

# Abstracts

**Rebeka Nagy**

## **The conservation treatment of a 15th-century chasuble, recently excavated in the Saint George church in Ják**

The chasuble, found in the Church attributed to Saint George in Ják (in West Hungary, close to the Austrian border) has particular importance among the textile finds in Hungary: so far, there is no published or documented liturgical vestment that has been discovered during archaeological excavations in (present-day) Hungary.

The chasuble from Ják is made from Italian voided velvet, on gilded silver thread lancé background decorated with pomegranates and pineapples between S-shaped waving tendrils. On the back, a cross-shaped orphrey had been placed, whose horizontal and vertical arms were decorated with figures embroidered in gilded silver- and silk thread.

Both the voided velvet ground-fabric and the gilded silver- and silk threads of the embroidery of the orphrey have survived unusually intact, as against the plant-based raw material-containing parts, which have disappeared in the soil during the past 500 years.

During the planning of the conservation, it was particularly important to carry out the process without any dismantling, preserving the surviving marks of the manufacturing technique, while the constituent materials of the artefact be sufficiently stabilized.

After the excavation, the chasuble was stored in equal climatic condition as was measured before in the church and also in the grave: extremely high, over 90% RH, but low temperature 5-10 °C. To prevent mould growth, a herbal-drug-based essential oil (Ekomix) was left to evaporate near the textile find. After the successful cleaning tests a special glass pipette-tip vacuum cleaner built for this purpose was used for the dry cleaning of the textile. Wet cleaning was considered avoidable due to the condition of the object and the presence of metal threads. In parallel with the vacuuming, the settling of the threads was also started. Tulle strips were pinned around the edges of the chasuble to stretch the fabric under it day by day and adjust the metal threads of the embroidered decoration. Only this was a reassuring solution, because the insect needles would leave small holes in the fabric, and glass plates were not usable without causing further damage to the velvet piles. When the deep wrinkles and fold marks were smoothed out, the entire surface was covered with one piece of tulle, pinned along the edges of the textile, and then the humidity was slowly reduced to 55%

over the course of 1 month. After that, the chasuble was kept pinned with the tulle for another 2 weeks.

The almost completely disappeared ground fabric of the embroidered orphrey was replaced by a brown-dyed thick silk fabric, onto which the remaining metal threads were fixed with brown-dyed untwisted silk thread through a perforated table, with self-couching stitches. The incomplete, weakened parts of the velvet were supported locally, in patches. The torn and incomplete seams of the velvet were not sewn together according to the original technique, but supported and fixed with self-couching stitches like the other weakened parts of the chasuble in order to achieve greater stability.

The original, thin silk lining of the vestment remained around the shoulders, at the junction of the front and back, and around the neck-line in a larger continuous part. This was sewn between two brown-dyed crepe-line layers, with running stitches only along the edges of the lining fabric, and they were attached to the original velvet or to the supporting fabric with as few stitches as possible.

A unique standard was built for the chasuble, from plywood, which was covered with dark blue silk inside, and with Molton outside.

In this article, we only present the conservation process of the chasuble, which began in parallel with the interdisciplinary research, but as the rolled-up textile slowly transformed into a chasuble, always new questions arose, which fundamentally changed the direction and main questions of the research.

*Translated by:* the author

**Csilla Papdi – Bernadett Bajnóczi – Dávid Folyó – György Sipos – Áron Rác**

## **Conservation and preliminary material analysis of two Robbia tondo-frames**

The study describes the conservation of two glazed terracotta ‘tondo- or window-frame fragments’ and all the related research. The objects belong to the Old Sculpture Collection of the Museum of Fine Arts, and were presumably made in the della Robbia workshop. They were previously kept in the Museum of Applied Arts, and were probably purchased by Károly Pulszky in Florence in 1873, based on the evidence of documents and consignment notes found in the archives. They were transferred to the Museum of Fine Arts in the 1950s and, according to its catalogue (Jolán Balogh, 1975), the two tondo- or

window-frame fragments formed a single ring at the time. Later, two annuluses were made from the fragments by copying the existing parts. One had oak leaves and acorns, the other had fruits, pine branches and cone motifs.

