

Abstracts

Erika Tímea Nemes

The painting technique of murals of the St. Imre church in Ghelintă (Gelence, Gälänz)

The church dedicated to St. Imre is located in the upper part of the village, in the former center of the village. The early church was probably built in the second quarter of the 13th century. The nave of the church, the west and south entrances, and the small central window of the south wall testify this.

Géza Nagy has presented the paintings for the first time in the 16th July 1882 issue of the *Nemere* magazine. After that together with József Huszka they explored the murals and made aquarelle copies.

All the murals of the church from Ghelintă have been made with the fresco technique, but in many cases they could only be finished with secco bindings due to the drying of the plaster.

On the northern wall of the church's nave there are murals painted in three registers, one above the other. At the top the legend of St. Ladislaus is depicted and the scenes of the Passion can be seen below it. Only a few details have survived on the bottom section.

The composition of the scenes has been outlined with ochre and then in both registers they painted the background. There are significant differences in the painting of the faces, even within a register. In case of the legend of St. Ladislaus, where frames do not separate the scenes, the painting of the faces is relatively the same. The differences can be observed in the details.

A unified method of painting is not characteristic to the scenes of the Passion. The painting of the faces is different on almost every scene. On one, we can find refined details, while on others the mask-like rough painting style is dominant. The figures are stylised and elongated. The light and shadow effects are minimal. The physiognomy and movement of the figures are schematic. The horses of the St. Ladislaus legend are disproportionate. Spatial effect can be slightly observed only on those parts where the figures are arranged one behind another. The shapes of the architectural representations do not improve the perspective either. The background is flat, the representation indicative.

The microscopic examinations show that on the northern wall all three registers have the same base. This proves that all the paintings from the three registers of the northern wall have been painted in the same period.

The southern wall also shows murals organised in three register, out of these the paintings of the upper register have partially survived (the last judgment), as well as the lower one (the legend of St. Catherine of Alexandria).

Based on the microscopic and on-site examinations it is clear that the paintings of the southern wall are different from those on the northern wall, both in composition of the base and in their technique.

The greatest difference between the two murals is in their painting technique. The application of the paint is glazed, aquarelle-like. The composition of the plaster of the three registers is the same. So is the method of painting, thus it can be asserted that the southern murals are from the same period. As far as the representation is concerned, the figures are less stylised. They are disproportionate, slender but not elongated like on the northern wall. The lines of the creases of the clothes are soft.

On the western wall, the paintings have also been arranged into three registers. In the top register the legend of St. James has been painted and below the scenes of the Escape to Egypt, Child murder in Bethlehem, the coronation of Mary and the death of Mary. The lower part is almost completely lost. What is the most noticeable is the fact that compared to the rest of the nave's paintings; these have a pronounced graphic element.

The paintings of the upper register are significantly worn, thus it is hard to gather data regarding the technique used. Based on microscopic and on-site inspection it is rather a fresco technique with fresco binding.

In conclusion, it can be said that all three paintings of the nave were created in different periods of time and by different workshops. It became clear and it is backed by examination results, the fact that the same group has created all three registers of a given wall in the same period.

Above the southern entrance, the plaster is different from that of the interior murals. It contains a significant amount of lime. However the colours are worn out. The plaster is not similar to any of the interior plasters, thus it cannot be connected to any of their timeframes.

In a similar fashion, the plaster of the St. Emeric scene on the outer side of the nave is not similar to either of the plaster of the interior paintings.

Dr. Erika Tímea Nemes

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Translated by: György Kovács Gorboi

Ágnes Ziegler

The collection of vestments of the Black Church in Braşov. Significance. Conservation. Research.

The collection of vestments in the Black Church in Braşov consists of 20 pieces of medieval origin, six copes, twelve chasubles, two embroidered chasuble crosses and a semi-circular velvet object of unknown purpose. It can be stated that the collection is one of the five most important of its kind in Europe, alongside those in Stralsund, Gdansk, Brandenburg and Halberstadt. It is remarkable not only for the number of objects preserved, but also for the fact that it has survived for centuries in the place where it was set up and was used, and it is not an artificially created museum collection, but one closely related to the church and its community, thus reflecting their entire history. In addition, it is almost unique how it survived without having been hidden, forgotten and rediscovered decades later, so that the garments bear the marks of long use, adaptation to changing ideologies, care and repairs.

