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ARTIFACTS REVISITED: THE EVALUATION OF OLD TREATMENTS

Tom Stone

In 1994 one hundred and twelve objects treated at the Canadian Conservation Institute and presently housed in eighteen different museums across Canada were examined. The objects inspected were mostly ethnographic and had been treated at the Institute between 1974 and 1985. The aim of the survey was to see if any problems had arisen due to certain treatment approaches or materials which had been used in the conservation of the objects and to develop an appreciation for the subsequent role the museums may have played in the current condition of the artifacts (Figure 1).

The conservation work done on sixty percent of the objects inspected in this survey had suffered no visible alterations in the ten to twenty years since it had been done. Almost without exception the remaining forty percent showed alterations of only a very minor nature such as a gap along the edge of a fill, the lifting of several quills on a porcupine quill decorated object or a few small spots of iron corrosion. It was apparent that in the vast majority of cases the conservation interventions were doing the job intended of them across a fairly wide range of materials and artifact types and that the materials used had not lead to any direct harm or deterioration.

During the survey, one of the categories of materials inspected was adhesives. Adhesives of one sort or another were used in almost every treatment examined in the survey. These included a large number of poly(vinylacetate) emulsions and resins, cellulose ethers, liquid hide glues and a few examples of epoxies, Acryloid B-72 (methylmethacrylate/ethylacrylate co-polymer resin), nitro-cellulose adhesives, Lascaux 360 HV (butyl methacrylate/butyl polyacrylate emulsion), sturgeon glue, gelatin and Rhoplex AC 33 (ethyl acrylate/acrylate emulsion). Of these adhesives, only the poly(vinylacetate) emulsions and the cellulose ethers were encountered with enough frequency to begin to show interesting trends. Thirty-four PVA emulsion glue joins were inspected and of these, only four had failed. Fourteen glue joins made with cellulose ethers were inspected and of these ten had failed.

Cellulose ethers are seen as relatively weak adhesives but adhesives which are generally reversible; ideal qualities for many conservation applications. Due to their general weakness, ease of application and reversibility they have been used in many different applications in conservation. A variety of cellulose ethers have been available to conservators; the water-soluble varieties, methylcellulose, hydroxypropylcellulose, ethylhydroxyethylcellulose, methylhydroxypropyl-cellulose, ethylhydroxyethylcellulose and sodium carboxymethylcellulose and the organic solvent-soluble types ethylcellulose and ethylhydroxyethylcellulose.

Over the years, the Ethnology Laboratory (now the Objects Laboratory) at the Canadian Conservation Institute has used a number of these cellulose ethers in a variety of ways and on a number of different substrates. Of the objects examined which had been treated with cellulose

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ethers, methylcellulose was by far the most frequently used (12 times). Klucel G (hydroxypropylcellulose) and Ethulose (ethylhydroxyethylcellulose) were used once each. Methylcellulose had been used in several ways; usually at 3-5% to butt join edges of basketry or applied to Japanese tissue which was applied as a backing across broken elements on basket repairs or split birchbark. Methylcellulose and ethylhydroxyethylcellulose (Ethulose 400) had also been used in combination with macerated Japanese paper to make a combination fill and adhesive known as “basket goo” which could be applied to the edges of breaks, the paper fibres acting to provide additional strength. Occasionally, methylcellulose was used to adhere lifting quills to birchbark and lifting and split sections of both birchbark and cedarbark. Hydroxypropylcellulose (Klucel G) had been used to adhere delaminating and splitting cedarbark.

Often the failures of the cellulose ethers seemed to be related to situations where the glue joins may have been under stress. For example, methylcellulose had been used to adhere a black paper lining to the interior of a small leather dressing case. One edge of the leather dressing case had curled back slightly out of proper alignment and the glue join had failed. In this case it was appropriate for the glue join to fail as the paper lining may have otherwise torn. With porcupine quill decoration, the quills are usually held to the substrate (often birchbark) by pinching both ends of the quill into the substrate. Often one end will break and the quill, still held at the other end will spring up away from the surface like a drawbridge. To re-lay the quill, adhesive is applied to the underside and at the broken tip. The quill is then pushed down into proper alignment and allowed to dry under a slight weight. In some instances, quills had been glued with methylcellulose and in one case a number of lifting quills had been adhered with ethylcellulose. Examples of the failure of both of these adhesives were seen which had allowed the quills to spring up again, making them vulnerable to damage when being handled.

