Abstracts

Zoltán Miklós
Rich Past – Hopeful Future

The mission of the Haáz Rezső Museum is to collect, research and exhibit material related to the history and intellectual legacy of the region around Odorhei. Ideally the museum was to have a positive influence on the community, but for quite some time it was hampered in its mission. The building, which housed the museum, was inadequate, and there were limitations in personnel and in infrastructure. In addition, because the building was in constant need of repair, the staff was not able to concentrate on professional work. After the change of government in 1990, the building was returned to the original owners, from whom the building was confiscated during the 1950s. After that the museum barely managed to survive – there was no way it could carry out its mission successfully.

While the local government was aware of the problems at the museum, finding a solution was not a priority. Because there was a constant threat that the owners would terminate the agreement to house the museum, there was a need to develop a plan to raise awareness of the museum's significance to the city and to the region, and to encourage the citizens to make greater use of its resources.

Around 2010 the museum administration decided to strengthen the social role of the museum, serving the community and increasing personal services, with emphasis on cultural and educational activities. As one of the main cultural institutions of the region, the museum sought to be more appealing to tourists and to residents as well.

In recent years, the health of the museum has improved significantly. In 2012, the local government acquired the Haberstumpf Villa to become the new home of the Haáz Rezső Museum. After several years of design, planning, and restoration, the museum opened its doors in its new home on May 17, 2016.

Dr. Zoltán Miklós
Ethnographer, museum director

Translated by: Anna-Mária Jakab

Magdolna Békési-Gardánfalvi – Tamás Hofmann – Sándor Fehér
Possibility of application of energy-dispersive X-ray spectroscopy (SEM-EDX) analysis for examination of threads and dyes of archaeological textiles

The study introduces a part of an ongoing doctoral research about the methods of dye analysis of museum textiles.

When restoring museum textiles, the question is often whether the current colour of the subject is the same as its original appearance had been. As a result of time spent in the soil, inadequate storage conditions, usage and previous interventions, finding the original colour of the fabric is often difficult even for professionals. Archaeological textiles are among our shortest-lived material relics; usually they survive in the form of smaller or larger fragments. The deterioration of the above materials are determined by the physical, chemical and biological processes taking place between the objects and their environment, as a result of which the fibre material carrying the colour is also strongly degraded. Archaeological textiles are usually brownish upon arrival at the conservation workshop. In such cases, to determine their original appearance is almost impossible without identifying the dye. The dye and colour of the textile can carry important information on the technique, origin and age of the object, as well as help with restoration and conservation. For the reconstruction of objects and finds of high importance, it is indispensable to define their original colour. To determine and reconstruct the colour more precisely, besides the identification of the organic dye, the determination of inorganic components is also important since most of the natural dyes are used as mordant dyes. Archaeological textiles generally remain in the form of smaller or larger fragments, so the amount of sample available is often very small. Another problem is that not only the textile but some of the dye may be degraded, so chromatographic and mass spectrometry methods that are sensitive to the separation, and detection of dyes with a low detection limit are most suitable. In Hungary, these studies have hardly been performed in recent decades. Authors were trying to find out how successful the use of energy-dispersive X-ray spectroscopy (SEM-EDX) can be for the identification of the type of threads and the inorganic compounds present in archaeological textile samples of different ages.

In the course of the work examination of fibres was carried out with scanning electron microscope on 30 standard samples and on 21 archaeological samples. This type of analytical method can be used with good efficiency for fragile, decayed and very contaminated fibre, the identification of which is very difficult or is already impossible by the use of stereomicroscope or polarising microscope. The advantage of the procedure is that EDX connected to the scanning electron microscope also provides information on the elemental composition of the sample. When evaluating the results many things have to be taken into account to interpret correctly the data received. For example, the presence of copper could be deduced from the use of copper sulphate in the course of dying, but if the garment is heavily decorated with metal threads copper as a silver alloy may also appear in the result.