The collection also reflects the role Braşov played in the trade of the Medieval and Modern eras. Not only were impressive silk velvet fabrics of Italian origin and Venetian-style embroidery used in the making of garments, but there are also many products from Central European embroidery workshops, as well as a large quantity of velvet fabrics of Turkish-Ottoman origin present.

The long and remarkable period of use was ended by the musealisation of the objects at the end of the 19th century. First observed by itinerant art historians, the precious pieces were later exhibited in Budapest and Vienna, where they attracted attention as valuable historical objects and as potential models for contemporary applied art. In 1973, a small workshop was set up in the parish, where Era Nussbächer conserved five Braşov chasubles, but she didn't conserve a single cope. During the restoration process, the objects were dismantled and washed, and after reassembly, missing parts of the fabric were filled in, other smaller damage was repaired by fine stitching with silk thread, and the more severely damaged parts of the fabric or embroidery were carefully reinforced with silk crepe-line.

After a brief documentation of the collection, a new storage was built to deposit the items safely, and the collection was moved from the old parish back to its historic storage space, the sacristy of the Black Church. In 2009, through collaboration between the Abegg-Stiftung and the Evangelical Church A. C. of Romania — Braşov Parish, a large-scale project for the publication of the collection was launched, resulting in the comprehensive catalogue of the collection published in 2015, relevant and primary piece of literature about the collection today and probably for many years to come.

The inevitable consequence of this long use has been the deterioration of the vestments, which has probably on several occasions' required more or less extensive renovations and repairs, but also their adaptation to new

rites, ideologies and the changing character of the church, whose reconstruction in the 18th century, had a transformative effect. The article analyses the materials and methods used in this process and seeks to show to what extent the incorporation of new materials had been allowed?

It seems that, in the case of the Braşov collection, pieces taken from a patch-storage, where vestments no longer in use were kept, were mainly used for the purpose of conscious alteration or were inserted in a place where they contributed decisively to a Gothicising construction. Thus, the patches are of extraordinary value as a source of information about church life in the 16th-18th centuries and, even more so, about the identity of the Braşov Saxons. Their removal in order to restore the objects to their supposed original state should be avoided altogether.

Dr. Ágnes Ziegler
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Andrea Madarász

The theory of freeze drying and practical experiences in the conservation of water-saturated wood objects

Three waterlogged wooden objects, a pot, a comb and a spoon, found during archaeological excavations of the Budapest History Museum at various times and sites, were conserved 7-14 years after their excavation, while they were stored in water in the institution's warehouse. The conservation of the artefacts was carried out by impregnating them with trehalose solution and by freeze drying. In Hungary, lyophilisation has never been used for the treatment of archaeological wooden objects, so the intervention was preceded by experiments on samples of waterlogged wooden samples received from the museum.

The water content of the artefacts could not have been determined without damage, so the water content of the archaeological wooden samples measured by drying to a constant mass (average 1300%), was used to estimate the presumed water content of the artefacts.

Before impregnation, the sludge contamination was removed from the objects by distilled water and mechanical cleaning. Microbiological testing revealed the presence of various fungi and bacteria on the surface of the artefacts, which were therefore placed in an aqueous 0.025% solution of Kemobicide DP3 disinfectant. Then, in order to bind water-soluble metal salts, the artefacts were immersed in a 1% aqueous solution of EDTA-2Na, diluted to pH 9 with NaOH for 5 days, followed by a 10-day soaking in distilled water.

The impregnation of the artefacts with trehalose solution was carried out using the procedure developed by Morgós et al. (2008) by increasing the concentration of the solution gradually. A 0.02% concentrate of Kemobicide DP3 was added to the impregnation solution. The starting

concentration was 20 wt%, at 20 °C (room temperature), which was increased to 30 and then 41 wt% every five days. Thereafter, with an increase in concentration and temperature scale every 5 to 5 days, the procedure was continued at 50 °C in a 58wt% solution, and finally completed at 70 °C in a 72wt% solution. The impregnation was carried out in a thermostat. After 43 days of treatment, the mass of the artifacts was stabilized, increasing by 20-25% compared to the initial mass.

