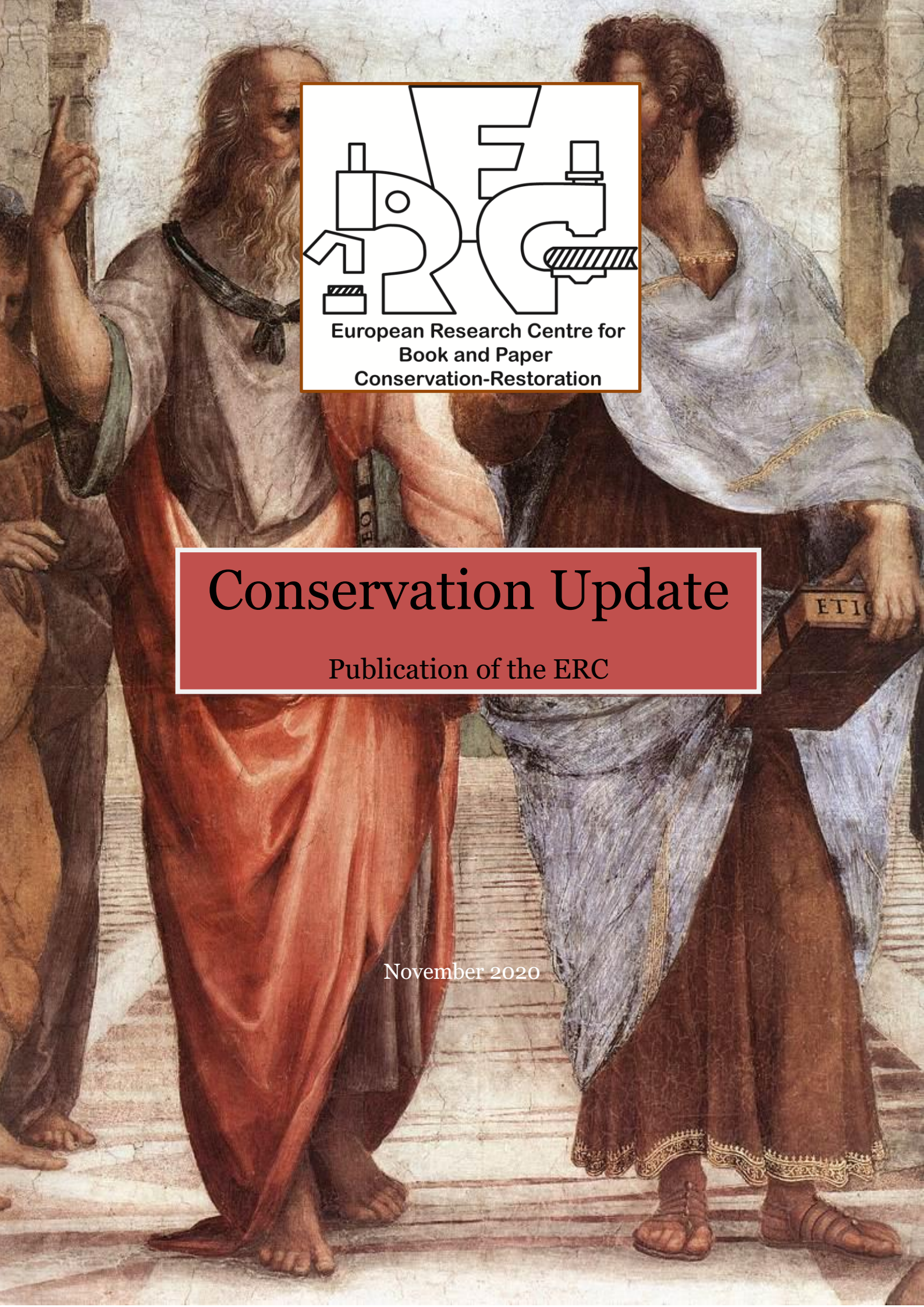

European Research Centre for Book and Paper Conservation-Restoration

Conservation Update

Publication of the ERC

November 2020

Picture on the cover and watermark of pages throughout the publication:
The philosophers Plato and Aristotle holding books - a detail of the fresco “The School of Athens” (1509) by Raphael (1483-1520) (free for commercial purposes and re-publication under creative commons license).