Additional examination is still required on the basis of the experience of the analysis have been carried out so far. To determine the inorganic components of archaeological textiles soil testing and artificial aging of reference samples will be carried out to get a more detailed picture about the possibilities of identification of mordant-components found in historical textiles. For identification of the dyes, thin layer chromatography and high-performance liquid chromatography-mass spectrometry (HPLC-MS) will be used

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Petronella Kovács
Conservator versus micro-organisms

In the last twenty years, several crypts and ossuaries have been discovered in Hungary in different churches. Their excavations were carried out by local museologists and anthropologists, only in some cases were conservators present on the site. The conservators of the Hungarian National Museum – National Centre for Conservation and Conservation Training (HNM-NCCCT) and the students of the Hungarian University of Fine Arts were involved in the conservation of the finds. The study reviews the experiences of the excavations and conservation of organic remains from four different sites, between 1994 and 2011. Some of the typical problems, the treatments applied for disinfection, the materials and methods used for conservation and the conditions of exhibition and storage for the objects after restoration are presented. The health risk of microorganisms and of the antimicrobial compounds is mentioned too. Although both bacteria and fungi harmful for the objects and for humans were present in the crypts and on the finds, the latter were greater in number and diversity, so antifungal actions were more often necessary.

In the crypts mainly organic materials such as wooden coffins, textile garments, leather footwear, wooden funeral accessories, and in one case in well ventilated rooms naturally mummified bodies could be found which were all exposed to the activity of micro-organisms because of the high RH of the environment. Beside that any change in the climatic conditions at the site of the excavation and during the storage before conservation had to be considered as shocks for them. The microbiological examination and identification of species in samples taken from the air and from the finds is recommended not only on the site of the excavation but also during the temporary storage before conservation, because secondary colonizers may cause further decay on the objects. The value of fungal elements/cubic meter of air shouldn't be significantly higher than the consensus limit (500 cts/m^3).

Since the dates of the four projects were different, the materials and methods used for prevention, disinfection and conservation could have been modified according to the gained experiences. Because of the limited space in refrigerators after taking the finds from the crypts organic remains were often stored temporarily in non-heated areas where the temperature was low and the RH was supposed to be lower than on the site of the excavation. Although those places seemed to be appropriate for short storage there was always a risk of the prolongation of that period for technical reasons. Primary disinfection on site by spraying the finds with 50% or 70% ethanol and the X-ray treatment of the mummies was not sufficient in the cases presented in the study, because in occasion of drastic growth of humidity due to water intrusion, activity of microorganisms or secondary infections were observed. At that sites the objects covered with plastic sheets became mouldy quite fast while on those ones which were covered with paper the infestation could not be observed. The storage of the finds in refrigerators, or evaporation of appropriate antimicrobial essential oil products in the vicinity of the objects, or use of disinfectants sprayed to the wrapping materials helped to prevent the growth of fungi. In the course of the conservation works, the mouldy textiles and leathers could be cleaned and disinfected in one step with aqueous solution of quaternary ammonium salts if the condition of the objects allowed it. For conservation of leather finds hygroscopic compounds such as glycerol or polyethylene glycol were used. For these objects and for the mummies it is very important to keep the RH not higher than 45-50% in storage and exhibition to prevent them from mould growth.

Petronella Kovács
Furniture and wodden object conservator DLA

Translated by: Petronella Kovács
and Márta Kissné Bendefy

Brigitta Maria Kürtösi
Mosaic and Gold – Technology with historical examples

The earliest written mention of the art of making gold mosaics is related to the Lucca manuscript dating to the 8th century AD based on Greek tradition. The mosaics have shown splendour and richness, with their expensive materials as well as with their meticulous, precise working method. Early Byzantine court and church orders are rich in gold; similarly to the character of stone and coloured glass tesserae, a durable solution had to be found for their production. The gold tesserae are composites. The precious metal sheets hammered to sensitive foils had to be adequately protected from both sides. The thin gold "leaf"

is able to keep good condition between the applied two layers of glass (the glass support above and cartellina, the thin covering sheet of glass, on the top).

The methods of mercury gilding have been known and used for decorating various objects, mainly metalwork, for more than two millennia. There are several versions of the making in the historical knowledge, apart from amalgam gilding, such as *cold mercury gilding*, *powder gilding*, and the so called *vermeil* technique.

