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**CONSERVATION-RESTORATION TREATMENTS ON THE EARLY 18TH CENTURY
COMMODE FROM THE SUMMER VILLA GU ETI -GOZZE NEAR DUBROVNIK**

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ABSTRACT

This paper shows methods and results of conservation-restoration treatments on the 18th century commode. The process at its very beginning brought out to light numerous questions and dilemmas. One of the most important issues was whether to conserve the existing condition or to try to find out what the commode looked like when it was built. The chronology of investigation, scientific and practical activities presented in this paper are the result of a ten-month effort; from the preliminary tests and preventive conservation actions, including material identification, disinfestation, structure stabilization, consolidation, cleaning protocols for removing accumulated dirt and removal of overpainting, continuing with reconstruction of missing carved, profiled and woodturned elements, retouching, varnishing, and ending with the final presentation of results.

Keywords: conservation-restoration, arboretum, baroque commode, consolidation, reintegration, identification

1. INTRODUCTION

Summer villa Gu eti -Gozze (fig.1.) is the central building of the Arboretum Trsteno in the Dubrovnik area with its private chapel of Saint Jerome, Neptune's fountain (Fig.2.) and the aqueduct. The villa was built in the 16th century and rebuilt in the 17th century after the devastating earthquake in 1667. The premises of this historical villa and its gardens became the Arboretum in 1948 owned by the Croatian Academy of Sciences and Arts. (BERSA, 1941) Nowadays, only the ground floor of the villa is open for public viewing, while other areas are used as offices and for storage of the art collection and historical furniture. Stored objects represent an original inventory of the villa and were part of the interior (fig.3.). In 2018 The Croatian Conservation Institute made a study of all movable objects within the project "Competitiveness and cohesion" financed by European Structural and Investment Funds. The study offers a detailed list of objects, their state, and guidelines for the conservation-restoration treatments.

The objects are categorized as liturgical objects, furniture, musical instruments, artifacts made of paper, decorative objects, and useful objects from the everyday life of the villa. This collection represents a rarely preserved ensemble of artistic and usable objects that have been in possession of a noble family from Dubrovnik. (GRUJI , 1994) One of the oldest and most valuable pieces of furniture is the baroque commode (Fig. 4.) which is part of this research and was chosen to be one of the first pieces to be restored. The program was fully financed by the Croatian Ministry of Culture and Media.



Figure 1. *Gu eti -Gozze summer villa*



Figure 2. *Neptune's fountain*



Figure 3. *Photo of the first-floor salon dated 1937*

A commode or a chest of drawers is a type of furniture that developed in the 17th century simultaneously in France, England, and in the rest of Europe. Statistically speaking, most of the historical furniture pieces in Dubrovnik derive from the Apennine Peninsula, hence, such pieces today can be categorized as works of Ligurian, Venetian, Lombardian, Neapolitan, or other cabinetworks imported from the workshops of nowadays Italy (VILA , 2011). The commode from villa Gu eti -Gozze carries the traits of baroque style. Its proportions - 104 cm height, 142 cm width, and 70 cm depth - imply that we are dealing with grand scale objects intended for broader spaces. The curved front is divided into four drawers of the same size which, with their shape, represent the main stylistic accent of the piece. The main corpus of the commode is built out of coniferous wood (Fig.5.) typically used among Italian furniture makers. Wood elements made of the coniferous wood are of lesser quality (Fig.6.) but are veneered with 5 mm thick layers of walnut cut in radial section and walnut burl. In this case, such a thick layer of veneer is equally a construction as well as a decorative element. Veneering is achieved using *tarsia geometrica* technique where rectangular pieces of walnut burl are framed with perpendicularly applied radially sectioned walnut. The commode stands on four legs, (Fig.7.), two of which are wood turned bulb-shaped, set on the front side and integrated into the main structure looking almost as if they were a scenographic element. The rear legs, having perpendicular shape, are an extension of the main body of the commode. The sharp edges are rounded and the bottom lines are framed with profiled battens. Conclusions on wood species are based on the visual

investigation, but will be analyzed and presented in the results section. The commode is completely overpainted in green and has applied paper decorations, (Fig.8.) a sort of *arte povera* (Fig.9.) of poor quality on the surfaces creating the shape of garlands and festoons. The biggest dilemma was whether to conserve the state of the object or to try to restore it to its original settings. The green overpaints and paper decorations can be found on many pieces of furniture from Villa Gu eti -Gozze, and it is considered to be a 19th-century intervention probably made by someone from the family of the owner, even though the objects date from different periods, both chronologically and stylistically. Three of the four drawers have the same couple of handles and lock rosettes (Fig.10.) and only one drawer has another type of handles (Fig.11.). Knowledge of the original look and value of the commode based on the research results made before conservation-restoration treatment was crucial when choosing the approach to returning it to its original state. These results of the treatments are presented in the following chapters of the paper.