The appearance of the conserved objects, their quality and the presumed time of their manufacture all coincide with the active period of the della Robbia workshop. Material analysis using SEM-EDX on detached glaze and body samples, conducted in connection with the conservation, showed that the ceramic bodies of the tondo-frame fragments were made of calcareous (CaO-rich) paste. This is consistent with the findings in earlier publications, which identify the material used in della Robbia tondos as a yellowish clay with a high calcium content. According to earlier chemical data, the blue glazes of the della Robbia and Buglioni terracotta statues made before 1520 contain cobalt, nickel and iron with negligible amounts of arsenic (less than 0.1 wt%  $\text{As}_2\text{O}_3$ ); while the blue glazes of the terracotta statues made after 1520 contain cobalt, nickel and iron, as well as significant amounts of arsenic and bismuth (0.3–3 wt%  $\text{As}_2\text{O}_3$ , 0.3–0.9 wt%  $\text{Bi}_2\text{O}_3$ ). The chemical difference is explained by the different processing methods of cobalt ore over time. We did not detect arsenic above the detection limit (0.1–0.2 wt%) of the SEM-EDX, nor any arsenic-containing inclusions could be identified in the blue glazes of the objects, which suggests that the frames were made before 1520. The thermoluminescence (TL) study, performed for dating of objects, also places their period of origin in the 15<sup>th</sup>–16<sup>th</sup> century.

During the baring prior to conservation, subsequent additions and the plaster, filling the interior of the ceramics, were removed. During the procedure, incised numbers became visible on the outer edges of the fragments, which could have helped the original assembly, and based on which we developed a conditional order. After dismantling the parts, strongly bound staining was cleaned from the surfaces using a surfactant solution (fatty alcohol sulphate). The glaze thus obtained was cracked, incomplete and weathered. From this and the results of the material analysis –several samples have phosphorous-bearing phases in the cavities and cracks of the glaze or on their surface, as well as in the ceramic bodies– it could be inferred that the fragments had been buried underground for some time, and this could also have influenced the results of the TL tests.

On the fracture surfaces of a broken piece, glaze was found which could have been used to glue the object that cracked during pre-firing or drying. An interesting technical feature is the leaf, 'painted' with blue glaze on the white glaze on the oak leaf fragment, and the needles in the background painted next to the moulded needles on the fragment with the fruits.

The fragments with the fruits and the oak leaves may have once been parts of two separate objects, because while the fragment with oak leaves has an ova motif along the outer and inner edges, the fragments with the fruits only have a similar motif along the outer edge. There is

no information available about the original appearance of the objects, and we did not want to adulterate it, similarly to the state at receipt, by copying the existing elements, therefore the missing elements were not reconstructed. The preserved fragments are displayed fixed between Plexiglas sheets. We placed the fragments of the two tondo-frames separately as two objects, in a circle based on their inner arcs, leaving spaces for the missing elements, so if they should be found in the future, they could easily be included into the compositions.

*Translated by:* the author

## Zsuzsanna Tóth

### In the wake of a find

An artefact with importance for the history of bookbinding was uncovered by archaeological researchers during the renovation of the Buda Redut/Vigadó. It is a stamp made of brass or bronze. The excavation was conducted by Judit Benda, archaeologist of the Budapest History Museum, who published it as the hallmarking stamp of the Buda goldsmiths' guild. The form of the object was similar to today's hallmarking punches, while its design resembled the double peltate leaf motif occurring on Hungarian renaissance bindings. The recovery of an object like this is alone a rarity, but its real extraordinariness, beyond the identification of the motif on bindings, is the large number of bindings featuring this motif stamped with this very artefact, as the identity of the size and graphic features of the imprints verify. It is therefore possible to declare that the find is not a goldsmiths' hallmarking tool but a book-binder's stamp.

The Hungarian renaissance bookbindings are linked by their manufacturing technique and ornamental motifs, but within this broad pool of items it is difficult to identify individual bookbinding workshops. One reason is the great number of variants of the popular motifs, the differentiating of which on the basis of the imprints, often on the impaired binding leathers, is almost impossible owing to the tiny nuances of the designs. A further aggravating factor in the comparison of ornaments and the study of Hungarian renaissance bindings is the scatter of these bindings in various libraries of Europe.

Bookbinders were often the same as the booksellers-publishers who, in the course of their diverse activities, organised, ordered and partly financed the printing of books in foreign printing houses, and also took care of the transport and distribution. Data on the publishers survive, but there is an almost complete absence of contemporary sources on the workshops and bookbinders. A surviving piece of information says that the apothecary's shop, also known as the librarium, of the Buda bookseller Urban Keym was located in the Four Cobblers House, an

undefined location in the Víziváros section of Buda, and the bookbinder's stamp was found in the Víziváros area. Linking up these two pieces of data can only be hypothetical, and the verification or rejection of this connection will not be possible, unless further sources come to light.