The mural mosaic decoration in the former Royal Basilica of Székesfehérvár/Alba Regia is likely earlier than all the known mural paintings remained from the Middle Ages in Hungary. The medieval masters working in the Royal Basilica distinguished between the traditional gold tesserae (composed by the following three hot fixed layers: poured glass support, thin beaten gold leaf, thin layer of blown glass as a covering) and gold mosaic version type "B", defined and tested by the author (poured glass support, gold and mercury contented layer, and thin cartellina). A geometric patterned mosaic fragment came to light by archaeological excavation, contains both types; the cross in the middle is made of traditionally produced gold tesserae, but the "B" type metal foiled ones compose the background. The results of the microscopic studies (about the structure, thickness and appearance of the metal layer) were supplemented by the XRD and handheld XRF measurements by István Sajó. The main result is the detection of mercury, which indicates a different variation of producing gold tesserae not to be mentioned in the written sources. It is significant because the detection of the different deterioration processes drew attention to the particularity of this find. The recognizing and identification of a sporadic gold glass *lingua* was also the success of the author's doctoral research. Its appearance is very similar to the medieval ones detected in Venice and in the Middle East.

The artists of the turn of the 20th century re-discovered the mosaic technique and the role of gold in their mural compositions. The nature of the Art Nouveau movement favoured the spreading of technology. The overseas Louis Comfort Tiffany became the famous craftsman of this period, in Venice the Liberty-style mosaics are connected to the work of the Salviati-family. In the creation of mosaics inspired by the Hungarian Art Nouveau, the name of Miksa Róth (glass-painter and mosaic artist) is to emphasize. The most significant difference in this period is precisely in the technology, which has a significant impact on the nature and the preparation method of the larger gold surfaces.

Contemporary glass art also uses the gold and glass co-effects available.

Brigitta Mária Kürtösi
Painting and mosaic conservator DLA

Translated by: Brigitta Mária Kürtösi

Éva Mester

Protective window bars, wire nettings and protective glasses – the possibilities of the protection of decorative glazing

The vulnerable decorative glass windows are exposed to several harmful chemical and physical impacts. Besides the weather and the vandalism the permanently increasing air pollution causes serious problem as well. In winter the frost cycles, sometimes even more than one per day, are very destroying. When the rainwater accumulated at the junctions of the thin lead canes and the glass plates it has got increases in volume while frosting and volume reduction when it thaws. The harmful effects of the frost, the solar radiation and the driving rain are stronger if they reach directly the windows. Vandalism including wars has been responsible for the complete annihilation of numerous stained glass windows and decorative glazing. Recently the air pollutants, the dust and the chemical compounds may cause the most imminent danger.

The protection of the windows has been attempted since the last centuries already. The window bars with various shapes and decoration are parts of the facade elements of the buildings and they can prevent breaking in, but they cannot protect against throwing stones, gun shots and birds. The wire nettings are more efficient but although it gives protection against nesting birds, the gap between the glass plate and the wire nettings is an excellent hiding place for the insects and spiders; and the fallen leaves, the dust and other contaminants cannot be removed from there. The use of protective glasses can be effective solution but not all of them are equally good. They have to be connected to the outer walling; otherwise the wind storms could damage them. Wired glasses have been chosen for a long time but they were not perfect either. The multi-layered, glued, safety glasses, occasionally with bullet proof foil can protect with sufficient safety. In this case the air should be circulated continuously in the gap between the two glass panels to prevent condensation.

From an aesthetic point of view the contour of the window bars may interfere with the artistic composition of the glass windows, especially in the sun. The dark shadow of the rustic braid of the wire nettings changes the colour harmony. The square grid of the wired glasses results a lattice pattern on the light surfaces. All these problems can be avoided with the professionally chosen and built in protective glazing, which meets the requirements of thermal engineering and air conditioning. The protection of the decorative glasses fixed in ornamental stone openwork belongs to a separate task group. In those cases it is not always possible to apply the framed protective glazing in front of the decorative glasses. Here the use of the sandwich panels can be expedient.

Éva Mester
Glas designer DLA, restorer

Translated by: Márta Kissné Bendefy

Zsuzsanna Tóth
Brass book-covers of the Lutheran Slovaks living in Hungary

The so called 'Slovak book-covers' which have archaic look appeared quite late, in the middle of the 19th century as local fashion in the community of the Lutheran Slovaks immigrated to Hungary. The fittings used earlier generally for the protection of the bindings, disappeared by this time. The few ones still existing cannot be classified into unified groups; they are only decorative elements, often designed particularly for the certain book. In small amount only, one type of bookbinding could have been found continuously typically in the provinces, in the circle of social classes such as peasants and the lower middle class. This kind of book-covers preserved archaic elements, their appearance was simple with just a few fittings and they were related to religious books.

