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STRENGTHENING THE LEVKAS AND PAINT LAYER OF THE XVII-TH CENTURY ICON " CRUCIFIXION WITH THE PEOPLE "

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Abstract: Conservation of a XVII-th century icon is a set of measures for preserving a cultural monument, the purpose of which is to return the work to its original state, without making changes to its artistic content. This includes conservation to maintain the current state and the restoration of lost parts in accordance with the ethical standards enshrined in documents such as the Venice Charter[1].

Key words: Conservation, restoration, icon, paint, base, technique, glue, board, varnish, monument, preventive gluing.

XVII th-century icons depicting "The Crucifixion with Attendant Figures" are characterized by the influence of Western European engravings, intricate detail, and often multi-figure compositions. Christ is depicted on the Cross, flanked by the Mother of God, John the Theologian, the Myrrh-bearing Women, and the Centurion Longinus; these works often make active use of scenes from the Passion of the Lord.

Christ is depicted on the Cross; wounds mark His body, and blood flows down to wash the skull lying at the foot of the Cross. A distinctive feature of the iconography here is the inclusion of a large number of figures standing in attendance. The selection of saints was evidently determined by the patron's requirements. As with the "Resurrection of Christ" icon, many details in the "Crucifixion" were drawn from the engravings in the Piscator Bible. It is highly probable that the "Resurrection of Christ" and "Crucifixion with Attendant Figures" compositions originally served as scenes within a monumental icon depicting the major feasts of the liturgical year[2].

Condition of the monument upon arrival for restoration, based on visual inspection.

According to the inventory number on the reverse side, the item was held at the Pskov State United Historical, Architectural, and Art Museum-Reserve (Accession No. 695, Inventory No. 3868; permanent location: Pskov State United Historical, Architectural, and Art Museum-Reserve). It is an 18th-century icon titled "The Crucifixion with Attendant Figures." Materials: pine wood base, gesso. Technique: egg tempera; Pskov school. Dimensions: 126 x 100.5 x 2.8 cm.

Reverse side: The icon panel consists of three pine boards with widths of 34.5, 33, and 32.5 cm. The grain runs vertically. The surface is planed and features knots and irregularities (predominantly on the right-hand board). The entire reverse side, the edges, the crossbars, and the board joints are coated with a thick layer of wax.

Crossbars: Two fixed, through-mortise crossbars inserted from opposite sides; they protrude 1.2 cm above the surface. Two thin metal staples (2 mm in size) are driven into the top and bottom edges. The central board is slightly warped (h = 0.5 cm).

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[1] Raymond Lemaire. ICOMOS - un regard en arrière, un coup d'oeil en avant (фр.) // ICOMOS Scientific Journal: журнал. — 1995. — Novembre. https://ru.wikipedia.org/wiki

[2] Виртуальный Русский музей. А. Мальцева // Иисус Христос. С-Пб, 2000. С.-267.

Losses to the base: There is a rectangular cutout (5 x 2.1 x 1 cm) in the bottom-left corner of the panel. Numerous wood-boring beetle exit holes are visible along the edges of the icon and on the surface of the inset cross-battens.

Inscriptions: In the bottom-left corner of the right-hand board, below the cross-batten, there is an inscription in green oil paint reading "ПНХМ"; on the upper part of the same board, there is a dark brown inscription: "ДРЖ - 296". A label reading "КП - 695" is affixed to the upper section of the right edge.

Obverse. Base: Icon without a recessed central panel (kovcheg); features painted borders 5.3 cm wide.

Losses to the base: chips along the bottom edge (the largest measuring 4.6 x 2 cm).

Pavoloka (fabric underlay): Linen, dense, fine-textured, plain weave. Weave density: 12 threads per cm² (warp) and 17 threads per cm² (weft). The fabric is visible across the entire surface of the icon (where the levkas ground and paint layer have been lost).

Levkas: Determination of composition. HCl test — Chalk-based levkas; medium thickness, dense, ivory-colored. A fine-mesh craquelure pattern with raised edges covers the entire surface of the icon. There are areas where the levkas and paint layer have detached across the icon.

Losses of gesso: along the joins of the boards—on the right join, a continuous series of losses extending from the top to the bottom edge of the icon (up to 1.5 cm wide); on the left join, losses occurring in patches (up to 1.6 cm wide). Numerous losses along the edges of the icon (up to 2.5 cm wide). In the central part of the icon, a series of vertical losses appears on the figure of the Savior and above the image of the Cross (largest: 19 x 1 cm, 4.5 x 1 cm). Partial losses of gesso across the entire surface of the icon (largest: 2.5 x 1.5 cm and smaller).