*Translated by: Judit Pokoly*

## **Sándor Balogh**

### **Hiding documents**

There are many causes for a written or printed document to become hidden. Careless storage, inclement conditions result in thick dirt covering the text or mould damage sticks the paper sheets together. Cleaning, disinfection and restoration are the job of the conservator. Sometimes, the author himself has made his own writing illegible by blotting something out with ink, and it is the restorer's job to try to make the manuscript researchable. Deliberate concealment is encrypting a text in cipher, placing it in an amulet, time capsule or foundation stone. In the process of excavating and restoring the built heritage, one may discover by chance some written or printed document placed in a foundation stone or pendentive. In 2015, the renovation of a flat in an apartment building near the Hungarian Parliament led to the discovery of 12,000 data sheets that had been walled away in 1944. Difficult periods in our history are to blame for the fact that monastic orders, in order to save their most cherished treasures, have hidden their ritual books, manuscripts and ancient printed documents walled up in a hidden corner of their monasteries, as happened in Gyöngyös and Csíksomlyó.

A special object type is a document that hides another document, such as a palimpsest. The content of written parchments may have become obsolete over time, but by scraping and polishing they could be reused as an expensive raw material and text carrier. Classical Greek texts were replaced by Christian gospels in this way. Writings thought to be lost are made readable again through infrared photography. A similar type of artefacts is represented by fragments of manuscripts, which were used mainly by bookbinders to reinforce various elements of bindings, as mounting or simply covering material, when paper became more common, especially during the Reformation. Today there are several databases that help to identify the fragments found. In Hungary, this work is being carried out by the Fragmenta Codicum Research Group with the aim of identifying the medieval codices of Hungary. The fate of the manuscript fragments in the bindings and the possible solutions are in the hands of the owner. It is the responsibility of the conservator to point out the possibilities and the consequences, and then to carry out his work in an ethical manner. The 16–20<sup>th</sup> century book bindings incorporated a variety of often low-value, maculature

pages in secondary use as reinforcements, but rarities, even pages of incunabula were also used. This was the case with the two-volume gilt silk-bound work of Tycho Brahe, a Danish astronomer, completed in 1598, whose book covers consisted of 20 sheets of incunabula glued together. The pages were separated in the restoration workshop of the University Library of Göttingen. Identification of the incunabula was based on the watermarks found on the sheets. A Petőfi relic belonging to the Petőfi Literary Museum of the Hungarian National Museum Public Collection Centre, a greeting card, which carries well-wishing, was not thought, at first glance, to contain any particular secret, although this type of object often conveys a riddle, sometimes an ambiguous, even mischievous message, which can be made visible by moving a flap or a piece of yarn. According to the handwritten dedication on the reverse of the coloured engraving, the size of a letter envelope, depicting a palace façade, two figures and a poem on the front, it was a gift from Petőfi to his friend Elek Dömök in 1836. Examination in the PIM conservator's workshop showed that the rigid sheets of paper, which were glued together from several layers, should have been movable by function and, on examination, revealed that they contained some written text. The German text that became visible after the back sheet was peeled off, revealed that the card had previously been given to Petőfi by the poet's previous landlord, who reused it and passed it on. The cards, made movable again, verified the original function of the card. The watermark found on the detached backing sheet confirmed its provenance: Jenő Pelbárt's watermark research database was used to identify the paper's manufacturer as the James Whatmann paper mill, and its date of origin as between 1834-39.

*Translated by: Judit Pokoly*

## **Kinga Enikő Papp**

### **The solution to restore two altarpieces from the Camaldolese Hermitage at Majk – Ageing of the wood with heat treatment, a new, more durable technique to restore missing pieces of intarsia**

The Camaldolese order settled in Majk, a farmstead close to Oroszlány in the 1700s and created a monastery there on the model of the mother priory. It was divided into two parts: the U-shaped central building (foresteria) where the communal spaces were found, and the clausura where the cells of the hermits were fitted out. There was a chapel in each hermit's cell with a built or joiner's-work altar adorned with the coats of arms of the aristocratic families financing the 17 hermits' cells.

The secularisation order of Emperor Joseph II also affected the Camaldolese order. Their movables were auctioned off or scattered in nearby settlements. The altars of

St John of Nepomuk and St Louis, formerly in the hermitages no. 1 and no. 11, resp., were purchased for the furnishing of the Roman Catholic church in Szák (today Szákrend) dedicated to the Holy Guardian Angels. Owing to sinkage, the walls of the Szák church cracked in 1992, so it had to be locked down. This put the two altars – rarities of 18<sup>th</sup> century Hungarian art and the finest church furniture in the region – under direct threat of decay as their function was lost. The artefacts, subject to infestation and fungal contamination in the meantime under the inclement conditions, were restored during the rehabilitation of the historic ensemble at Majk in 2014–2020.