The fittings for the so called 'Slovak book-covers', which are more spectacular, richly decorated but not much elaborated ones, were usually made as secondary covers, mainly for the older, archaic book-bindings mentioned above. They were made often by wanderer bookbinders or metal repairmen who bore their workshop with them.

The 'Slovak book-covers' can be found almost exclusively on the songbooks edited by Juraj Tranovszky. They have been published 170 times since their first publishing in 1636. The names generally used for the above covers are 'Slovak book-covers', 'Slovak Bibles' or 'tranoscius', the last one refers to Juraj Tranovszky's name. The need and the financial strength of the users resulted the birth of this spectacular, but roughly implemented type of fitting and cover, the evolution, alteration and variety of which was dictated by the local fashion. As the way of life and the fashion changed, the manufacture of this spectacular type of book-cover ceased barely after 50 years of flowering. The use of songbooks bound in this way can still be found in the 20th century in more and more decreasing quantity, but because of the retreat of the language used in this books practically it ceased for today.

Zsuzsanna Tóth
Paper and leather conservator MA

Translated by: Márta Kissné Bendefy

Andrea Várfalvi
Experiences about conservation of water-sensitive textile folding fans

The deterioration of the folding textile fans can be caused by human, animal or microbiological activities and environmental factors. The results of examination of the materials and the manufacture technology of the artifacts can help to select the materials and methods be used in the course of the conservation.

The fans are cleaned mechanically first. The wet cleaning can be carried out only after taking apart the components, since their sensitivity to water are different. The first step of the dismantling is the removal of the traces of inappropriate repairs.

The taking apart of the lower and upper edging ribbons, which are often hardly damaged, makes possible the separation of the leaves from the sticks. It is very important to make a precise cutting pattern of the front page after dismantling and flattening.

The wet cleaning of the textiles can be carried out by soaking, with the use of surfactants if necessary. During shaping the leaves are fixed with stainless insect pins or with glass plates. The present of water-sensitive elements, such as finishes, paintings, sequins made of gelatine, threads fixing the sequins and beads and the crewels dyed with unstable dyestuffs excludes the wet cleaning. The fabrics embroidered with bleeding threads cannot be treated with water without deterioration. The textiles with finishes, with painted areas or with gelatine sequins can be cleaned effectively by local swabbing, between absorbent tissue papers. The water sensitive areas should be left untouched during the treatment. If the finishes or the paintings get sticky during the cleaning test, the cleaning shouldn't be carried on. In this case, only the softening and the smoothing out of the creases can be executed by humidification.

If the paper lining of the fan is weak, acidic and it does not have any historical importance, its replacement can be accepted because it could be harmful for the object in the future. The wet cleaning of sticks made of water-sensitive wood, bone, horn or mother of pearl can be attempted with cotton swabs slightly dampened with a little amount of water. Degreasing of the metal elements such as sequins, handle and rivet can be carried out with organic solvents. The reshaping of distorted sticks can be attempted with their careful dampening and then pressing between cardboard strips.

The conservation of the fabric of fans with sewing is different from the usual practice in textile conservation. The support should be sewn with continuous stitches to the leaves between their bottom and upper edges radially, close to the weakened plies. In the case of very weak, fragmentary textiles, the supporting can be followed by covering with silk crepeline on one or both sides. The support serves as replacement of the missing areas as well. The embroidery and sequin decorations are replaced only rarely for static reasons.

The sticks, which are damaged or incomplete, can be repaired with epoxy or cyanoacrylate type adhesive. The reassembly of the conserved elements of the fan should be carried out similarly to the original technique. The leaves can be fixed to the sticks with sewing or gluing. In the course of the reassembly, first the stick framework is stabilized with insect pins according to the previously made cutting pattern. First the front leaves are glued to the sticks, after that the other layers, and finally the lower

and upper edging ribbons are fixed on the artefact. For storage, acid free cardboard boxes are prepared for the opened fans with full-size acid free support. When exhibited fans are placed to a slightly oblique Plexiglas or acid free cardboard support.

