Abstracts

Zoltán Miklós
Ethnographic values of the Homoród region

The 8th conservation conference organised at Székelyudvarhely included a visit to the villages in the valleys of the Homoród rivers. This micro-region contains a series of settlements established in the southwards widening parallel valleys of Homoród, which is enclosed by Southern Hargita, the northern extension of the Persány Mountains and the hills at the eastern brim of the Udvarhely Basin. Regarding the social and the architectural homogeneity, the Homoród region in a strict sense consist of eighteen villages and a small town.

The Homoród region is considered to date as a disadvantaged region of Székelyföld. This disadvantage is stressed by the fact that no real big businesses can be mentioned, live workforce is still dominant in the agriculture and there are not enough machines helping the cultivation of the inferior quality soil. The only means of subsistence is cultivation for many families even to date. This micro-region hides countless values from an ethnographic aspect despite the fact that many handicraft and homecraft establishments have stopped working, yet the legacy can be estimated from the countless objects that attest to their former existence.

The most conspicuous trait we could observe in the visited villages was the uniform architectural style. Apart from two settlements (Kápolnásfalu és Szentegyeháza) where the Székely architectural traditions were respected, an architectural practice mixed with Saxon impacts became generally accepted in the strings of settlements established along the banks of the Small and Large Homoród rivers. Closed fronts and agglomerated streets dominate, and streets along the rivers and streamlet alternate with small streets climbing up the hills. The new family dwellings built in the 19th century were decorated with painted furniture. In effect of the increased demand, a uniform furniture painting style became dominant in the region, the evolution of which can be linked with the painter joiners of the Balázs family.

The villages in the less productive area specialised in selling various homecraft and handicraft products to supplement their income. Planks and tools made from wood and also burnt lime were exchanged with the help of carter tradesmen. The inhabitants of a few villages were specialised in wool processing (carpet and cserge [thick woollen blanket] weaving), while in other villages, pottery brought profit. Mills, sawmills and fulleries used the waters of the two rivers. The high-capacity iron bloomery constructed in the middle of the 19th century was also based on water power.

A large proportion of the constructions along Small and Large Homoród can deservedly be included in the cadastre of the constructed heritage. We cannot any more speak of completely uniform village views yet the streets or parts of the streets have preserved the folk architectural style that manifested itself in the combination of diversity and traditional mentality. We are convinced that the visit paid to this region was a great experience not only because of the view of monument churches but also owing to the insight into the lifestyle and the material culture of the local communities.

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Electron Probe Microanalysis
in Conservation-Restoration
Part I : Scanning Electron Microscopy

Introduction: The electron microprobe analyzer (EPMA), is basically a scanning electron microscope (SEM) combined with an energy or wavelength dispersive X-Ray spectrometer (EDS or WDS), specialized and optimized for elemental analysis of surface-near volumes of cubic micrometer size. In the last half century this flexible instrument and method soon found its way from the mineralogy and metallurgy to the conservation-restoration.

The flexibility and versatility of the SEM-EPMA, an advantage for the analyst, can be disadvantage for the conservator, as the choice of optimal working mode, the interpretation of the results or even the appropriate sampling and sample preparation require a basic knowledge of the method. On the other hand the conservator's active participation in the measurement and the interpretation is the key of success.

The two part paper starts with an introduction of the measurement and interpretation (Part I) then practical hints and tips follow (Part II) in order to avoid the pitfalls of sampling, preparation and interpretation while illustrate the beauty of the method.

The EPMA instrument is basically an X-Ray spectrometer, where the radiation is emitted from a small region of the sample. This is realized by irradiating of the sample surface by an energetic (1–50 keV) electron beam

focused into a 10–1000 nm spot. These electrons then spread in the material into a sphere like excitation volume. The shape and size of this volume is determined by the Rutherford scattering of the electrons in the Coulomb field of the nuclei of sample atoms, and depends on the mean atomic number of the sample and the energy of the electron beam, typically falling between 0.5 and 5 micrometer in most of the cases. Some of the electrons even turn back and re-emitted from the sample surface, as a result of subsequent elastic processes, giving the so called backscattered electron intensity (BEI) The electrons are loosing their energy by inelastic interactions with the atoms, generating secondary electrons (SEI) from the outer shell ionization, and X-ray lines from the inner shell ones.