The equipment for the lyophilisation of the artefacts - an Epsilon 2-6D LSCplus freeze dryer - was provided by Martin Christ Gefriertrocknungsanlagen GmbH and S-Biotech Kft. During the experiments, the eutectic point of the maximum concentration (72%) of trehalose solution (-18 °C) was determined in the equipment and the wooden specimens impregnated with trehalose solution were freeze-dried.

The lyophilization of the three objects was based on the results of these experiments. The artifacts were covered with polyethylene foil before being placed in the lyophilization chamber to reduce evaporation.

The comb and the spoon were freeze-dried at the same time, while the dish was freeze-dried separately due to its height and shape. In both cases, an impregnated control wooden sample was placed next to the artefacts and the LyoRx meter was placed in it to avoid damaging the artefacts but to obtain information on the temperature of the treated wood and its freezing condition.

During the lyophilisation process, the comb retained its shape, the plastic film placed between the teeth helped them to solidify in a parallel, upright position and prevented them from sticking together, but they stuck to the plastic film, making them difficult to remove. The teeth broke easily to the touch and some of them came loose. A piece of the spoon head broke off and deformed during the lyophilisation process. Its surface became flaking, and many of the little pieces fell off. However, the retention, appearance and form of the reference wooden sample that was lyophilised with the objects was excellent. Deformation was repaired by humidification at 95% humidity, followed by conditioning of the spoon over a saturated solution of $(\text{Mg}(\text{NO}_3)_2)$ salt (21°C; RH 50%). Bonding of the broken pieces of the spoon and the teeth of the comb was performed with Klucel M dissolved in methyl ethyl ketone with reinforcement of Japanese paper dyed to the appropriate color.

The reason of the detachments of the surface layer of the spoon is not clear. A significant, visible difference on the object was, that after freezing, sugar appeared on the surface as a crystal layer, a phenomenon not seen in the experiments on the wooden samples and not observed on the other two objects. The thick sugar coating on the weakened material, the vibration of the lyophiliser and the effect of the vacuum could all have contributed to the formation of the detachments.

It is also possible that the drying was too fast. The microbiological examination carried out before preserva-

tion revealed the presence of cellulose-degrading fungi on the surface of the object, so it is possible that the spoon was in a more degraded state and that the 72% by weight trehalose solution was not sufficient for impregnation. In conclusion, it is possible that the damage that occurred during treatment could have been avoided if the intervention had been carried out by supporting the spoon or if the object had been dried in air with a continuous air circulation after impregnation instead of lyophilisation.

The lyophilisation equipment was only available for 124 days, due to its removal the vacuum sublimation freeze-drying of the vessel had to be abandoned, and freeze-drying continued at atmospheric pressure in a freezing refrigerator at with dried silica gel reduced humidity.

After 163 days in the freezer, the mass of the object had stabilised and the silica gel barely showed any water. At this point, the container was removed from the freezer and transferred to a refrigerator at +5 - +7 °C for slow release. After one week, there was no change in the mass or appearance of the artefact, no sign of collapse, and it was then brought to room temperature (21 °C) with the container. After another three days without change, the lid of the container was lifted off, but a sudden loss of weight was observed (due to the rapid removal of residual water), so the object was returned to the +5 °C refrigerator in a sealed container with silica gel. When the weight loss slowed down, it was returned to room temperature (21 °C), but over a saturated sodium chloride solution (NaCl) at 75% RH. After four days, with no change in temperature, the sodium chloride solution was removed and the humidity and weight of the object were continuously monitored in a closed desiccator at room temperature over a saturated solution of magnesium nitrate $(\text{Mg}(\text{NO}_3)_2)$ salt (21 °C; RH 50-55%). After six days, the lid of the container was removed and the object was placed in open air (18-23 °C; RH 30-35%). In the open air, the vessel still showed some weight loss, but no signs of collapse, and then settled to a constant weight. The drying process was much slower but continuous compared to that in the lyophilizer. Klucel M was also used to glue the pieces of the pot that had broken off before conservation.