Andrea Várfalvi
Textil conservator MA

Translated by: Márta Kissné Bendefy

Eszter Tóth
The modern history of a chalice from the Avarian Period

The modern history of the chalice started in the autumn of 2014, when it was found on the outskirts of Jászfényszaru, during the course of an excavation of a cemetery of the middle Avarian Period. All of the graves in the cemetery had been unsettled at the age of the Avarian Period, including the grave containing the chalice, but it had stayed undisturbed downwards from the waist of the dead.

That was the luck of the above-mentioned object, which was found next to the right foot of the deceased. Despite the lack of disturbance, the chalice was found in three pieces, the hemispherical bowl, the stem, and the slightly convex foot. As the chalice was put into the grave, the bowl had been damaged by a sharp-edged tool, seemingly on purpose.

Such chalices, made of metal with a hemispherical bowl, have been reported from seven sites in the Carpathian Basin, especially from its middle part, but are unattested in sites outside this area. Among similar objects chalices made of bronze, silver, and gold as well have been found, the last pair of chalices being the parts of the Treasure of Nagyszentmiklós (Sânnicolau Mare, Romania).

Conservation was first done on the chalice by Csilla Cserepkei in the autumn of 2014. The removal of the corrosion products was carried out by using mechanical methods and chemicals (5% solution of EDTA Na2 in distilled water). For sticking the pieces together grey coloured epoxy resin was applied as adhesive. The protective coating of 8% Paraloid B72 dissolved in acetone was given to the surface. Silver as a possible coating was excluded by a microchemical test, so the raw material of the chalice was determined as "tinned copper/bronze". Considering the tin coating dechlorination was not implemented.

By using energy dispersive X-ray microanalysis in a scanning electron microscope the foot of the chalice was analysed, and it turned out to be made of tinned copper (the tin coating consists of almost pure tin, the ground metal consists of 96-98% copper), the solder consists of 80% tin and 20% lead.

The melting point of the solder could be estimated at 200°C. The melting point of pure tin is 232°C, so the tin coating has the same melting temperature. These figures mean that the parts of the chalice had been tinned first, and then they were soldered together, because otherwise the compiled chalice would have come into pieces during the tinning process. Evidence for it could be found on the chalice itself, i.e. the arched, dashed lines around the solder testify to the usage of a file before soldering.

In the summer of 2016, pale green-coloured corrosion could be observed in the depths of the pittings, due to the lack of dechlorination at the first conservation process and the proper relative humidity in the storage room, so it was necessary to do further conservation work on the chalice. The method and the chemical solution were the same as at the first treatment, but the chosen adhesive was colourless. Before the reassembling of the object, a layer of Paraloid B72 dissolved in acetone-toluene (1:1) was applied on its parts without dechlorination because of the chalice had to be ready for a television recording. Sticking the three parts together was implemented on an upside down position. To get the right viscosity of the adhesive experimentations were needed.

Some weeks later green corrosion reoccurred on the chalice, so the protective coating was removed, and the chemical treatment was repeated. The dechlorination was carried out by retting the object in distilled water. After drying a protective layer of Paraloid B72 was applied again on the entire surface.

Eszter Tóth
Metal and goldsmith conservator MA

Translated by: Eszter Tóth

Éva Puskás – László Sulyok
'Descent from the Cross'. Renascence of a painting

The painting which now belongs to the St. Charles Borromeo Parish in Sighetu Marmației (Romania), once decorated the walls of the Piarist Grammar School of the town. The unknown, 19th century master probably based his artifact on the painting 'Descent of Christ from the Cross' by Daniele Ricciarelli da Volterra, which can be seen in the Church Santissima trinita dei Monti in Rome.

The support of the painting, which was made from one piece of thin, densely woven linen canvas, became wavy, rigid, broken and split. Many holes could be observed on its edges, which suggested that it had been re-nailed several times in the past. The torn and incomplete areas had been repaired from the back side with patches cut out of an old painting. The stretcher frame was distorted, its joins became loose, the shape of the cross bar got pressed into the painting.

