

DATA PAPER

Survey on Material Used to Fill Wooden Objects During Conservation

Kate Fulcher¹

¹ PhD student, University College London, London, United Kingdom

The data here described are the results of a survey sent to conservators to discover the range of materials being using to fill gaps in wooden objects, and to assess how popular hydroxypropyl cellulose and paper pulp were in regards to this. The survey was created using Survey Monkey, a free online survey tool. The complete dataset is available from UCL Discovery in Excel and CSV format. It is hoped that these survey results can be used by conservators to inform their work on wooden objects and inspire experimental work that will demonstrate the suitability of different materials for the purpose of filling wood.

Keywords: conservation; wood; heritage; Klucel; cellulose; hydroxypropyl cellulose; filler; survey; microb-alloons; acrylic resin; Paraloid B72

(1) Overview

Context

The survey was conducted in April/May 2012. The purpose of this survey was to find out what range of materials conservators were using to fill wood, and to assess how popular hydroxypropyl cellulose and paper pulp were in regards to this. It formed part of a larger, experimental, study into the use of cellulose-based materials to fill wooden objects in conservation. Compensating for loss in objects has a long history, and most likely pre-history. The reasons for loss compensation, or “filling”, are usually structural or aesthetic. If the object’s stability is threatened by the material loss, or the understanding or interpretation of the object is difficult, the gap may be filled; different material properties for the fill may be required for differing circumstances. By filling the loss, the object is more able to fulfil its intended use (at the time of repair), which can vary from being a cooking utensil, to holding religious significance, to representing a culture in a museum.

The conservation professional bodies give guidelines on the use of materials for filling losses. ICON [1] uses the ECCO [2] guidelines and codes of ethics, Article 9 of which states that:

“The Conservator-Restorer shall strive to use only products, materials and procedures which, according to the current level of knowledge, will not harm the cultural heritage, the environment or people. The action itself and the materials used should not interfere, if at all possible, with any future examination, treatment or analysis. They should also be compatible with the materials of the cultural

heritage and be as easily and completely reversible as possible.”

The American Institute for Conservation of Historic and Artistic Works (AIC) [3] guidelines deal more specifically with loss compensation, and have similar intent:

“The conservation professional must strive to select methods and materials that, to the best of current knowledge, do not adversely affect cultural property or its future examination, scientific investigation, treatment, or function.”

Thus, loss compensation must be reversible, detectable, and be easily differentiated from the original material [3].

Reversibility is often mentioned in conservation ethics [4], and listed as a desirable property of fill materials [5, 6]. The concept is that materials applied to objects during conservation treatments should be removable at a later date. Many treatments, including consolidation, are irreversible to some degree [7], and attempts have been made to redefine reversibility as “re-treatability” [8, 9], but the principle of reversibility is still widely used [10]. This survey employed the term “retreatability” as a more realistic goal, but the desire for treatment reversibility stated in the literature on gap fillers is an expression of the same goal.

The materials used for filling wood have been wide ranging, some perhaps more suitable than others, and have historically included “plaster, concrete, bitumen, newspaper, toilet tissue, Plastic Wood, Polyfilla, epoxy resin, polyester resin/fibreglass, motorcar body filler, linseed oil putty, sawdust mixed with various resins, gesso, and various woods” [11]. Conservators decide on the materials to use for a fill

in a particular circumstance by judging which may be compatible with the materials of which the object is composed and the environment in which it is to be kept [12]. It was in order to understand which materials are currently used in the conservation of wooden objects, and to try to understand the reasons why, that this survey was undertaken.

(2) Methods

Steps

The lists of materials used in the survey were drawn up by reviewing the available literature and questioning practicing conservators and teachers of conservation.

Sampling strategy

The survey was distributed by email, using the ConsDistList as well as publically available emails of conservators working in institutions, and emails of conservators known to the author and her supervisor (mainly in the UK). The ConsDistList has over 10,000 subscribers in 94 countries, but because it is maintained by the American Institute for Conservation there was likely a bias towards American and English-speaking conservators. The survey was filled in by 99 respondents. 31% described themselves as working in professional private practice, and 63% as working in an institution.

Quality control

N/A

Constraints

The survey was deliberately kept short in order to encourage respondents to complete it. Thus it was impossible to list every material that might be used in every combination, but optional text comment boxes were provided to allow respondents to give details of other materials used.

(3) Dataset description

Object name

- Survey responses wood fills.xlsx
- Intro.csv
- Summary.csv
- Q1.csv
- Q2.csv
- Q3.csv
- Q4.csv
- Chart data.csv

Data type

Primary data and processed data.