The energies of each line is characteristic to the atom emitting it, so measuring the energy spectrum of the emitted X rays, from the line energies we can conclude to the qualitative composition, while from the relative intensities of the lines we can perform quantitative analysis of the excited volume.

In the early fifties optical microscope was used to choose the micrometer sized point of analysis on the surface of macroscopic sample. The EMPA became really popular in the sixties, when it was combined with the just spreading SEM.

The scanning electron microscope (SEM) provided picturesque results after simple preparation of an extremely wide sphere of samples detecting and imaging the secondary electron intensity (SEI), generated from the sample by a TV-like scanned focused energetic electron beam. Its popularity increased by its simple design and operation, large depth of focus and magnification range (10x – 100.000x). Due to the scanning principle the beam could be stopped at any point of the image, providing an excellent X-ray source for the EPMA analysis.

Although any signal generated in the electron-solid interaction can be used for imaging in a research SEM, the relatively simple and picturesque basic working modes, as SEI and BEI did not loose their popularity. The SEI provides stereo-like images of highest magnification with extreme sensitivity to small details, while detecting the total backscattered intensity (BEI-COMPO) the shades of gray on the image reflect the changes of mean atomic number variation, i.e. phase map of the sample surface, providing an ideal image to localize the areas of interest for a subsequent (but more time consuming) set of X-ray microanalyses, or element mapping.

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Márta Járó

Metal threads in "fake or poor trimmings" and other "inferior" fabrics
Manufacturing technique of copper-based solid metal threads and possibilities of their quick identification

Knowledge of the materials used for the production of historic fabrics and embroideries is indispensable to their exact technical description, for selecting the appropriate methods of their conservation treatment. The most sensitive and technically the most complex representatives of these materials are probably the metal threads often used for decoration.

One of the most interesting groups of the more than seventy metal thread variations identified up to now, is composed of the so called "fake gold and silver threads" used mostly for weaving and embroidery in the modern period. The basic raw material was copper at the production of these threads mentioned in the contemporary sources as ones from Leon, Lyon, Nuremberg, etc. The copper base was "surface treated" in various ways so that it looked like gold or silver, or it was alloyed with metals that coloured it to a golden or a silvery shade. These threads have often been mistakenly described as gold or silver threads in publications, and the fabrics decorated with them cleaned and conserved as if they were made of precious metals. These imitations are generally less resistant to the deteriorating effects of the environment than those made of precious metals. The copper and its alloying elements corrode easier than gold or silver, and the thin surface layer/layers on the copper base can easily be removed together with the corrosion products during the mechanical or the chemical cleaning. So the fabric will be aesthetically changed and important historical and technical data can be lost.

After a short historical review, the author deals with the manufacturing technique of the known copper-based metal threads and the simple identification methods of the various thread types.

The knowledge of the manufacturing technique helps the identification of the threads and the interpretation of the results of simple microscopic, micro-chemical and sophisticated instrumental analyses. With the description of the production method, the author intends to create a starting point and to offer help to those who wish to deal with these threads either systematically or in connection with a certain fabric. The "collection" is far from being complete; the analysis of further thread-samples mainly from textiles dated to the 18th-20th centuries, and the study of further contemporary descriptions can lead to the identification of numerous other versions.

The copper-based threads are categorized by materials. The author deals with gilded copper, silver-coated copper, silver-coated and then gilded copper, brass, brass-coated copper and some other copper-based metal threads identified in fabrics dated from the 19th-20th centuries. Within the individual groups, the different technical solutions are discussed separately.