Traces of earlier interventions probably from different times and by different persons could be seen on the painted surface even by naked eye. The painting got scratched and split, its surface was covered with a varnish layer which

became dirty and contaminated unevenly. Although the semicircle shape of the upper edge confirmed that the ornamental frame was not part of the painting originally, its sustention seemed the right decision. Its condition was very weak, the wood parts became spongy. Several gaps and former repairs could be seen on both sides of it.

The conservation of the painting began with dusting and with taking off the picture from its frame and from the stretcher. The softening of the glue of the repair patches on the back side was done with a gel made from hydroxypropyl cellulose (Klucel G) and ethanol. The unevenness of the canvas was smoothed by ironing between silicon release papers and then by pressure with cold marble sheets. The contaminations and the repairs made by overpainting were removed with the mixture of ethanol, turpentine, linseed oil and ammonium-hydroxide, and by mechanical method.

For adhering the relining canvas to the original one Beva 371 synthetic resin was used. The picture was fixed back to the conserved stretcher and then its surface was covered with a varnish made of 25% dammar resin dissolved in turpentine. For gap filling of the deteriorated areas mixture of fish glue and chalk was used. The aesthetic restoration by invisible retouching was made with Maimeri Restauro retouching paint. As a final coating the painting got an acrylic varnish by spraying.

After the removal of the overpainting layers from the frame it turned out that the original metal appearance of the surface was almost completely missing. The wood was consolidated with the solution of Mowilith DMC 2, the larger gaps of the frame were filled up with wood, while the smaller ones with Balsite two component epoxy resin. The aesthetic restoration was carried out with the help of water-based acrylic paint and Masserini solvent-based bronze paint with high metal-pigment content. Finally Masserini acrylic spray was applied as a protective coating.

Éva Puskás
Restorer

László Sulyok
Restorer

Translated by: *Márta Kissné Bendefy*

Levente Domokos – Károly László
Conservation of the fireplace of the sacristy of the Lutheran church at Berethalom

In the last two decades, the interest has increased towards the Transylvanian monuments. On the other hand, the rejoicing development of tourism can damage the furnishing of the buildings. This happened with the heating device in the sacristy of the fortified church of Beretfalva, which is inscribed on the List of World Heritage. Here the damage was caused because of the increased movement of the floor, generated by the big number of visitors.

The fireplace divided into two parts probably built at the end of the 18th century or at the beginning of the 19th century, was constructed onto a platform framed with ornate wooden timbers and standing on legs. Some tiles of it had been moved and the front had been caved in partly. The remaining elements were burdened with the heavy roof, and so more and more cracks appeared on them. Because the floor went down underneath the platform built in front of the firebox, the platform leaned forward. To stop the leaning forward of the fireplace the opening of the firebox was reduced to its half in the past to reduce the pressure on the side wall and to give extra support to the front wall.

Some of the decays were caused by the former use and improper repairs. The fireplace was often overheated resulting a crack between the tiles on the right wall. For the conservation, partial taking apart of the fireplace was necessary. In the course of dismantling several details of the original manufacture technology could be observed, such as the marks of tools on the back side of the tiles. Along the alignments, the variant layering of the different sides could be seen. On the back side of some tile sheets there are marks of cutting.

The tiles left on the fireplace and the ones which were taken apart were cleaned partly mechanically. The stubborn contamination (lime, mortar made of lime and cement, smut) could be removed only after soaking.

The gluing of the broken tiles, the minor replacements and the imitation of glaze was made from Paraloid B72 dissolved in nitro thinner in 15-70% concentration, depending on the task. This synthetic product was chosen because with its use the different layers of repair were compatible with each other. For filling the gaps Paraloid B72 was used filled with red clay/engobe, that layer was covered with Paraloid B72 filled with ground white kaolin, on which the glaze imitation made from Paraloid B72 was applied.

The repair of the tiles, which had been incomplete, was made with white, iron-free, fireproof clay, thinned with fireclay, which corresponded to the original use of material but it differed from it in colour. The gluing of the burnt, glazed replacement pieces to the original ones was made with Paraloid B72. For the retouching of the surfaces after gluing Paraloid B72 was used coloured with mineral pigments. The work was completed with the reassembly of the elements of the fireplace putting the tiles to their original places.

Levente Domokos
Restorer MA

Károly László
Ceramist

Translated by: Márta Kissné Bendefy