Figure 4. commode before treatments



Figure 5. Background made of coniferous wood



Figure 6. The inside made of coniferous wood



Figure 7. The base with the turned legs, one missing



Figure 8. Lateral sides with visible *arte povera* paper



Figure 9. Upper surface with visible decorations



Figure 10. predominant handles



Figure 11. only one couple of handles

2. MATERIAL AND METHODS

Disinsection of the wood-boring insects was one of the priority tasks. Gamma radiation was not an option due to the size of the object and the difficulties of transport to laboratories of Ruđer Bošković Institute in Zagreb. Using liquid insecticide was also out of the question due to a risk of dimensional changes of the object and wood moistening in general. It was decided to use gas insecticide i.e., fumigant Phosphine (PH₃). The decision to use this fumigant despite the risks of influencing the pigments was harmless in this case, having in mind the decision to remove the overpaint and present the commode in its original state. (VOKI 2007). The object was exposed to the activity of the fumigant for a week in conditions of limited oxygen, and after a week uncovered for one more week of ventilation. The commode was infested with the wood-boring insects identified as *Anobium Punctatum* (fig.12.) and the sort of wasps identified as *Schelipron Curvatum* (BOGUSH P. 2005). These wasps build mud nests like those found inside the locks and drawers of the commode (Fig. 13., 14.) and fill them with paralyzed spiders to be food for larvae.

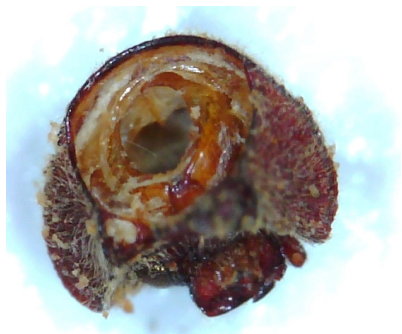


Figure 12.
Beheaded Anobium punctatum



Figure 13.
Mud nests inside drawer



Figure 14.
Mud nests inside lock mechanism

Visibly degraded areas where wood was breaking, and powdering were consolidated using a solution of 10 and 20 % resin Paraloid B-72 in Xylene. The solution was injected gradually starting with the one of lower, and later of higher viscosity. This technique intends to introduce enough resin into the wood to achieve structural stability and avoid negative side effects, such as reverse migration of consolidant to the surface that can be caused due to inadequate microclimate. In such conditions, polar solvent used for dilution evaporates too quickly and drags the resin to the surface (WANG, SCHWIND, 1985). After consolidation, the commode was covered with plastic foil for a week to leave it dry slowly. Before cleaning, samples of wood were taken to identify the species using the comparative method. The reference samples used for comparison were taken from the xylotec of Art and restoration department, Wood conservation workshop, University of Dubrovnik. By investigating the surface and the stratigraphy of painted layers, the idea was to randomly open the small areas of color so as to determine the salvaged percentage of the original layer of the commode. The cleaning procedure started with the dry method and continued with measuring PH values of the surface, trying the various cleaning protocols and solubility tests with polar solvents. The thickness of the veneer was

measured. The weekend construction was stabilized, and the nails were taken out to avoid further structural damage caused by corrosion. The areas with missing fragments of veneers were integrated with compatible new pieces of wood, and the missing front leg was manufactured using woodturning machine. The reconstruction was unquestionable since there was another existing leg used as a template. The new leg was painted in black tempera; in the same manner the decorative moldings were painted imitating ebony wood. After removing the green overpaint the surfaces were recleaned using water solutions with corrected PH value. The most striking cracks and holes were filled with putty, while the other small cracks and irregularities of the surface were left as they were as a part of the object character obtained with aging. The retouching was done in two manners: filling the lacunae of the color on the moldings and gently retouching veneered surfaces in the areas of putty filings. The commode was completely varnished using bristle brushes and low viscosity solution, trying to activate the existing varnish and avoiding the effect of newly lacquered object respecting its historical value. Colorless shellac was used for varnishing due to its transparency in comparison with ruby, orange, or lemon shellac. After drying, the surfaces were waxed to give the commode final protection and soothe the shine of varnish. The metal handles and rosettes were mechanically cleaned without removing the patina. In the end, the guidelines for further handling, storage, and preservation were made in order to help the future owner properly to treat the commode.