At every published metal thread type, an attempt is made for the reconstruction of the manufacturing technique of the thread on the base of the data given by the contemporary written sources and the results of scientific analyses. Simple illustrations help the understanding of the subsequent working phases. At the various versions, a short description is given of the studied ornaments or the ones published in the special literature with the earliest and the latest dating – if such are known to the author. Next, the possibilities of the simple identification of the threads of the main groups (like gilded copper, silver-coated copper, etc.) are described, irrespective of the production technology (for example how the copper was gilded or coated with silver). The published optical microscopic and classical micro-chemical methods are generally not suitable for the determination of the exact layer structure of the different versions and, in the case of alloys, of the quality and the quantity of the components. Nevertheless, they can be used for the identification of the type and the main components of the threads and the detection of the layer structure, if any. A detailed description has already been published on the morphological and material investigation methods of the metal threads which can easily be carried out in a conservation workshop, so the author discusses here only the main characteristics of the copper-based metal threads that can be studied under an optical microscope and the micro-chemical tests that are necessary for their identification

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Cornelia Bordaşiu
Case-specific interventions during conservation Icons preserved from the frieze of the Feasts series of the iconostasis of the Bistriţa monastery

The study describes the conservation of the panel paintings “Holy Shroud” (or “Veronica’s kerchief”) and “Christ’s flagellation” from the series of six icons depicting Christ’s suffering.

The support of the frieze is an about 5 cm thick and 34 cm broad linden board. The original length cannot be determined. The board was cut by a machine and then worked with hand: chiselling traces can be seen on the backside. The places of the four-lobed icons were carved deeper than the surface of the carved ornamental frame. The surfaces of the icons were slightly raised in the centre, and they were framed with a ribbon ornament twisted in a baroque style. Openwork decoration can be seen in the spaces that separated the icons.

The grain direction of the wooden support was horizontal both on the carved ornament and the icons. The carved surfaces were gilded and silver-coated. X-ray analyses revealed that egg tempera was used for the painting of the icons. There are two layers of gesso on the wood overlain by a red bolus ground. Traces of polishing can be observed on the metal foil, on which an uneven protective layer of shellac was applied with a brush. The painting style of the icons is lighter than that of the traditional icons painted in a Byzantine manner. The painter used much binding matter at the pastel colours, which gave a surface as smooth as glass lending the picture the visual impression of an oil painting.

Cracks and warping developed on the support in the local microclimate, the stretchers shifted and the glued surfaces got detached. The wood lost its resistance in result of deterioration by insects and fungi. Large areas were missing from the openwork ornament and the lower part of the frieze. Beside environmental hazards, the dome of the altar fell on top of the iconostasis during an earthquake in 1977 leaving only a few fragments of the two friezes of the icons of the Feasts.

Former inappropriate treatments also caused injuries to the object. The backside of the support was treated with oil paint against deterioration by insects, which hindered the emission of the moisture that the wood had absorbed from the air and created an excellent medium for wood deteriorating insects and fungi. They nearly completely consumed the wood: the support became spongy. The fissures between the support and the ornamental elements were filled in with a glue-rich sealant, which exercised a stretching effect on the brittle wood. The putty was smeared over the original paint layers as well, and the completions were aesthetically inadequate. The canvas used at the priming could be observed along the injuries on the ornamental frame of the icon titled the “Holy Shroud”. It was probably used because of the fissures that had already been present in the original wood.

During the conservation, the structure was first reinforced and then the missing elements were reconstructed from the preserved ones. The detached parts of the support were fixed together with tenons. The tenons were glued into the support with 70 % bone glue. The missing stretcher was replaced with appropriately treated linden. Both the support and the new stretcher were consolidated with impregnation. The large missing area on the lower part of the frieze was filled in with cradle method in the following way: first a row of bamboo sticks were stuck into the middle of the rim of the support to show the direction. The sticks were glued to the support with animal glue and they were also secured to one another. After drying, the cradling was continued with small, treated linden laths cut to the right measurements, which were laid perpendicular at each other on both sides of the bamboo stick row. The laths were impregnated with a hot gluey solution and they were embedded in putty for the sake of a stronger attachment. This procedure was carried out step

by step and the finished parts were pressed and dried. After drying, the cradled area was shaped to the plane and the form matching the original, and it was polished.

