

## Preservation of leather wall-coverings in Jever Castle – university participation in an interdisciplinary project

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### Summary

*This paper seeks to illustrate how we, as a department within the University of Applied Sciences and Arts, Hildesheim, allow our students to become familiar with interdisciplinary work right from the beginning of their studies. Results of their specific research into the leather technology and the mounting of historic leather wall-coverings are presented.*

The leather wall-coverings in Jever Castle in northern Germany date from the early 18th century and come from Flanders. The wall-coverings are embossed calf-skin leather completely 'gilded' with a yellow-varnished silver leaf on which the decoration is painted. Single pieces have been sewn together and nailed down on a simple wooden structure. The mounting of the leather wall-coverings and the changing ambient conditions in the castle have been the main conservation concerns. These conditions are responsible for tension and slack in the leather.

For these reasons, the main goal of the project, supported by the German Federal Environmental Foundation (DBU), has been to establish, in consideration of the castle's current uses, a proper environment and find the best mounting techniques for the preservation of the gilded leather wall-coverings *in situ*.

The project, under the guidance of the Northern German Centre for the Research on Cultural Heritage Materials (ZMK) and the State Office for the Care of Monuments in Lower Saxony (NLD), involves 12 other partners, each responsible for one facet of the question of conservation: Schlossmuseum Jever, Deutsche Ledermuseum mit Deutschem Schuhmuseum Offenbach, Lederinstitut Gerberschule Reutlingen, Institut für Technische und Angewandte Physik – Universität Oldenburg, Ingenieurbüro Berling und Blömer Braunschweig, Staatshochbauamt Wilhelmshaven, Ingenieurbüro Reiner Heimsch Rastede, Ochsenfarth Restaurierungen GmbH Paderborn, and the freelance conservator of easel painting in Worpswede, K. Thönes. Last but not least, our university is represented by the Book and Paper Conservation Department and the Art History, Microbiology and Chemistry Departments.

The Book and Paper Conservation Department team has represented the conservators in the project. The team's professors and teaching assistants have dealt directly with questions concerning leather as a materi-

al and general environmental conservation issues. Should a question require research, the work has been handed over to students under the direction of professors. In this way the students have gained an initial introduction into scientific research in restoration. The various stages of conservation and restoration are understood through the solving of specific problems.

Three topics have been researched by students:

- The condition of the leather in relation to the various stitches used over time as well as the condition of the stitches themselves. This work has been carried out in close cooperation with the Institut für Technische und Angewandte Physik, Universität Oldenburg.
- Various methods of mounting leather wall-coverings throughout history by artisans as well as conservators.

The outcome of these two research topics is expected to contain specific proposals for the actual project.

- Finally, the third topic is basic scientific research into the pH values of leather tanning throughout history.

This project is an example of cooperation among various German institutions.

The following results and conclusions have been reached by the students.

The mounting of the wall-coverings should be conserved following the principle of minimal intervention. In those parts where it is unavoidable, the leather should be stretched in a traditional way – wooden stretchers seem to be the proper solution. A comparison of the different mounting techniques used for leather wall-coverings throughout Germany revealed the quality and usefulness of the traditional wooden stretcher structures. Possible gaps that might appear between particular pieces of leather mounted on the stretcher frames are a major aesthetic problem. It should be born in mind that originally the wall-hanging was meant to appear as a single uninterrupted decorative surface.

From the 3 different sewing stitches which were originally used, the saddler's stitch was found to be the best. The other stitches (a zig-zag and a backstitch) were either not flexible or strong enough, or led to lo-



**Figure 1.** A room in Jever Castle decorated with leather wall-coverings.

cal unevenness. These results were gained from a series of tests in which different stitches were applied to leather and then aged artificially.

Finally, the question of the pH value of the tanning method most probably used for the leather hangings in Jever Castle was answered through research and physical testing, which duplicated the tanning methods used during the 18th century. During the testing process, the pH value of the tanning solution and the leather always remained above 3.5. With this information, scientists will now be able to apply the DNA probe testing and we will then be able to determine from which animal skins leather wall-hangings of the 18th century were made.

Detailed reports are available in printed form at our university.



**Figure 2.** Damages of the painted leather.

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After studies in Vienna and Dresden, received in 1984 a Diploma in Conservation/Restoration from the University of Fine Arts in Vienna. Immediately after graduation worked as conservator at the Austrian National Library, Map and Globe Collection and later joined the staff of the Institute for Conservation in the Austrian National Library. In 1986 moved to Berlin and worked at the State Library of the Prussian Cultural Heritage Institute in the conservation labs and afterwards worked as freelance conservator in Austria, Germany and Switzerland for various institutions, museums, libraries and churches. Since 2000, head of the Department of Book and Paper Conservation in the 'Institute of Conservation' at the University of Applied Sciences and Arts Hildesheim/Holzminden/Goettingen, Germany.