The altars have precious wood veneer and are adorned with intarsia. The technical solution of the constituents is interesting in that the curved parts are built from tiny pieces of deal, onto which the finely wrought intarsia was applied. Different types of intarsia (marquetry, incrustation) and diverse precious materials (bone, copper, tin, mother-of-pearl, tortoise shell, various precious woods, etc.) as well as veneers of diverse thickness were used. The altars are richly embellished with cornice mouldings and gilded elements, too.

It is time-honoured practice in conservation to achieve the required colour of the complementary parts by staining or retouching. It is the author's experience that this technique is not long-lasting, for the applied materials disappear with time or transform to display dark spots. For this reason, the missing and reproduced wooden elements of the precious surface were subjected to UV radiation and thermal ageing. With these procedures, complements of congener wood can be added to an intarsia by achieving identical or just negligibly different hues to the original pieces. Obviously, the modifying effect of the coat of finish to be applied to the entire surface must also be considered.

Experiences reveal that even in terms of feasibility and time input the materials treated with the thermal procedure and the technique itself have proved to be most adequate. UV radiation only ages a thin surface layer of the wood, consequently the veneers must be aged a nuance darker when the complementation requires subsequent fine-polishing. Besides, any later impairment causes clearly visible damage. An additional drawback is that it requires a special ageing apparatus, and the procedure takes a long time – several days at times – to achieve the required hue. By contrast, thermal ageing can be done in a kitchen oven, the entire cross-section of the wood part and veneer changes colour, so the shade of colour can be chosen more accurately, and it will not change after any fine-burnishing. The paper discusses the experiments of a DLA research to study the colour change of natural maple and walnut wood as well as wooden pieces with diverse veneers when exposed to UV radiation on the one hand, and to the thermal ageing procedure, on the other.

*Translated by: Judit Pokoly*

**Dorottya Szlabey**

### **Removal and restoration of pieces of a 19<sup>th</sup>-century wallpaper**

The paper is presenting the removal and conservation/restoration of pieces of wallpaper found behind demolished partition walls from the late 19<sup>th</sup> century. The work was carried out by students of paper-leather specialisation in their fourth year in the Applied Arts Conservation Program organized jointly by the Hungarian National Museum and the Hungarian University of Fine Arts, under the supervision of tutors.

The wallpaper covered the walls of a room of unknown function in one of the Károlyi Palaces in Budapest. Its pattern consists of simple, repeating rhombus shapes, the arcs at the angles enclosing a drawing of an eight-petalled flower each, similar to the one in the centre of the rhombus. The wallpaper is printed with white chalk-based paint on a paper that is almost entirely wood chips fibers.

As there was only one opportunity to peel off the fragments, it was necessary to plan in advance the surface fixation and the support, and put them in a folder for transportation to the conservation studio. The fragility of the paper and the porosity of the paint layer rendered removal on site challenging, necessitating the splitting of the plaster in many instances. The students experienced the difficulties of working outside the workshop and the importance of adequate preparations.

The aim of the conservation, at the request of the Museum of Applied Arts and the owner of the building, was to preserve the object in its historical context and make it suitable for display, by strengthening the fragments and providing appropriate storage for the pieces.

The microanalytical tests carried out prior to conservation and restoration confirmed that the wallpaper material contains high levels of lignin, which makes it acidic and fragile, and that the fragments removed from the courtyard wall show signs of microbiological contamination. The piece of wallpaper removed from the inner wall has suffered heat damage.

The primary task was to fix the porous print, followed by gentle deacidification and buffering of the substrate. After the removal of the temporary front side-support – a non-woven polyester textile, the matching fragments were fixed together from the reverse side using methyl cellulose. For the deacidification of the paper, due to its highly weakened, fragile state, an anhydrous mixture was used. Since calcium hydroxide has been shown to be one of the most effective buffers for acidic papers, nanocalcium hydroxide dispersed in improved 2-propanol was chosen, which can be applied to the surface by brushing and spraying. In the developed dispersion, the nanoscale active is present at a high concentration set at pH 8-9, which professional studies have shown to be optimally effective.

Stabilisation of the wallpaper material and filling of the gaps were achieved by paper casting, wood and cot-

ton cellulose fiber paste, followed by mechanical backing with Japanese paper tissue. The students created an acid-free folder for the conserved wallpaper pieces, suitable for artefact protection and display.

Apart from wallpapers with special patterns associated with famous designers and events, the more common ones rarely survived and became part of public collections, as they were often pasted down, painted over or simply removed from the wall. This wallpaper, even if only in small fragments, contributes additional information to the interior appearance of the palace. The location of the remaining small fragments has made it possible to identify the age of the wallpaper, and the analysis has provided information on its materials and the technique used to make it. The fortunately preserved scroll edges showed that no care had been taken to match the patterns. It probably covered the wall of a room belonging to the staff section. Its deterioration illustrates its history. In the present case, they are small traces that add to the history of a late 19<sup>th</sup> century palace.