The missing ornamental elements were reconstructed from the existing ones. First a skeleton was prepared from laths, which was fixed along the central axis and the sides of the ornamental element with putty prepared from bone glue and linden saw dust. After drying, the missing ornamental elements, which had been prepared from pieces of wood coated with putty, were gradually mounted on this skeleton. The laminated execution was chosen to evade secondary stretching impacts between the original elements and the materials of the completions and to secure long-term durability. The completed elements were primed. First the necessary shape was prepared from a sealant composed of bone glue and wood dust and then a mass prepared from the 12 % solution of fish glue and mountain chalk was applied. Finally, the completions were polished.

The missing areas of the paint layer were replaced in the level of the original paint layer. Before completion, grease was removed from the relevant surfaces with 1:1 mixture of ethyl alcohol and water, and the more persistent dirt was mechanically removed. Then, 12 % fish glue was applied on the surfaces with a brush. The mixture of 12 % fish glue and chalk were applied in subsequent layers during puttying. The surfaces completed with cradling were primed with the same putty. In the case of emergence holes, first oakum balls impregnated in bone glue were pushed into the holes, and then they were filled in with the above described putty.

A thicker mass was used for the completions of the carved elements. It was applied step by step with a palette knife until the original shapes were reconstructed. We paid special attention to follow the irregularities of the patterns. After drying, the putty was polished.

The aesthetic completion was started with the application of a transparent paint layer of the same tone as the missing colour, then a "trattegio" technique was used, in which the brush followed the shapes of the carved elements. The fissures of the paint layer and the completions of the emergence holes were retouched with a "ritocco" technique. On the painted surfaces, we intended to create the uniform colour reconstruction of the original tones with the aesthetic completion of the lights, the shadows and the carnation. Egg emulsion (in a proportion of 1/4) and watercolour were used for retouching.

The following aspects were considered during conservation: compatibility of the used materials, partial or complete reversibility of the processes and the aesthetic standard. The primary objective was the conservation of the frieze to hinder further deterioration and not to restore the original function of the object.

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Petronella Kovács
Leather covered 18th c. Transylvanian chests
Part 1 Cultural historical research, technology and investigation of the materials

The study deals with an object type that can generally be found at the back of store-rooms: leather-covered travelling chests, more exactly Transylvanian items decorated with floral motives cut from metal plaques. The aim of the research was: to find more items, to study their technology and to compare them with the 18th century sources, to identify the materials that were used to make these objects. The research comprises the classification of chests according the motives on the lids, and the identification the nationality of the former owners.

The ornamental technique of the chests is different from the decoration of other European items. Seven of the chests were published until the start of the research, but only one publication discussed this specific decoration technique. The author Jolán Balogh compared the field arrangement of the ornamental and the floral motives to coffer-ceilings. Eight more chests were found during the investigations. According to the dates on the lids, or on the front in the case of one item, the chests were prepared in the second half of the 18th century. Beside the similarities, a striking difference can be observed in the ornamentation of the lids. Seven of these are decorated only with floral motives; five also contain a double-headed eagle with a crown above the heads holding a sword and a sceptre. On one item, there are a laurel wreath and a crown and on another one two crowns can be seen. Another divergence between the chests is that the items of the latter two groups also bear monograms. The question arises if the double-eagle is purely an ornamental motive on the chests or it had some other meaning. We can perhaps exclude the possibility of it being a purely decorative element by the fact that all the chests with double headed-eagles were owned by Armenians, while according to the actual state of research the ones decorated only with floral motives were possessed by Hungarians, Székelys or Saxons. In the 18th century, many Armenian families were granted a patent of nobility with coats-of-arms. Thus it seems more likely that these Armenians expressed this way their loyalty to the Hapsburg house. The owners of these chests could also hold offices in the Hapsburg administration, which they expressed on their travelling chests with the crowned double-headed eagle.