Format names and versions

Excel and CSV both available (CSV in 7 files).

Creation dates

Original data created May 2012.

Dataset creator

Kate Fulcher

Language

English

License

Creative Commons Attribution 4.0 International License.

Repository location

UCL Discovery: <http://discovery.ucl.ac.uk/1416824/>.

Publication date

19 May 2014

(4) Reuse potential

The survey was used by the author to inform experimental work that focussed on the suitability of cellulose based materials (specifically hydroxypropyl cellulose and paper pulp) to fill wooden objects for conservation. It is hoped that this work can be built on and expanded to look at other materials, and that this survey will provide the basis for choosing which materials to investigate.

Acknowledgements

Many thanks to the conservation staff at UCL who supported me in this work.

References

1. **ICON (The Institute of Conservation)** 2012 Professional Guidelines. Available at http://www.icon.org.uk/index.php?option=com_content&task=view&id=121 [Last accessed June 2012].
2. **ECCO (European Confederation of Conservator-Restorers' Organisations)** 2003 E.C.C.O. Professional Guidelines (II): Code of Ethics. Available at <http://www.ecco-eu.org/about-e.c.c.o./professional-guidelines.html> [Last accessed June 2012].
3. **AIC (American Institute for Conservation of Historic and Artistic Works)** 1997 *Commentaries to the Guidelines for Practice. Commentary 23 – Compensation for Loss*. Available at <http://www.conservation-us.org/index.cfm?fuseaction=page.viewPage&pageID=555> [Last accessed June 2012].
4. **Oddy, A** 1999 Does Reversibility Exist in Conservation? In: Oddy, A and Carroll, S (eds.) *Reversibility - does it exist?* London: British Museum. pp. 1-5.
5. **Ellis, L** and **Heginbotham, A** 2004 An Evaluation of Four Barrier-Coating and Epoxy Combinations in the Structural Repair of Wooden Objects. *Journal of the American Institute for Conservation*, 43(1): 23-37. DOI: <http://dx.doi.org/10.1179/019713604806112605>
6. **Podany, J, Garland, K M, Freeman, W R** and **Rogers, J** 2001 Paraloid® B-72 as a Structural Adhesive and as a Barrier Within Structural Adhesive Bonds: Evaluations of Strength and Reversibility. *Journal of the American Institute for Conservation*, 40(1): 15-33. DOI: <http://dx.doi.org/10.1179/019713601806113120>
7. **Smith, R D** 1999 Reversibility: A Questionable Philosophy. In: Oddy, A and Carroll, S (eds.) *Reversibility - does it exist?* London: British Museum. pp. 99-103.

8. **Appelbaum, B** 1987 Criteria for Treatment: Reversibility. *Journal of the American Institute for Conservation*, 26(2): 65-73. DOI: <http://dx.doi.org/10.1179/019713687806027852>
9. **Snethlage, R** and **Sterflinger, K** 2011 Stone Conservation. In: Siegesmund, S and Snethlage, R (eds.) *Stone in Architecture: Properties, Durability*, 4th ed. Berlin; Heidelberg; New York: Springer. pp. 411-544. DOI: http://dx.doi.org/10.1007/978-3-642-14475-2_7
10. **Ashley-smith, J** 2009 The Basis of Conservation Ethics. In: Richmond, A and Bracker, A (eds.) *Conservation: Principles, Dilemmas and Uncomfortable Truths*. London: Butterworth-Heinemann in association with the Victoria and Albert Museum. pp. 6-24.
11. **Grattan, D W** and **Barclay, R L** 1988 A Study of Gap-Fillers for Wooden Objects. *Studies in Conservation*, 33(2): 71-86. DOI: <http://dx.doi.org/10.1179/sic.1988.33.2.71>
12. **Young, C, Ackroyd, P, Hibberd, R** and **Gritt, S** 2002 The Mechanical Behaviour of Adhesives and Gap Fillers for Re-Joining Panel Paintings. *National Gallery Technical Bulletin*, 23: 83-96.

How to cite this article: Fulcher, K 2014 Survey on Material Used to Fill Wooden Objects During Conservation. *Journal of Open Archaeology Data*, 3: e2, DOI: <http://dx.doi.org/10.5334/joad.ad>

Published: 29 July 2014

Copyright: © 2014 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 3.0 Unported License (CC-BY 3.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See <http://creativecommons.org/licenses/by/3.0/>.

