16TH CENTURY LEATHER PLATES – INVESTIGATION OF PRODUCTION TECHNIQUE AND TYPES OF PROTECTIVE COATINGS

Sophie Kurzmann

Sophie.kurzmann@ymail.com

University of Applied Arts Vienna
Institute of Conservation
Salzgries 14/4th Floor
1060 Vienna
Austria

Head o. Univ. Prof. Mag. art. Dr. phil. Gabriela Krist

INTRODUCTION

This study concerns both the historical production technique called kaat as well as the different historical ways of protecting especially alum tawed leather against water damage. The research was undertaken on seven richly decorated, flexible leather plates which belong to the collection of the Kunsthistorisches Museum and are exhibited in the castle Ambras (Innsbruck/Tyrol).

The objects are dated back to the first Ottoman incursion of Vienna in 1529. Six of the objects, of which the diameter varies from 26 to 65 cm and are decorated with prose verses in Ottoman and Persian calligraphy and floral, mostly tulip ornaments. [1] They were used to decorate the tents of the sultan and his highest officers during the raid. The largest of the collection with a diameter of 166 cm is a Nihole [2], a traditional Turkish floor cover which is placed under a small table to make the persons seated around it more comfortable.

PRODUCTION TECHNIQUE KAAT

The production technique which was mainly used to make the plates is called leather intarsi or kaat (Turkish). After the ornaments and calligraphy are chosen the elements are arranged in a design. In the case of these specific objects unpaired, vegetable-tanned and alum-tawed goat skins were chosen for the work. This was proved by chemical tests and microscopic examination. It is uncertain whether or how the design was outlined on the leather. The different coloured layers are placed on each other and the patterns are cut out. Each cut has to go straight through all layers and also has to be done without stopping during the process, to create even, perfectly matching cutting edges. After cutting, the parts are arranged as planned and turned upside down. A support material is covered with glue. In the case of the objects starch was used and they were gently pressed to the verso of the cut pieces. The use of starch was proven by micro chemical test. After turning the work over again minor irregularities can be fixed by sliding the parts into place. If gaps are visible between the parts they can be filled with a mixture of coloured leather fibres and binding media. In the case of paired leather the cutting can be very difficult because the thin leather can be distorted during the cut. In this case the leather was temporarily supported by gluing paper on its verso. [3]

NON-WATER-SOLUBLE COATING ON WHITE LEATHER

The leather plates which were taken by the Turkish soldiers over a distance of nearly 1600 km during their invasion towards the west were exposed to many destructive forces. One of them was water. To extend the durability of the pieces, particularly the white leather parts, which are alum tawed, had to be treated in a special way. This is because the aluminium salts used as the tanning agent cannot form a stable bond to collagen and can be easily washed out of the collagen complex. If this happens, the “leather” reverts into a material which has similar characteristics to untanned hide. To secure the aluminium compounds from contact with water the white parts had been covered with a non-water-soluble coating, which appears yellowish - which could either be the colour of a natural substance or the result of aging. To discover the possible composition of the coating as well as a safe cleaning method which does not endanger the historical surface, a series of tests was carried out. Nine different compounds and mixtures were applied to alum tawed leather: whole egg, egg white, egg white with glycerol, shellac dissolved in alcohol 20%, linseed oil, naturally aged linseed oil, melted beeswax, beeswax dissolved in turpentine and colophony: \( \text{Linseed oil} = 1:2 \). Subsequently the test pieces were artificially aged for 100 hours in UV light and have been cleaned with water and ethanol. Then the test pieces have been compared to the original coating. Most probably the historical coating is a mixture of oil, resin, honey, egg and wax and it is not possible to clean it without endangering both it and the leather below.

CONCEPT OF CONSERVATION AND RESTORATION

The conservation and restoration of these seven objects form the basis of a semester work at the Institute of Conservation of the University of Applied Arts Vienna. The work concept includes the steps of dry surface cleaning. These will be followed by the humidification with the help of saturated salt solutions and GORE-TEX®. This leads to the securing of flaking leather parts by adhere with starch glue and Japanese paper. Damages caused by pest which can endanger the objects surfaces are filled with a mixture of leather fibres and glue to prevent them from collapsing during handling. A storage and display concept is also planned in cooperation with the museum.

REFERENCES


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