The original function of the chests is uncertain. According to the family traditions, one of the items decorated with a double-eagle was Rebeka Issekutz's hope chest. The part of the lid where the monogram and the date must have been is incomplete. The Armenian girl was born in 1813 and married in 1839. Nevertheless, the stylistic traits affiliate the chest with the other items from between 1762 and 1790, so it could not be made on the occasion of the marriage. This chest is a typical example of how the chests were inherited from generation to generation and the changes of their function. Rebeka's

"hope chest" had already been used when she got it. It is known from a letter that her daughter used it as a laundry chest, while her grandson carried it down from the loft to the flat as a family keepsake.

Most of the Transylvanian Armenians were tradesmen in the 18th century, and they frequently travelled. So, the chests could initially be travelling chests. The fact that they did not have feet and they could be closed with two hasps beside the central lock and that dust bands were applied to the lids from three sides corroborate this.

The length of the chests varies between 78 cm and 128 cm. The microscopic analysis of the wood samples taken from three chests along injuries determined the raw material as Picea abies (L.) Karst., native in Transylvania. According to macroscopic traits, the rest of the chests were also made of spruce.

The sides of the chests were prepared from 30–50 cm wide planks depending on the height of the items. Their convex lids were built from two or three dowelled planks and they were attached to the two sides of the lids with dowels. The groove trimmed in the edges of the lids exactly fitted the one in the upper rims of the bodies of the chests when the lids were closed.

The animal species from which the leather covers of the chests came was identified by microscopic analyses. The lids, the fronts and the backs of 6 chests were covered with calf-skin, 3 with cattle hide and one with sheepskin. Hairy calf-skin was applied on one chest, another one was covered with hairy sealskin. The shorter sides of 7 chests were covered similarly to the other sides, while sheepskin was applied on the sides of the chests covered with hairy skin. The analyses have revealed that the covers of the chests are similar to the ones described by Krünitz, although the application of sealskin is not characteristic.

The fibres of the samples taken from the brownish leather covers blackened when 1 % watery solution of iron(III)chloride was dripped on them, which proves that they were vegetable-tanned. The analysis of the tanning material of the fibres of the hairy-skins was carried out by alizarin test. Both the hairy calf-skin and the hairy sealskin showed red colour reaction, so they were tawed with alum.

The samples taken from the metal straps and the ornaments were examined with SEM-EDS. It could be determined that four of the chests were decorated with motives made of tinned iron, six with motives made of brass and two other chests with motives made both from tinned iron and brass.

Most of the examined chests were lined with printed 80–82 cm wide cloths, two objects with white linen. The fibres taken from the threads of the linings showed the growth nodules of flax/hemp under a microscope. The cloths were prepared from Z-twisted threads by plain weave. The density of the warp threads was 10–14/cm^2 in average, while that of the weft threads was 8–13/cm^2. The cloths are decorated with motives of small flowers, bunches of flowers and ribbons. They were generally prepared in three colours with direct printing. The characteristic marks of block printing can be seen on a few ornaments. The printed cloths could be tapestry. Judged from their patterns, they were probably imported to Transylvania.

The elements of the drawers were covered with paper. The pieces decorated with wavy lines and small patterns are coloured paper prepared with block printing. The pieces decorated with larger flowers, could, however, be tapestry. The piece depicting a sea scene was probably tapestry, which became fashionable in the 19th century. The samples taken from the paper cover of four drawers were analysed. The macerates of these contained flax/hemp fibres beside each a cotton fibre and also contained each a straw fibre. This is, however, not real straw paper as the proportion of straw to flax/hemp is negligible.