ISSN: 2663-0125

Contents

1. *RECENT ACTIVITIES OF ERC*

10th anniversary of ERC

Book Conservation – One Philosophy– Many Interpretations, 5th-6th November 2020

The conference was timed to coincide with the 10th anniversary of the founding of the European Research Centre for Book and Paper Conservation-Restoration with a worldwide forum and a topic suitable for such a birthday.

The theme of the conference was the conservation theory and philosophy, the foundation of all our decisions and conservation efforts with a focus on book conservation.

Conservation papers from around the world were submitted. Speakers included renowned professionals, emerging conservators, university professors and conservation leaders from New Zealand to Mexico, from Russia to the United States, Egypt and many European countries.

Six hundred participants from all over the world registered for the online event, which lasted two days. It was a global event.

A review of the conference can be read on page 4, and this newsletter includes short articles from those speakers who presented posters.

The conference came to life because of the hard work of several groups of people.

We would like to thank the academic board, who oversaw selecting the presentations, Jedert Vodopivec, Joseph Schiro, George Boudalis, Elissaveta Moussakova, and Flavia Pinzari.

We are also thankful to the people who helped with our first online conference, Emanuel Wenger and Petra Hammer, and the team of Mrs. Fallmann (Head of the Media Lab, Krems).

We would also like to acknowledge the hard work of Elisabetta Meneghini in the preparation of the event and who assisted technically throughout the conference.

Finally, we are very appreciative of the University for Continuous Education, Krems, and in particular, Dean Prof. Dr. Hanus, for supporting this event.

Patricia Engel
Head of European Research Centre for Book and Paper Conservation-Restoration

A review of the Conference

Undoubtedly 2020 and the pandemic of Covid-19 will be remembered for changing many aspects of our lives. But far from being an inconvenience, this also led to positive aspects. Accessibility and affordability to attend online activities have made the continuity of academic and professional development easier and, at the same time, stimulated the creation of plural spaces for exchanging information.

On the 5th & 6th November, the European Centre for Book and Paper Conservation-Restoration held the conference "Book conservation – One Philosophy – Many Interpretations." This conference had been planned since 2019 as an occasion to celebrate the 10th Anniversary of the ERC.

During these last ten years, the ERC has worked intensively to develop innovative projects and offer training activities to a large community of professionals. However the international situation, forced plans to be rethought. The result was an opportunity to gather virtually for the first time a significant number of professionals around the field of Book and Paper Conservation-Restoration.

As a result, the ERC's conference was able to reach over 600 attendees, who were able to gain access to a global panel of presenters from: Austria, Poland, Slovenia, Ireland, New Zealand, Italy, Croatia, Turkey, Spain, Greece, Bulgaria, USA, Italy, Yemen, Portugal, Mexico, Egypt, Kosovo, Ukraine, North Macedonia, Russia, Lithuania, and Armenia.

A conclusion to this successful conference will be the publication of the presentations, which will be available in the coming months.