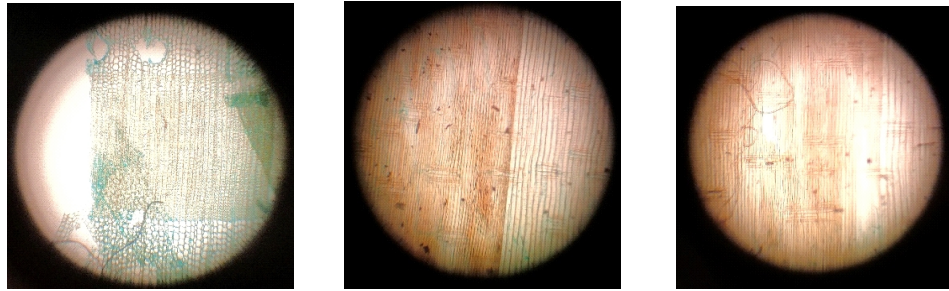
3. RESULTS

Examination of the surfaces damaged with the activities of xylophagous insects has proved that the fumigation with Phosphine was successful. (BETTERMAN 2002). By means of an electronic magnifier, it was possible to find numerous samples of the dead insect *Anobium Punctatum* and its remnants. Consolidation of degraded wood was performed by injecting consolidant which successfully stabilized critical wood elements without forming a thick film of resin on the surface. (Fig.15.)

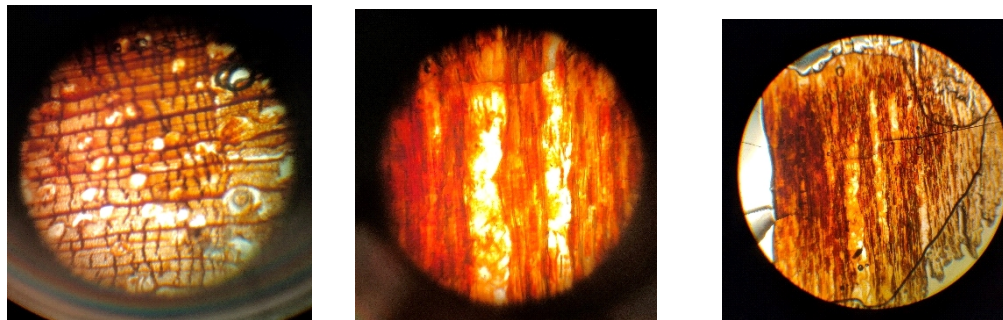


Figure 15. Injection of consolidant

Reference samples of wood for comparison were prepared in advance. The small sample cubes 8x8 mm were boiled for two hours and stored in small tanks by immersing them into solution of ethanol, glycerol, and deionized water, using the same ratio of each ingredient. The radial, transverse and tangential sections of specimens were sliced using a microtome, bleached, dyed, and embedded on the glass with Euparal resin (HINCKLEY 1960). Smaller specimens were taken from the commode, the veneer, and the construction wood. The samples were observed with light microscope and compared with the referential ones. The hypothesis mentioned in the introduction was true, the corpus of the commode was made of black pine (*Pinus nigra*) (Fig.16,17,18.) and radially cut walnut and walnut burl (*Juglans Regia*). (Fig.19,20,21.).



Figures 16, 17, 18. Sections of transverse, radial and tangential black pine (*Pinus nigra*) 100x



Figures 19, 20, 21. Sections of transverse, radial and tangential Walnut (*Juglans Regia*) 100x

Investigation of the surface performed by removal of small zones of green overpaint confirmed that the level of the original layer of the geometrically applied veneer was high i.e., confirmed the suggested conservation proposal to completely remove the overpaint. First cleaning tests removed only superficial dust and accumulated dirt; water solutions were unable to dissolve the painted layer. Solubility tests using polar solvents Ligroin, Acetone ((CH₃)₂CO) and Ethanol (C₂H₅OH) were performed and gave no results. (RIVERS, UMNEY 2003). The polymerization level of the painted layer was high, thus the paint did not react to the dissolving protocols tested on the painted surface. It was decided not to go on with the chemical protocols of cleaning but to continue with removing the painted layer mechanically. It was performed using surgical scalpels and dental spatulas. The decision not to try to find the chemical protocol for dissolving color and to continue removal mechanically was made due to risks of dissolving original varnish as well (Fig. 22,23.)