According to Krünitz, the lining of travelling chests was glued to the wood with flour-paste or starch, while the leather cover was only nailed. In contrast, traces of adhesive could be seen on the wood bases of certain chests where the leather cover was injured. The microscopic analysis of the samples taken from the adhesive on the outer leather-covered and inner linen-coated sides of two chests demonstrated the combined presence of starch and animal glue.

The examined chests were prepared in a period of 28 years. The similarities of their elaboration and the ornaments imply that they could be made in the same workshop. They are perhaps items characteristic of a region or, they were fashion items that were popular in a broader area but only a few representatives have been preserved from them.

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Márta Kissné Bendefy
Effect of fats, oils and lubricants on leathers

It is commonly thought that leather objects can best be preserved with regular application of fats, oils and lubricants.

The study discusses the purpose of the application of lubricants during the production and the use of leather. It reviews the types of lubricants applied during production and use (triglycerides, fatty acids, modified triglyceride oils, fatty alcohols, mineral products, synthetic oils, fat liquors). It describes their chemical composition, characteristic properties and their effect on leather. It discusses in details the types of deteriorations caused by fats, and their manifestations on leather. They are the followings: desiccation caused by water displacement, acidification developing in the course of the oxidation of non-saturated triglycerides, decomposition of protein in effect of free radicals, resinous precipitations caused by cross-bonds, corrosion processes triggered by free fatty acids, spews caused by unbound oils, etc.

The next chapter deals with the evaluation of the application of lubricants in the field of leather conservation. The experiments that examine the effect of the various lubricants used in conservation on leather are described based on the literature. It gives the compositions of a few oil-containing emulsions used for the cleaning of leathers and the properties of the materials that generally occur in the above mixtures. A simple experiment is described to illustrate how the modification of the various components influences the colour changes of leather. (Fig. 11) Leather marked a, was untreated, while leathers marked b, c and d were wiped with wadding moistened with various mixtures. The proportion of water was gradually increased in the mixtures.

b: 15 ml neatsfoot oil, 4 g non-ionic surfactant (Prenol 10), 100 ml mineral spirit, 150 ml isopropyl alcohol, 50 ml distilled water; c: 15 ml neatsfoot oil, 4 g non-ionic surfactant (Prenol 10), 150 ml isopropyl alcohol, 150 ml distilled water; d: 15 ml neatsfoot oil, 4 g non-ionic surfactant (Prenol 10), 300 ml distilled water. A gradual darkening could be observed after drying as the water content was increased.

In knowledge of the deteriorations caused by lubricants, it seems better not to use them whenever it is possible. The desiccation of the objects can be prevented and stopped with keeping the appropriate relative moisture content of the environment instead of using lubricants. Mild humidification is suggested to replace fats to soften and reshape deformed and desiccated leather objects. The principle of minimal intervention should be respected during cleaning with liquors. The resistant dirt deposited on the surface is often composed of dust stuck in the waxy and greasy materials used at former treatments. To remove it, it is enough to wipe the surface of the object with wadding or a piece of cotton slightly moistened with cleaning liquor. In many cases, wet cleaning is not necessary at all: dry cleaning can bring adequate results.

Before starting conservation, it is suggested to learn more about the components and the condition of the object and the type of the impurities. Important pieces of information can be gained from a few simple analyses (measuring the fat content, pH measurement, identification of ferric ions, measuring the shrinking temperature). It is advisable to assess the condition of a few leather objects which have been treated at an earlier date. This can help to observe the long-term effects of the applied materials.

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Andrea Várfalvi
Completion possibilities of textiles of diverse manufacturing techniques

Damaged and incomplete fabrics are completed for aesthetic and static reasons. Analyses of the materials and the production technology carried out prior to conservation contribute to the appropriate choice of the applied methods and materials.

Textiles can be divided into two major groups: base fabrics and ornaments. There are numerous possibilities to complete their missing areas depending on the production technology.

The base fabric can be completed with supporting, supporting and thread implantation, supporting and fabric implantation, and with weaving, knotting and looping.