At one museum two similar, spruce root baskets were examined. These had been repaired in the same way and at the same time but by two different conservators. One of the baskets (Tlingit) showed an approximate failure rate of about 50% of the glue joins. According to the treatment record these repairs had been made using “methylcellulose and paper fibre basket goo” as well as “Ethulose 400 and paper fibre”. Unfortunately it was not more specific so it is difficult to tell how the adhesives were used and whether it was the methylcellulose or the Ethulose (ethylhydroxyethylcellulose) or both, that had had a tendency to fail. The other basket (Haida) showed no failure of glue joins at all. The basket had been repaired using “basket goo” made solely with methylcellulose. This Haida basket had been treated somewhat more heavily with more adhesive being present and the paper fibres of the “basket goo” seeming to be somewhat longer. In effect, the treatment of the Haida basket seemed to have been somewhat “overbuilt” in comparison to its Tlingit companion. Since their return from the Canadian Conservation Institute in 1983 the baskets had been through two storage moves. While the choice of a weak adhesive makes sense if it helps prevent damage to adjacent material, this advantage must be weighed against the potential for failure and loss of some of the repaired elements.

At the ICOM CC meeting in Edinburgh in September of 1996 the Ethnographic Conservation

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Working Group agreed to take a closer look at these adhesives during the next three years to see if the results seen in this survey are supported across a wider sample or are simply an anomaly. I would ask that where possible, members of the Working Group take a little time to go through some of their previous treatments that were done between ten and twenty years ago and which had used cellulose ether adhesives. Please be sure to note the following: the substrate, the type of cellulose ether used and its concentration, physical description or a diagram of how it was used and some background about the storage, display and handling it may have received since it was conserved. It is also very important to look at success and not just failures. Please forward this information to me so it can be compiled for presentation at the next triennial meeting and for publication in the Newsletter.

While the examination of cellulose ether adhesives should be an interesting venture in itself, a very useful spin-off is that it forces one, while trying to compare “condition now” with “condition then”, to quickly come to grips with the adequacies or lack thereof of previous treatment documentation methods. Good luck and I look forward to hearing about your failures and successes.

Editor's Note

A longer and slightly different version of this paper, with the same title, was published in the ICOM Edinburgh Preprints. James & James (*Science Publishers*) Ltd. kindly gave the OSG permission to reprint the original, but it was decided to use the version presented by the author at the AIC meeting for this volume.

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Canadian Heritage

Patrimoine canadien

Canadian Conservation Institute

Institut canadien de conservation

CCI No.

2,003,598

Post-Treatment Examination

OBJECT

Institution		
Object	Sheepskin Coat "Kozhukh"	
	Catalogue No.	Date Treated
	HU.1.779	February 17, 1983

OBSERVATIONS

Dossier Useful, easy to read although hand written. Test samples included and very good diagram. Photos well organized
 Usefulness & and useful. Dossier and photos in excellent condition.
 Condition

Significant Features	Comments
Stiff areas softened with 30/70 ETOH/water.	Areas that had been softened seem to have remained soft. There is no noticeable re-stiffening.
Tear repairs - nylon gossamer tissue and Jade 454.	All tear repairs seem to be holding very well. There is no evidence of lifting and the adhesive has not penetrated or discoloured. There seems to be some stiffening of the backing as a result of the adhesive and this is most evident in the area of the right proper shoulder that received extensive backing.
Dry pigments of complementary colour applied to red stain.	There appear to be some new splits that have appeared on the less flexible area of the outside edge of the right proper sleeve. There are six new splits present. The longest is about 7cm with the rest ranging from 4 to 1cm. The two largest are located in the vicinity of two repairs done in 1983 that had toned in surface patches applied. These are still in excellent condition. These new tears may have occurred as a result of the coat being placed in a plastic bag for freezing or as a result of being picked up by the sleeve. The mount that was made for the coat is still in good condition and is functioning well. The pigment applied to the red stain has not transferred at all. There is no evidence of moth infestation anywhere in the hair on the inside.
Storage & Exhibition History	The coat has been kept on its mount flat and under acid free tissue in a more or less uncontrolled and cramped storage area. It has been on exhibition twice. Once flat and it is suspected that it was placed on a mannequin for the second exhibition. The coats suffered an insect infestation and were bagged and frozen. The coat went through a double freezing. The first was of a month's duration or longer and the second for less.