There are green oil-based gesso inserts containing large white inclusions (gypsum admixture): one spanning the entire lower section of the icon (6–10 cm in height) and another measuring 3 × 27 cm in the area depicting the Savior's feet.

Paint layer (original): Egg tempera. The haloes of the Savior, the angels, and the attendant figures are of gold leaf. The craquelure in the paint layer aligns with that of the ground.

Losses to the paint layer: Occurring in areas where the gesso is missing. Numerous small losses to the paint layer across the entire surface (most pronounced in the depiction of the sky). Significant abrasion to the paint layer is visible in the depiction of the sky and on the figure of John the Theologian. Partial abrasion across the entire surface.

Overpainting: Examination of the icon's surface under an MBS-10 microscope helped identify the extent, boundaries, nature, and density of the overpainting. The overpainting is partial; the oil-based layer is dense and lies in a thick stratum over the depiction of the sky. It is thick and textured in the lower section of the icon—specifically on the borders (the bottom border and part of the left one), the depiction of the ground, the legs of the female figures, and parts of the garments.

Surface coating: Olifa (boiled linseed oil), forming a thick, dark layer.

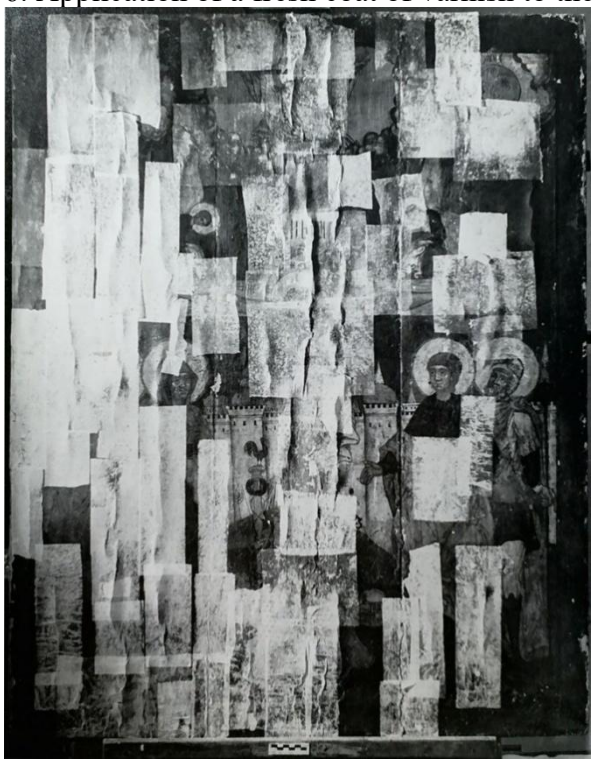
Surface soiling: General dust accumulation.

Information on previous restoration: upon arrival, the icon was partially covered with protective facing applied in 1993.

Scope and sequence of restoration procedures:

1. Removal of the old protective facing.
2. Consolidation of areas with blistering, delamination, and flaking.
3. Continued uncovering of the original paint layer by removing partial overpainting and darkened drying oil.
4. Leveling of the drying oil layer across the entire surface of the icon.

5. Inpainting of losses across the entire surface.
6. Application of a fresh coat of varnish to the icon.





1. General view before restoration.
2. General view after restoration.





3. Front side after consolidation of the paint layer and during the process of uncovering overpaint.

4. Reverse side after restoration.

Developing the uncovering method:

A test area (1.5 x 8 cm) was selected on the image, covering the figure's garments on the left and the architectural elements extending into the background.

Method 1: A mixture of dimethyl sulfoxide and pinene (1:5) is applied to the area using a small cotton swab. The drying oil does not soften sufficiently.

Method 2: The mixture is strengthened (dimethyl sulfoxide + pinene, 1:2). The drying oil softens well and is thinned using a sharp medical scalpel. The area is treated with a mixture of linseed oil and pinene (1:4) to neutralize the solvents. It was decided to proceed with the remaining uncovering work using this refined method.

The area of exposure has been extended to the right—towards the depiction of the hand—and downwards.

The exposure process is proceeding upwards across the designated area. Beneath the layer of darkened drying oil in the area depicting the sky, there is a dense layer of oil overpainting in a "sea-green" hue. Since the previous solution was not sufficiently effective at softening the overpaint, it was decided to strengthen the mixture.

Method 3: Pure dimethyl sulfoxide is applied to a small area. The overpaint softens and is gradually removed using a medical scalpel. The underlying layer of drying oil is thinned down. The area is then treated with a mixture of linseed oil and penene (1:4).