Pascual Ruiz Segura | Conservator
National Records of Scotland

The Conference Program

Book conservation - One Philosophy - Many Interpretations

Day	Time CET!	Name	Title	Country
5th Nov. 2020				
	10,00 – 10,15	Christian Hanus	Welcome words by the Dean	Austria
	10,15 – 10,30	Peter Strasser	Document heritage in an international context	Austria
	10,30 – 10,45	Iwona Szmelter	Heritage Science Including Contemporary Theory of Holistic Preservation of Cultural Heritage	Poland
	10,45 – 11,00	Jedert Vodopivec Tomažic	Honoring Christopher Clarkson	Slovenia
	11,00 – 11,15	Zoë Reid, Sarah Graham	Conservation for Beyond 2022: Treatment of Ulster account books in two conservation studios.	Ireland
	11,15 – 11,30	Sarah Askey	The "best" treatment for a Book of Hours–time allowing, and open to interpretation	New Zealand
	11,30 – 11,45	Alessandro De Cupis	About tracing paper	Italy
	11,45 – 12,00	Jelena Duh, Vladan Desnica	Preserving the invisible: Multi-analytical research of the Missale Olomucense incunabulum	Croatia
	12,00 – 13,00			
	13,00 – 13,15	Paul Hepworth	The Shah Tahmasp Album: Some Conservation Challenges	Turkey
	13,15 – 13,30	Rita Udina	Sew it, rather than paste it!	Spain
	13,30 – 13,45	Angeliki Stassinou, Penelope Banou	The conservation of a 16thc. imprint of the Holy Gospel printed in Venice from the collections of the General State Archives of Greece: Doubts and considerations regarding treatment applications	Greece
	13,45 – 14,00	Jolanta Czuczko, Dorota Jutrzenka-Supryn, Ewa Chlebus, Mirosław Wachowiak	In search of balance–dilemmas and solutions in the conservation of books with handwritten notes of Nicolaus Copernicus	Poland
	14,00 – 14,15	Malina Belcheva	Conservation of a Folio Album with Engravings by Van Dyke from the Collection of the Art Institute of Chicago	Bulgaria
	14,15 – 14,30	MaríaDolores Díaz de Miranda Macías, o.s.b.	Restoration of the Generalitat of Catalonia Palace Prayer Book: Why the previous minimal intervention strategy failed.	Spain
	14,30 – 15:00			
	15,00 – 15,15	Teresa Espejo Arias, Adrián José Pérez Álvarez, María Trigo Peinado, Ana Reyes Pérez	The restoration of the Libros de Actas de Claustro y Grado of the University of Granada: a project to recover the memory of the Institution	Spain
	15,15 – 15,30	Karissa Muratore, Katherine Parks	Mapping it out: Rebinding two American atlases at the Library of Congress	USA
	15,30 – 15,45	Rita Capitani	A composite Yemeni manuscript from Yemen to the Regio Istituto di Patologia del Libro. Archaeology and restoration.	Italy/Yemen
	15,45 – 16,00	Inês Correia, Diana Pires	How to look at the chronological effect of interventions in the lifespan of manuscripts	Portugal
	16,00 – 16,15	Maria Fernanda Martinez Rocha	Ancient repairs in limp, laced–case sixteenth century bindings: record, analysis and interpretation	Mexico

6th Nov. 2020				
	10,05 – 10,20	Rumyana Decheva	A Classical Approach with Modern Techniques and Materials in the Restoration of a 16th century's Manuscript	Bulgaria
	10,20 – 10,35	Lucija Planinc, Jedert Vodopivec Tomažič, Žiga Šmit	Examination of the Oldest Photograph of Kranj Using PIXE Method	Slovenia
	10,35 – 10,40	Rasha A. Shaheen	Preservation and Conservation of Coptic Museum's Photographic Archive	Egypt
	10,40 – 10,55	Bedrije Mekolli	Current Challenges of the Restoration and Conservation Center at the National Library of Kosovo	Kosovo
	10,55 – 11,00	Victoria Korytnianska	Learning to read «tracks» on the paper	Ukraine
	11,00 – 11,05	Oa Sjoblom	Handmade couched-laminate boards: a historic process adapted for treatment	USA
	11,05 – 11,30			
	11,30 – 11,45	Flavia Pinzari	A new theory of biodeterioration of heritage materials focused on complexity	Italy
	11,45 – 12,00	Maja Kostadinovska	Treatment and stabilization of mould-damaged books	North Macedonia
	12,00 – 12,15	Maria Dmitrieva	Investigation of the physical condition of graphic works of art after bleaching procedures	Russia
	12,15 – 12,20	Birutė Giedraitienė	A study of a historical written source	Lithuania
	12,20 – 12,35	Pietro Livi	Defending archival and book material from viruses, bacteria and fungi: an innovative machine	Italy
	12,35 – 12,50	Armen Khorozian, Gayane Eliazyan	Research of the physical condition of medieval Artsakh manuscripts	Armenia
	12,50 – 12,55	Luz Diaz	Preserving a 16th Century book from the National Library of Spain Collection	Spain
	12,55 – 13,10	Astrid Sánchez Carrasco, María del Pilar Tapia López	Pocket books of the spiritual conquer, New Spain 16th – 18th centuries	Mexico
	13,10 – 13,25	Hélia Marçal	Between the text and the real thing	Portugal
	13,25 – 13,40	Martha Romero	From the ritualistic to the utilitarian: the use of amate paper in Mexican bookbinding	Mexico
	13,40 – 13,45	Conclusion of the meeting		

An interactive link to the Conference Program including the short abstracts and CV's of the presenters of the Conference is as follows:

http://www.restauratorenohnegrenzen.eu/erc/OurEvents/conference2020/Conference_Programme.pdf

Book Conservation Conference: One Philosophy – Many Interpretations, 5-6th November 2020 (poster presentation No. 1)

A study of a historical written source

Birutė Giedraitienė

The Wroblewski Library of the Lithuanian Academy of Sciences

INTRODUCTION

The object of this study is a collection of 16th-17th century manuscript books transcribed in the *Supraśl* Monastery.