The conservation of the objects was carried out as a diploma thesis in the Conservation Department of the Hungarian University of Fine Arts, at the Specialisation of Wood and Furniture Conservation between 2013-2015.

Andrea Madarász

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Translated by: Petronella Kovács

Tamás Sipos

Conservation of an 18th century side facing saddle

The saddle belongs to the weapon collection of the Hungarian National Museum. In the institution's inventory book of 1896, the object is recorded as a gift of Count Viktor Kornis (Szentbenedek) dated 28 December. The donor, Count Viktor Kornis of Göncruszka (1840-1905), after his studies at the Budapest University of Technology, practised exemplary farming on his estate, and through the Szolnok-Doboka County Economic Association, which he founded; and he had been involved as a co-sponsor in public affairs for several decades. In 1897, he was awarded the Knight's Cross of the Order of Lipót for his work.

The saddle has the rare chair-like shape and probably it had a planchette hanging above the left flap. The white leather cover is decorated with embossed, padded ornaments, which are contoured by stitching. The white elements are trimmed with brown, ornamental leather strips with cut trefoil contour, fixed with sewing and dome headed brass nails alternatively. The seat is upholstered with red cloth. The centrally placed ornament of the back is supported on the left and right by bipedal, backward-facing lions, their free forelegs pointing to the letters „W” and „T” sewn with thread.

On the basis of the research carried out on the conservation of the women's saddle, the study describes the most common types of side saddles, divided into two main groups. The so-called Spanish type saddles of the first group are similar to the HNM women's saddle in that they have a smaller or larger horn (swan's neck) on the front, which is real or, less frequently, imitated, e.g. with a lion's head. Their ornamentation is mainly stitched, with an axially symmetrical structure, which is found on the seat itself, but also on the saddle wings, mainly starting from the corners of the wings on the earlier pieces. Another striking similarity is the use of copper-headed decorative pins, which are sometimes part of plant vine and flower arrangements. The other group includes saddles of the type known in French as *sambue*. They are less tall than the Spanish type, their seats are closed on three sides, and their front pommels have an unmistakable triple articulation. The middle branch is much thinner than the wings, reaching higher. In many cases, the buttress between the front and back can be moved to the other side, as with the foot plank. The decorative stitching on the seat can be floral or geometric. The use of decorative studs is also common here, but to a lesser extent than in Spanish examples.

The conservation of the artefact was necessary because of its poor condition. Besides mechanical decay insect damage was significant on the whole object as well. The multilayer sweat-flaps were distorted and contaminated. The brass nails were covered by green corrosion layer. The investigation of the materials and the technological details revealed that the saddle had been repaired earli-

er, probably to cover and strengthen the badly damaged areas. The technology and the standards of former repairs differed from the original very much.

Because of several ethical questions arisen about the extent of the intervention, the plan for the conservation was prepared based on consultations with curators, scientists and experts in wood, textile, leather and paper conservation. As a result, the main aim of the work was set as the restoration of the physical stability of the side saddle, and the reconstruction of the appearance reminiscent of the original, with saving the most information borne by the artefact.

After partial dismantling of the object the original, bright red cloth was revealed under the secondary layer of upholstery. It was much higher quality than the repair fabric, although the insect damage on it was exceptional. After mechanical cleaning the residual contamination was removed from the textile by swabbing with the foam made of an anionic detergent (Hostapon T) and distilled water. The cloth was fastened on a support fabric dyed to a matching colour, with individual stitches.

The leather surfaces were vacuumed and then the stubborn contamination on the white leather cover was removed with soft vinyl eraser. The corrosion layer of the decorative brass nails could have been removed mechanically and with chelating compounds, but the cleaning was only partial, since the chemicals used should not get in touch with the sensitive leather.