In the case of supporting, the generally thin and weakened fabric is fixed to a cloth with stitching conservation or gluing (doubling). The support also acts as completion.

When stitching cannot be applied because of the physical damage caused by the needle, the weak textile can be glued to a support. The aged synthetic adhesive used at doubling cannot generally be removed from the textile, so this intervention can only be accepted when no other method can save the object of art.

When the level difference is disturbing at the missing area after supporting, the implantation of threads can be used for completion. The support is generally a thin, closely woven fabric, which is placed under the weakened cloth.

After supporting thick fabrics, the level difference can be stopped with a piece of fabric "identical of the original one" and cut to the size of the missing area.

In simple knitted cloths, woven carpets and tapestry, the missing warp and weft threads can be replaced with weaving according to the original technology. The ends of the threads left freely "floating" on the backside mark the outlines of the completion.

Poorly preserved laces, knitted fabrics, crochets, macramé or mesh with large missing areas can be consolidated without the completion of the ornament, with stitching them on a thin, loose yet strong, translucent fabric.

When an openwork fabric is well preserved with only a small injury, the missing area can be completed with looping and knotting identical to the original technology.

In the case of knotted carpets, the missing areas can be replaced with supporting and weaving from among the above-mentioned methods, and also with weaving and embroidery that marks the knotting, and weaving and knotting.

Brittle carpets with large missing areas are generally only conserved with supporting it on a monochrome base, or the colours can be used in patches, or the outlines of the pattern are marked on the support. Carpets the knots of which have worn off can simply be conserved with weaving, as it has been described above.

Besides consolidating with weaving, the places of the knots can be indicated with embroidery at the outlines of the pattern.

The weaving of the missing areas of carpets of less worn surfaces and smaller losses of knots can cause a level difference between the support and the object of art. In these cases, local knotting can complete the weaving.

From among the ornamental techniques of textiles, the stitching conservation and the completion of coloured fabrics are made with the help of a support.

In the case of coloured fabrics, the missing painted areas are replaced only in justified cases after supporting. At large missing areas, only the outlines of the pattern are marked.

The completion of embroidery is mostly justified by static respects. The decorative threads should only be replaced because of aesthetic reasons when preserved traces of stitches can be used on a large surface.

The missing areas of fabrics decorated with metal threads are generally completed with coloured fibrous materials.

Covering with crepoline, a technique that is not applied in itself but often follows stitching conservation can be mentioned beside the above methods.

Covering a decorated or an undecorated fabric in this way is made according to structural aspects. A thin, transparent, well preserved silk can also protect the right side of the injured fabric, which is supported or completed with other methods, and it can hinder the further deterioration of the surface. The disadvantage of the method is that the outlines and the colours of the "protected fabric" will become matt and "blurred".

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Éva Benedek – Zsuzsa Mara
The exhibition „Munkácsy's paintings in Transylvania' organised in Csiki Székely Museum from the respect of ort object protection

The large-scale fine art exhibition of 47 works of art, several relics and contemporary photos of Mihály Munkácsy one of the greatest representatives of Hungarian painting was organised in Csiki Székely Museum in May, 2007. The cultural program, which was organised in Csíkszereda, Transylvania after several towns in Hungary, attracted no less than 62 000 visitors from all parts of the world. This was the largest program ever organised in the museum, and it meant a great challenge to the museum staff. The task was the setting up of an art object friendly environment on a European standard, which was fit to receive paintings that demanded a strictly regulated environment.

The preparation of exhibition rooms was a complex task. The strategy, which was elaborated together with the colleagues, had three major purposes: the renovation of the rooms, their furnishing with a high standard security system and finally, the elaboration and observance of an art object protection strategy. A team of specialists of various fields worked on the exhibition rooms.