This collection was chosen for the study because until the 19th century *Supraśl* Monastery was one of the largest writing centers in the territory of the former Grand Duchy of Lithuania.

For the research, eight books were selected from the 16th and 17th centuries, which were transcribed at the *Supraśl* Monastery. For comparison, two books from each century which were not transcribed at the *Supraśl* were also selected. The study looked at 20 books in total.

The study task was to provide a detailed description of the books, and analysis of the book coverings, bookbinding elements and technologies and ink and paper analysis.

METHODS OF ANALYSIS

The analysis of the materials found within these documents was performed using instrumental and microchemical qualitative analysis methods. For instrumental analysis, *Perkin-Elmer Spectrum Two FT-IR Spectrometer* and optical microscope *Olympus SZX16* were used.

RESULTS

In the first phase of the study, books were described in detail. Up to 30 characteristics were included in the description: name, signature, language, place of origin, script, content structure, number of hands, pagination, watermarks, book format, page size, text size, number of columns, type of ink, initials, illumination, book parts, book history, bibliography and more.

Optical microscopic analysis of the covering material of the books showed that leather had been used on all the book covers. Goat skin was used on twelve of the covers, calfskin on five, and three could not be identified.

ATR-FTIR spectroscopy technique was applied to analyze the brown ink. The spectra of the organic part of the ink in all the books was almost identical. Fixed absorption bands were attributed to calcium oxalate hydrate, iron oxalate dihydrate, iron sulfate, calcium sulfate, calcium carbonate, tannins, and aromatic compounds.

A test for free iron ions in the brown ink revealed that they were present in most ink samples. More free iron ions were found in the ink of 17th century books. This highlighted that the ink from the 17th century is in a worse condition.

Microchemical qualitative analysis of red ink showed that the color-giving ion in all samples tested was mercury and half of the samples also contained iron. The red ink binder was found to be vegetable glue.

Another object of analysis was the paper of the books. The paper used was found to be of good quality, however, the books from the 16th century had stronger and thicker paper compared to the 17th century. After measuring the pH of the paper it was found that pH values of books from the 16th century in most cases, with a few exceptions, was higher when (pH 7.0-8.5) compared to the 17th century paper (pH 5.2-7.4). The study of paper gluing materials revealed that all paper samples contain starch, with the exception of one book from the 16th century in which no starch was detected in the paper. Seven paper samples from the books of the 16th century and four from the 17th century were found to have paper gluing materials of protein origin.

One more object of research was the analysis of bookbinding elements and technologies, these consisted of the following parts: covering material; board; block sewing and connection properties; flaps; block edges, and headbands.

CONCLUSION

The results of the study provided necessary information on the materials and technologies that had been used to create the books. This was helpful when deciding the direction of choices for conservation and restoration.

Tab. 1: Ink and paper analysis of the 16th c. books .

Metric of book	Fe2+ brown ink	Fe3+ brown ink	pH of paper	Starch in paper	Protein in paper
LMAVB RS F19-48	–	+	7.2–7.9	+	+
LMAVB RS F19-52	+	+	7.8–8.0	+	+
LMAVB RS F19-61	+	+	7.0–7.8	+	+
LMAVB RS F19-84	+	+	7.3–7.5	+	–
LMAVB RS F19-95	+	+	8.0–8.2	+	+
LMAVB RS F19-238	+	+	7.9–8.1	+	+
LMAVB RS F19-239	+	+	7.0–8.2	+	–
LMAVB RS F19-240	+	+	6.6–8.0	–	+
LMAVB RS F19-247	+	+	6.4–6.9	+	+
LMAVB RS F19-262	+	+	7.5–8.4	+	–