During the process of uncovering the icon's background, a layer of dark green oil overpainting was revealed, lying atop the original green and red colors of the border band (opusha). This overpainting is being removed using Method No. 3.

During the uncovering of the sky area, well-preserved original black inscriptions were discovered beneath the overpainting layer: MARIA MAGDALENA (above the left figure) and MROU (above the right figure). A test area demonstrating the layer-by-layer uncovering process has been preserved near the inscription.

On the halos, beneath the upper layer of gold and a thin layer of yellowed *olifa* (drying oil varnish), an original layer of gold leaf—with some areas of loss—was discovered. A decision was made to remove the upper gold layer to expose the original one. On the halos, the uncovering is performed "dry" using a medical scalpel under an MBS-10 microscope, while applying a varnish-pinene mixture (1:7) to improve visibility of the area being exposed. A control area was left for layer-by-layer uncovering.





5. Fragment after consolidation of the paint layer.
6. Fragment after removal of the old drying oil.

The uncovering process is proceeding downwards across the designated area. The dense, textured overpainting in the lower section of the icon is being removed using Method No. 3. During the process, a layer of *perelevkaska* (a light-green oil-based ground with white inclusions) was discovered beneath the overpainting; this layer runs along the join between the boards (up to 4 cm wide) and extends across the lower field, encroaching upon the depiction of the ground and the garments of the figure on the right (up to 11 cm wide). This "perelevkaska" layer is being removed using the same method.

During the conservation process, it was discovered that the original paint layer had not survived beneath the layer of over-gessoing in the following areas: the entire bottom margin, part of the depiction of the ground (an irregularly shaped insert measuring 11 × 4 cm), and the green garments of the figure on the right (a 15 × 4 cm insert). It was decided not to remove these gesso inserts containing the paint layer.

On the area depicting the green garment of the figure on the right, a partial dark-green oil overpaint was discovered beneath a layer of green overpainting. This overpaint lies atop a layer of oxidized drying oil (olifa) and is being removed using Method No. 3. A control area has been preserved, revealing the layers as follows: 0 – original paint layer; 00 – original paint layer beneath a layer of darkened drying oil; 1 – partial oil overpaint; 2 – layer of oil-based re-priming; 3 – dense upper layer of oil overpaint.

In the lower section of the icon, overpaint and layers of gesso applied over the original paint layer have been removed. The layer of drying oil (olifa) has been thinned and leveled. Since the overpaint in the areas of the inserts—specifically on the green garment and the ground—did not match the color scheme of the original paint layer, it was decided to remove it while retaining the green ground inserts. Test areas were removed, and the drying oil layer was further thinned and

leveled across the entire surface of the icon (using a mixture of dimethyl sulfoxide and pinene in a 1:3 ratio, and a medical scalpel).

Small areas where the gesso and paint layer have detached from the base are present across the icon's surface, necessitating consolidation of the base. A warm 3% solution of sturgeon glue mixed with honey (in a 1:1 ratio by weight of dry glue) is applied to a small area using a soft-bristled brush. A sheet of tissue paper (with the grain running vertically) is placed over the area. It is then lightly dried using a warm iron (temperature <60°C) with filter paper placed in between. Holes for glue injection are made with a sharp probe at the points of detachment. Subsequently, an 8% warm solution of sturgeon glue mixed with honey (1:1 ratio by weight of dry glue) is injected using a syringe.

The adhesive is spread over the area of the detached section using a fluoroplastic spatula. The area is then dried by pressing a warm iron (temperature <60°C) over filter paper. A weight is applied for 8 hours.

Removal of the temporary facing: a small section is moistened with a damp cotton swab (squeezed out), and the tissue paper and residual moisture are removed from the surface using a dry, firm cotton swab. Losses in the paint layer were filled in using "Leningrad" brand watercolors; the retouching was executed in a stylized manner using a hatching technique.

The icon's surface was burnished with a mixture of dammar varnish and pinene (1:2 ratio).





7. Detail before consolidation of the paint layer

8. Detail after consolidation of the paint layer.

The process of uncovering the icon from partial oil overpainting has been completed, and the layer of original drying oil has been thinned and leveled. Partial consolidation of the ground and paint layer was carried out in areas where the gesso had detached. Restoration inpainting was applied to areas where the original paint layer was lost. The icon has been coated with fresh varnish.

It is recommended that the artifact be stored in a museum environment with stable temperature and humidity conditions: a temperature of +18–+20°C and a relative humidity of 55–65%.

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