The reshaping of the distorted, multilayer sweat-flaps was carried out by local humidification with Sympatex semipermeable membrane. The torn edges and gaps of the white cover were fixed by alum-tawed goatskin, whilst the brown trimming and lining were repaired with vegetable tanned goat leather by gluing with thick rice starch. The repair patches were dyed to matching colour with metal complex dyes.

On the lower side of the seat frame, a wavy edged, green leather stripe had been sewn as a repair, which differed from the genuine decoration in both colour and shape. Since the stitching holes of the original appliqué were still visible at some areas, the secondary stripe was removed and it was replaced with a reconstruction of trimming with the authentic trefoil patterned edge. The restoration was completed by the reassembly of the upholstery. In default of the analogue objects, the missing parts of the horn could not be replaced.

The examination and conservation of the saddle took place in the Conservation Department of the Hungarian University of Fine Arts, at the Specialisation of paper and leather conservation in the 2015/16 academic year.

Tamás Sipos

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Translated by: Márta Kissné Bendefy

Zoltán Pap

Restoration of the Kolonics organ of the Church of St. Nicholas in Gheorgheni

The organ of the church of St. Nicholas in Gheorgheni was built in honour of the town's native, Bishop Mihály Fogarassy. The two-manual organ, marked as the 110th work of István Kolonics, a master who was born in Szabadka (Subotica) and settled in Kézdivásárhely (Târgu Secuiesc), was made in 1881 and was inaugurated in 1882.

The organ has been rebuilt several times over the years, and has undergone several modifications. Probably the first intervention, as can be seen on many other organs, was the replacement of the pipes collected by order of the Ministry of Defense during the First World War with tin pipes.

The biggest change came in the late 1990s when the instrument was enlarged. At the suggestion of well-known organists, Trumpet and Vox Humana reeds were added to expand the sound. This also resulted the modification of the console from two manuals to three manuals. The work was started by Domokos Pálfi, cantor and organ renovator, but was interrupted and then completed by the author of this article, who was completing his studies at this time under the supervision of Hermann Binder, a master organ builder in Nagyszeben (Sibiu).

The restoration of the enlarged Kolonics organ was carried out at the request of Kelemen Portik-Hegyí, the archdeacon-parish priest of St. Nicholas Church, with the support of the Harghita County Council's Historic Monuments Protection Programme in 2016-2017.

During the restoration, the following interventions were carried out.

1. Reconstruction of the main pipe of the organ, the Principal 8' of the façade, with the same dimensions and material quality as the original.

2. The console, previously converted into three manuals, was restored to its original two manual form. The stops that were added during the expansion were placed separately on the left hand side of the organist.

3. The wind chest made for the triple manual has been removed. The pipes on it, which had been moved from manuals I and II during the modification, have been reinstalled in their original positions. The original wind chests have been restored. As the church is heated in winter, we have used the well-proven leather-lined technique. During the restoration, a handwritten piece of paper was found inside the wind chest, on which the date of the organ's construction and the names of the people who participated in the work were noted.

4. The Hohlflöte 8' (flute 8') whistle was restored and replaced to its original position on the manual I.

5. The dents of the Principal 4' whistle have been straightened and then it was placed to its original position on the manual II.

6. The organ has nearly 1000 pipes; equalizing blow-

ers were used to ensure a constant air supply for them.

7. The preservation or removal of the pipes, which were installed to enrich the organ's tone, was a significant question. In the end, at the request of the parish council and the choirmaster, the pipes Trumpet 8', Vox Humana 8', and Sesquialtera 2' were kept, but they are still clearly distinguishable both on the console and inside the instrument. The original sound mechanics have been restored.

8. The tuning plates—mounted on the whistles when the Subbass 16 pedal whistle was converted to an Octavbass 8'—were removed and the long cutouts made for the plates were filled with wood. The tuning plugs that were removed during the conversion were reconstructed, felted, leathered and the pipes intonated again.

The restoration described above will ensure the long-term good functioning of the 150-year-old organ made by István Kolonics.

