morris**

Pat showed us some of the very impressive flat skin preparations of mammals, tigers and bats that he stuck on cards for the Natural History Museum. The tails of these preparations were kept rigid by use of the flat card. Information about each specimen was written directly onto the card ensuring that the data always remained with it. The method began with small mammals, but was soon applied to much larger ones. Pat soon found himself presenting the NHM with a Baboon! He has since continued making all sizes of animal preparations in this fashion. Bats were created where one side of the wing was spread to show the detail and the other folded. Although not lifelike in presentation, the method is advantageous in many ways - the main method of preservation is drying and the data is never separated from the specimen. These specimens were quite student- proof and have been passed around students since 1965 without breaking down. They can also be bleached using hydrogen peroxide (Fig. 1).



Fig.1. Pat Morris holding a flat skin.

#### **A word about cases:**

Putting a mount in a case helps to preserve it, prevents it from being touched to destruction and makes it look good.

#### **A word about salt:**

Salt is a good preservative in field, stuffing an animal with it to prevent decay works well.

#### **A word about freezing:**

Wrap the specimen in tissue paper to avoid 'sweating' in plastic bags if and when freezers fail. Acid free tissue and heavy gauge plastic bags should not be used for wrapping preparations; the heavy plastic bags will eventually crush your mount.

### **Practical demonstration - Preparing a bird study skin**

**Peter Summers, Taxidermist, National Museums of Scotland**

The bird used was a Dunnock, *Prunella modularis*

This was quickly and nimbly done (see Figs. 2-4)

Main steps:

1. Open bill
2. Insert cotton wool down throat
3. Take measurements
4. Incision made in abdomen, magnesium chloride inserted to absorb fluid leaching out.
5. Push knee and the remaining leg bone of the bird up and make a 'wooden splint for leg skin'
6. Cut through backbone to remove 'tail' bone
7. Gently pull skin off without tearing' it (use a lot of magnesium chloride)
8. Cut around the ears and eye
9. Clean the skull out with tweezers making notes all the time about the ossification of skulls - if fully ossified then it's an adult

16. Feed cotton wool up into the cheeks
17. Fill shoulders with cotton wool, 'scapula stitch'
18. Use 'body' removed earlier as a reference for filling the rest of the skin.
19. Sew up the animal



Fig. 2. Peter Summers prepares a small bird.



Fig. 3. Using magnesium chloride to soak up the fluid.



Fig. 4. Cleaning the skull with tweezers.

### **Modern Taxidermy methods and techniques**

#### **James Dickinson**

Nowadays 'bodies' upon which skin can be stretched over can either be carved bodies out of foam, balsa wood or polyurethane foam. The polyurethane foam is problematic though in that it is not known whether or not it will eventually degrade. These 'bodies' can also be bought (e.g. mink etc), which provide a rigid filling. They need to be anatomically correct (Fig. 5, Fig. 6.).

#### **Hyde pastes**

McKenzie's Hyde Paste are used, based on paper mache to which is added PVA glues and tile adhesives for larger skins. There appears to be no real standard here, a try and see policy is followed. However, epoxy glues are hard to work with as they 'go off' quickly hence do not give enough time to complete the preparation. In order to reproduce fatty tissue and to add 'bulk', trade fillers are used, they are mixed in with the glues.

Commercially, fish and reptiles are still in demand. Fibreglass fish are used as a base and dental alginate is poured over the specimen to make a mould from which many models can be fashioned. Fibreglass fish models can be painted using oil colours (again, no standard here regarding the type of paint) but drying time can be a problem, nowadays there is a tendency to use acrylic paints more, these are water based.

#### **A word about fading:**

It's very difficult to re-paint hairy mammals, quite often when you examine close enough, naturally, each strand of hair has a slightly different colour so to restore it, each strand of hair needs to be painted individually, which is a tall order. It is perhaps best to leave faded specimens alone as there are some really bad ex-



Fig. 5. Making a 'body' for the inside of the skin.



Fig. 6. Sewing up the skin around the newly made 'body'.

Taxidermists are blamed for animals becoming extinct in the wild, as though every owl in a glass case is one less in the wild, akin to blaming undertakers for the fact that people die or that there are less people in the world! Squirrel hunting clubs went out and shot the grey squirrels not the taxidermists. People were paid to go out and shoot animals such as foxes and corvids in the 1800's as they were seen as vermin. It's illogical to think that taxidermy is responsible for the scarcity of some animals.

'Taxidermy is boring' is often heard, or that it is 'too gruesome to display', but if you look at the Dresden Art gallery you see rooms and rooms of two dimensional paintings with some depicting very gruesome scenes. But this is seen as entirely acceptable.

Taxidermy itself has changed; there are a lot of new materials, new opportunities, new skills...and new taxidermists. Skin replacement techniques are used - replace the skin with resin and you end up with an animal whose fur is embedded in the resin. This gives very lifelike results particular with large animals like dogs and pigs. So it is wrong to judge Taxidermy by the very crude results of say 100 years ago when there has been so much progress made recently.

### **Summary of the event**

It was a day when a lot of information was given regarding Taxidermy past and present mingled with the expert handling of practical demonstrations. Leaving those who attended, wanting to go away and 'try for themselves' some of the things witnessed or to improve on methods they themselves were using.

### **Natural History Collection Conservation Assessment Seminar**

#### **Leeds Discovery Centre: 4th April 2008**

10.00 – 10.30	Welcome, logistics	
10.30 – 11.15	Emma Bowron (Leeds) 3D object conservation	For further information, please contact Clare Stringer ( <a href="mailto:clare.stringer@leeds.gov.uk">clare.stringer@leeds.gov.uk</a> )
11.15 – 12.00	James Dickinson (Leeds) Taxidermy and conservation	For booking information, please contact Tony Irwin ( <a href="mailto:tony.irwin@norfolk.gov.uk">tony.irwin@norfolk.gov.uk</a> )
12.00 – 12.45	Clare Valentine (NHM) Collections standards	
12.45 – 13.00	Questions	
13.00 - 14.00	LUNCH	
14.00 – 14.45	Rob Huxley (NHM) “SYNTHESYS” project at NHM	
14.45 – 15.00	TEA	
15.00 – 15.45	TBC	
15.45 – 16.30	Early departures and questions, where from here?	