*Translated by: the author*

## **Zsolt Hidasi**

### **Bruker Alpha II: Innovative and Accessible Spectroscopic Solutions in Art Conservation**

In the field of art conservation, diagnostic tools play a fundamental role in assessing the condition of artefacts, planning restoration processes, and verifying authenticity. However, for most museums, acquiring these tools and employing qualified professionals is often out of reach. Handheld instruments are generally more affordable and easier to use, but they typically offer fewer functions and may not always serve the same purposes.

At the 2024 Transylvanian Hungarian Restorers' Conference, the author had the opportunity to present the potential applications of an FTIR instrument, drawing on his research experience with musical instrument varnishes. This device occupies an intermediate position between two categories: it is an entry-level model in the world of high-end instruments, yet it is more akin to a benchtop device among handheld instruments. Its operation is straightforward, basic software skills can be easily acquired, and reference collections available for art conservation are continuously expanding. More importantly, users themselves can contribute to these collections. This is not only inspiring for practicing conservators but could also have a significant impact on education, shaping the future of the profession.

Although the lecture covered only three sampling methods – ATR, transmission, and specular reflectance – out of the eight available modules of the Alpha II, these three techniques largely meet the FTIR analytical needs in

the field of restoration and conservation. The advantages and limitations of each method are also discussed.

*Translated by: the author*

## **Éva Galambos – Manga Pattantyús – Máté Karlik – Zoltán May – Mátyás Horváth**

### **Hidden Information in the Ground Layers of Paintings Recovered by Microscopy: ground layer analysis of Csontváry's painting**

Tivadar Csontváry Kosztká is one of the most famous Hungarian painters from the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. His unique paintings are known for his use of vivid colours, which are still preserved today. Research investigating the materials used in his paintings began a few years ago. The first phase of the investigation involved optical (PLM) and scanning electron (SEM-EDX) microscopy of the ground layers of small and medium-sized paintings.

The research revealed that the painter had prepared the primer himself using various types of filler. Choosing the right materials and techniques was not a challenge for Csontváry, who was a pharmacist until the age of 40 and therefore had a good knowledge of the materials. He primed his canvases in very thin layers, typically 100–150 µm thick. Primers are usually light or white in colour. The main question was the composition of the ground layers. Prior to his studies, he did not use grounding much in his paintings, which were mostly on cardboard or plain-weave canvas. Later, in his paintings on Panama-woven canvas, the use of chalk and then lead white became dominant. After 1900, particularly during his travels in southern Europe, he frequently applied barite ground, and in his final works, painted in Naples, he also employed a calcium sulphate ground. Knowing that he was a great traveller, it is likely that he used locally available materials, making it particularly interesting to continue this research with a more detailed examination of the materials and grounds used for large-scale paintings.

*Translated by: Éva Galambos*

## **Tímea Varga – Mátyás Horváth – Máté Karlik – Zoltán May – Péter Németh**

### **Purple pigments – a new colour in our palette**

As a result of research at the diagnostic department of the National Museum Restoration and Storage Center, we can get a deeper insight into the production techniques and material use characteristics of the artworks in the Mu-

seum of Fine Arts and the Hungarian National Gallery. Thanks to the different techniques based on each other – phototechnical, optical microscopy, X-ray fluorescence and scanning electron microscopy – we had the opportunity to identify inorganic, artificial purple pigments that had not been determined before on pieces from Hungarian collections. Terminological questions also arose regarding the naming of this group of materials: a recommendation was made to use the words purple and violet in Hungarian technical terms. We consider the phrase purple to be appropriate for the general designation of the color, while in the case of products from foreign manufacturers, we adhere to the terms purple or violet used by them. During research into the use of materials in the works of the famous Hungarian painters János Vaszary and József Rippl-Rónai, we determined cobalt-containing pigments of different compositions under the collective name cobalt violet. We obtained inorganic artificial powder pigments currently available on the market, and used these as references when analyzing samples taken from the artifacts. However, some of the cobalt violet variants still in use at the beginning of the 20<sup>th</sup> century are no longer on the market, so in these cases we had to rely only on the literature. Using the above-mentioned methods, we identified cobalt phosphate and cobalt arsenate type pigments in the works of János Vaszary and József Rippl-Rónai. By defining these materials, the palette of Hungarian artists was enriched with a “new” colour, purple pigments.

*Translated by: Tímea Varga*