Zoltán Pap

Organ builder and conservator

Translated by: Petronella Kovács

Levente Zsolt Kovács

Restoration of the chamber table from Homoródalmás (Merești)

The chamber table belongs to the Szentendre Open-Air Ethnographic Museum is one of the work of Jr. Pál Balázs (1837-1897), member of the Balázs furniture painter family from Homoródalmás. The basic colour of the table is medium brown, decorated with a darker wood grain painting. The floral patterns are painted on this, with no initial motif. The only exception to this is the right side, where a larger bouquet starts from a heart motive surrounded by a string of white pearls. The heart is inscribed with the letter B and the date – 1890 – divided for two parts on either side of the heart.

The loose elements of the table had been fixed with wire nails over the years, the wood have been suffered fungal and insect damage in places. One small drawer and the bottom of another one were missing. The sides of the large drawers were warped. The table top and the sides of the object were cracked and the joints have been moving away from each other. The slides of the drawers were broken; some of them were replaced with new slats. The skirting boards and feet were worn. Consequently, the table wobbled.

While respecting the ethic requirements of the restoration, it had to be taken into account that since the table is exhibited as part of an interior in the Skanzen's Homoródalmás house, its appearance should be in line with the other furniture displayed there. Therefore, the missing small drawer was reconstructed, and the aim was also to consolidate the poorly retained timber, to eliminate the twisting of the table legs due to gaps, and to complete

some elements. In order to carry out the interventions, it was necessary to dismantle the object. This could be done safely because the X-ray images of the object showed the location of the nails struck later.

UV images of the table showed that it was covered with a uniform coating and that the gaps in the coating became visible. The coating was not removed, and a 1% aqueous solution of Brij® 35, a non-ionic surfactant, was adequate for the cleaning of the painted surfaces. Based on the results of material analyses and solubility tests a 1:1 mixture of tetrahydrofuran and toluene was found to be effective for cleaning, where the paint layers weren't protected by coating.

Paraloid B72 5-20% dissolved in a 1:1 mixture of toluene and acetone was used to consolidate poorly retained wooden parts by dipping, brushing or injection, depending on the extent of the damage.

Spruce was used to fill in the larger gaps and reconstruct the small drawer, and a 1:1 mixture of skin glue and bone glue was applied for gluing. The minor surface gaps were sealed with filled acrylic wood putty (Tikkurila Spakkeli), diluted with 50% water, and the footings with Artiwood two-component filled epoxy putty.

The furniture was assembled by gluing the panels and pins with animal glue. The good preserved wood nails were reused and new ones were made to replace the damaged ones.

Before retouching, a 3% solution of Paraloid B 72 toluene and acetone 1:1 was applied as an isolation layer. The retouching was done with watercolour paint, and the natural wood surfaces of the additions were coloured with aqueous wood stain. The surface of the reconstructed small drawer was painted wood graining according to the original technique. Kulbanol Profgrund special wood preservative was used for the preventive disinfection of the furniture.

After cleaning and passivation, the iron parts were coated with a 3% solution of Paraloid B 72 dissolved in a 1:1 mixture of toluene and acetone.

During the restoration, the wood of the furniture was determined by microscopic sections: most of the elements are made of spruce (*Picea abies* (L.) H. Karst), and one side of the large drawer is made of larch (*Larix decidua* Mill.). Samples were also taken from the paint layers of the object. Polarisation microscopy, electron beam micro-elemental analysis, X-ray diffraction analysis revealed that the colour of the bright wood grain layer is given by goethite (natural iron oxide yellow, ochre). Vegetable carbon (pale black), red lead, red iron oxide and particles containing Zn were detected in the thin dark wood grain layer. The green layer is probably an organic dye precipitated on a natural form of barium sulphate. The colouring material of the red layer is the red lead in the presence of gypsum and zinc. In the white layer, presence of lead and zinc white pigments were detected, with a small amount of gypsum as filler. Furniture makers often made their own pigments using minerals and plant parts

found in the area, but most of the pigments were already bought in shops when the object was made.

The conservation of the table was carried out as a diploma thesis in the Conservation Department of the Hungarian University of Fine Arts, at the Specialisation of Wood and Furniture Conservation in the 2014/15 academic year.

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