Restoration of St. Nicholas icon

Authors: Viktor Sumaher, co-author MA Tijana Lazić
Mentor: MA Mina Jović, assistant professor
Master studies: Faculty of Applied Arts, University of Arts in Belgrade
Module: Conservation and Restoration of Sculptures and Archeological Objects
Study program: Conservation and Restoration

Brief history (scan QR1 for more)

St. Nicholas icon is an object from a private collection, made in Russian style. It consists of old (the wood which also originates from Russia, and nowadays is used internationally), etching on paper, printed on colour and wooden panel. Old is made out of a thin copper sheet. Although date of creation is unknown, it is assumed that old dates from 19th century, as etched production using presses started in this period. Old is a very important functional segment of the icon, as it protects the coloured layer from external influences. It is usually produced from noble metals. The most common materials for old production are gold, silver and copper. Gold symbolises grace of the God and silver symbolises holiness and purity of the soul.

Conservation and restoration process of an etching (this process was performed by MA Tijana Lazić, scan QR2 for more)

1) removal of metal frame and wooden panel
2) detachment of etching from copper old by surgical scalpel
3) testing - microbiological (Lightning MFP, Biocontrol) and microscopic analyses (Digital Microscope 2.0, Dino-Lite)
   - cleaning tests
   - cleaning front and back (sculpture blade, PVA latex free sponges, ethanol, ethyl acetate)
   - washing in water (1:5)
   - preparation of samples (using Japanese tissue (Mitsumata 1:1g/m2) - Japico, methyl cellulose - Kremer)
   - repositioning (using Japico, Shofu Nori - Kremer)
   - reconstruction of color layer - retouch (Schmincke AKADEMIE AquaRial)

Conservation and restoration process of an old

Dry cleaning is the first step in the process and consists of surface dry cleaning using a badger hair brush.

Mechanical cleaning and deformation correction (scan QR3 for more)

The next step is mechanical cleaning which is performed using surgical scalpel with previously applied solution of acetone and distilled water. 70:30 solution ratio is used to clean surface 10%. Cotton pads soaked in this solution were applied on thick layers of glue and filler, which were far from old's surface. Most demanding task during the restoration of old was putting mechanical deformations in their initial state. Considering that thickness of copper sheet is only 0.2mm, previously mentioned deformations were present all over the object itself. Dental instruments, surgical scalpels and stainless steel modelling spatulas were used to perform this task.

Chemical cleanings (scan QR4 for more)

After the mechanical cleaning had been done, next step was soaking the object in acetone with a duration time of 15 minutes, so unreachable 10% that consists of glue and paper leftovers could be dissolved. Fibs that couldn't be removed with acetone only, was now easily removable with dental instruments. Next treatment was soaking the object in 15% ethylenedi-amine tetraacetic acid distilled salt and distilled water solution. While soaked, the object is also treated with manual rotary rubbing using wool burl brush which causes appearance of silver plated parts, as all fibs had been removed. This process lasted for one hour and it was performed twice. Afterwards, the frontal side was treated with sodium bicarbonate and gentle rubbing with soft brush for better exposure of silver plated parts. Following this, the object was rinsed in distilled water for 24h.

Restoration of the metal frame (scan QR5 for more)

5% calgon dissolved in distilled water was used for restoration of metal frame. Frame was soaked in previously mentioned solution for 24 hours, afterwards it was rinsed in distilled water. Next step was frame exhibition in 7% sodium bicarbonate dissolved in distilled water, the duration time was 24h. Thereafter corrosive dust was removed and the object was polished with a Dremel rotary tool with a synthetic brush. Two components epoxy manufactured by Permatex company was used to glue three disconnected segments of the frame. 5% paracald 8-72 dissolved in acetone was used to impregnate old on the frontal side, whereby 10% solution was used for the back side.

Considering that old has been made for a long time because of its thinness, it was strengthened on the back using fiberglass and 10% paracald dissolved in acetone as an adhesive. After fiberglass has been cut in the shape of copper sheet put on it, previously mentioned solution was applied in rotary gentle movements. (scan QR6 for more)

Restoration of wooden panel (scan QR7 for more)

Main damage on wooden panel was a full length vertical fracture. Two separated pieces were glued together using Titebond standard as glue. Levelling, as a process of putting together two pieces to create a perfect joint with no differences in levels, has been done. Clamps were used to create a perfect side pressure. Before the restoration of missing pieces had been performed, tests on glass panels were run to establish which type of material should be used. Several types of epoxy have been tried out and epoxy manufactured by Forstressenwerkstoffe was singled out as the best choice. In addition to the chosen epoxy, Schmincke aquarelle copper pigment showed excellent results. A mixture of previously mentioned compounds was made and used to perform the modelling of the missing pieces, alongside with stainless steel spatulas.

All four segments, metal frame, old, wooden panel and colored/graphic drawing were put together in order finalize the process of restoration. (scan QR8 for more)

Bibliography:

16th International Conference of the Conservation-Restoration Studies. Dubrovnik 11-13 April 2019