In this study, the emphasis is laid on the appropriate solutions of creating the environment of art objects and on experiences concerning this aspect. Munkácsy's paintings demand a special environment, so the rooms had to be furnished with instruments that enabled the setting and the stabilisation of the temperature and the relative moisture content. We also had to eliminate the infra red radiation and minimise the ultraviolet radiation that reached the paintings. At the same time, the factors that influence temperature and moisture content, like heat emission by the instruments that serve this purpose , the visitors, illumination and weather, also had to be taken into account at the setting of the climatic values of the rooms.

In the case of Munkácsy's paintings, temperature was the crucial point since Munkácsy preferred the bituminous technique. With this in mind and with respect to the afforded and the specified temperature range, a value between 18 ºC and 20 ºC was set in the exhibition with the afforded and unavoidable fluctuation of +2 ºC. Specialists calculated the size and number of the instruments necessary for the given air space and 12 instruments were placed in the five rooms: with this a stabile climate was secured in the exhibition rooms.

Another significant aspect of the Munkácsy exhibition was the regulation of the moisture content. We expected that the temperature and the moisture content would quickly rise during the peak period because of the large number of visitors. With respect to possibly emerging extreme problems, a desiccating instrument was placed in every room. This was an automatic mobile instrument of a low electric power supply controlled by a digital thermo-hygrostat, which alternately displayed the temperature and the actual moisture content of the room. The precipitating

condensing water was led in a 20 litre plastic tank, which was regularly checked and emptied when necessary.

Beside the temperature, moisture content and pollutants of the air, light rays can also deteriorate art objects. International technical literature groups canvas paintings among the objects of art that are moderately sensitive to light. Nevertheless, there are special cases like Munkácsy's paintings that are extremely sensitive to light because of the unique bituminous gesso. Thus the illumination limit of the individual paintings could be about 50–60 lux hours. With respect to the above, an enterprise specialised in this field solved the illumination of the paintings. Most of the pictures were illuminated by two lamps: a generally applied wall wash lamp, which filtered the IR radiation, and a normal one, in this case a lamp with a so-called gobo, which can regulate the course of the beam. These special lamps radiate the heat backwards and every one of them is furnished with an UV filter. The light and the ultraviolet radiation were regularly checked during the exhibition with the help of an electronic measuring instrument combined with a data registering unit.

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Eva Puskas
Knowing and saving the past for the future is also our duty

The present work presents a tentative for saving the ecclesiastic patrimony owned by the Roman Catholic Community in Satu Mare. In order to build this complex program, we developed our work in various directions as:
– data base inventory and processing;
– organizing exhibitions to enhance the value of all the found and restored historical and aesthetic objects;
– preparing a working space for restoration and conservation in order to improve the condition of the objects; creating – organizing exhibition and storage spaces;
– practical advices for the owners of cultural objects in order to create optimal conditions for the objects;
– regular on spot checking of the environment of the objects;
– regular checking of the microclimate parameters in the exhibition and storage areas.

We try to concentrate on creating optimal security and establishing the perfect microclimate environment for the objects if it is possible, and when it is not possible, the art objects are taken to the bishop palace's restoration laboratory where they are kept – stored within optimal conditions.

The first step for the above proposals was the inventory of the mobile objects owned by the catholic community, which means 51 parochial churches and 65 branches.

In 2005, the inventory focused on the Satu Mare areas, especially the NW side.

In 2006, we continued our programs in the Carei area, while in 2007 we focused on the Maramures district.

Our goal was to set a clear situation regarding all the existing cultural objects so that they can be saved for the future. The setting up of this inventory could be somewhat late, yet we hope that the results will be worth of the effort.

Many objects were destroyed or disappeared, still many can be saved.

The importance of this work was probably not clearly understood when the inventory was started but the result of our efforts and the time consumed for this project revealed its significance in the end.

Many of the art objects found in a really poor condition were restored and used for the interior decoration of the bishop palace in 2005–2006.

Finally, we can say that our efforts were understood and appreciated; the owners understood that it is easier to prevent deterioration than to restore the objects at a later time if it is still possible.

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