Figure 22. Removal of the over paint in half



Figure 23. Completed removal of the overpaint

After removal of the paint, it was obvious that the original *tarsia geometrica* was highly preserved. The surface was then cleaned using water solution with the addition of Tri ammonium citrate (C₆H₁₇N₃O₇) chelating agent. This cleaning method removed the remaining impurities. Woodturning machine was used to reconstruct the missing bulb front leg which was painted in black to resemble the original. Areas with missing veneer pieces were reconstructed using antique walnut and the construction was stabilized by injecting protein glue in the joint areas where the old glue had lost its adhesion properties. The large cracks were filled with specially designed putty made of hide

glue, acrylic polymers and by using walnut and coconut dust, cork powder, and phenolic microspheres as fillers. Those areas were retouched using Gamblin art restoration colors based on synthetic low molecular weight resin, urea-aldehyde resin with great photochemical stability, excellent pigment wetting, and working properties like a natural resin medium. The resin is soluble in solvents of low polarity, both during working and when it is aged. Usage of 15 % solution of colorless shellac as a final varnish was chosen to try to refresh the existing old varnish preserved on the surface. Two layers were applied with a brush, gently to avoid melting of retouched areas. After the applied varnish had dried, we continued with application of shellac with a cotton swab to polish the surface at the same time while varnishing it (Fig. 22, 23.) The final action was application of wax made of beeswax, microcrystalline, and carnauba wax. The purpose was protection along with the idea to soothe the shine of the varnished surfaces. The metal handles and the rosettes were polished with a blend made of *Gesso Bologna* and deionized water. This method was successful in removing the grime from the surface without affecting the patina. Metal elements were protected with microcrystalline wax.



Figures 22, 23. Application of varnish

4. DISCUSSION

The premises of chosen and presented conservation-restoration concept have been justified knowing the result. The commode was restored to its original state (Fig.24.), aesthetically and technically following the idea and intention of its builder. The interventions were realized by removing the superfluous layers and scarcely adding new ones. All materials introduced into the object are certified in the field of wood conservation science and to the last are observing reversibility, one of the main principles a conservator-restorer must obey. Although the dilemma of whether to conserve the state of an overpainted object or to restore it to its original settings was present from the very beginning, it was more related to the uncertainty of what there is under the painted layer, as well as in what state of preservation it is. Investigation of the surfaces by opening the small areas of overpainting, although an invasive method, was crucial for the decision to remove overpaint. An adequate dissection method resolved the wood-boring insects' infestation without affecting the original materials on the object. Consolidation and structure stabilization returned lost strength to the construction material and object in general, restoring its function as well as its aesthetic. Material identification confirmed the preliminary hypothesis that the commode is made of walnut (*Juglans Regia*) and pine (*Pinus nigra*). This information was crucial for selection of the material needed for reconstruction of the missing parts. Cleaning and paint dissolution protocols highlighted a mechanical method of paint removal as the most effective and secure one. The mechanical method, despite being time consuming, offers conservators the possibility of controlling the procedure of paint removal, especially if done with adequate magnifiers. Low viscosity transparent shellac varnish was chosen to activate the existing old varnish and to refresh the surface without changing the shade of it. The varnishing was successful resulting in equal distribution of unobtrusive shine of the surfaces.



Figure 24. *The commode after conservation-restoration treatments*

5. CONSLUSION

Conservation-restoration of the baroque commode was realized respectfully to its aesthetic, historical and functional value considering the core principles of art conservation profession; minimal intervention, reversibility of introduced materials and actions, distinctness of the new intervention concerning original, visual, and structural compatibility of the materialized and methods with original building technology of the object and the principle of sustainability (VOKI 2007). Every conservation professional is obliged to understand the wider context related to the object before starting interventions. Comprehensive understanding of historical, stylistic, technical features, material science, and causes of degradation together with the various investigations and scientific methods are a solid base for successful conservation-restoration work. The most objective evaluation of these treatments starts with returning the object to its owner. From that moment the success of all interventions will be tested in the specific microclimatic conditions of the room where the commode will be on display. Since it is impossible to anticipate any kind of outcome, every conservator writes a document of guidelines including all propositions and conditions on how to preserve heritage objects in the future.

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