Tab. 2: Ink and paper analysis of the 17th c. books

Metric of book	Fe2+ brown ink	Fe3+ brown ink	pH of paper	Starch in paper	Protein in paper
LMAVB RS F19-89	+	+	5.8–6.8	+	+
LMAVB RS F19-110	+	+	5.7–6.0	+	–
LMAVB RS F19-115	+	+	6.9–7.4	+	+
LMAVB RS F19-116	+	+	6.8–7.1	+	–
LMAVB RS F19-149	+	+	6.6–6.8	+	–
LMAVB RS F19-160	+	+	5.8–6.4	+	–
LMAVB RS F19-192	+	+	6.2–7.0	+	–
LMAVB RS F19-197	+	+	5.9–7.1	+	+
LMAVB RS F19-210	+	+	5.5–6.4	+	+
LMAVB RS F19-242	+	+	5.2–6.1	+	–

I would like to thank my colleagues Dr. Rima Cicėnienė, Aušra Čiuladienė, and Edita Keršulytė for collaboration in this study

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Book Conservation Conference: One Philosophy – Many Interpretations, 5-6th November 2020 (poster presentation No. 2)

Preserving a 16th century book from the collection of the National Library of Spain

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This short article describes the conservation processes carried out to preserve one of the 16th century printed books that belong to the National Library of Spain´s Collection. It is an example of the methods and criteria that could be chosen to recover the book functionality when the damages of its materials and structures do not make possible handling this without risks. Due to the poor condition of the paper and the binding, intensive treatments had to be done, always trying to respect the original features of the book.

KEYWORDS

Conservation, 16th century book, paper, binding

ABOUT THE BOOK

In 1542, *Melchior von Neuss* (fl. 1525-1551) printed in his office of Cologne, this book by the Dutch mathematician, astronomer and Roman Catholic theologian *Albertus Phigius* (1490-1542). The printers´ mark appears on the cover page and, next to it, a censorship note is handwritten. The label glued on the spine gives a clue about the book provenance, probably the Library of the Council of the Supreme Inquisition[1].

Text block consists of 198 folia, measuring 300 x 194 mm, of handmade paper grouped into 33 quires. Each of them is composed of 6 folia and arranged with alphanumerical signatures.

Text was printed in one column with roman types and black ink. A few pages were decorated with historiated woodcut initials that enrich the text composition.

[1] Fontanilla (2002), p. 139

Fig. 1: The book, before and after the conservation treatment.

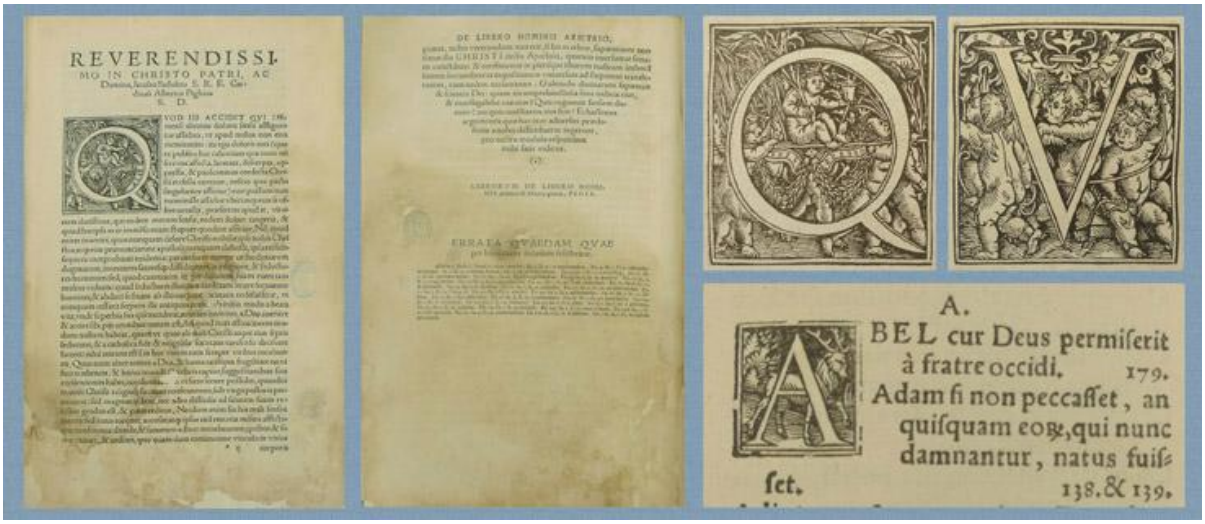

Fig.2: The initial and final pages of the book and some examples of the historiated woodcut initials.

Text block consists of 198 folia, measuring 300 x 194 mm, of handmade paper grouped into 33 quires. Each of them is composed of 6 folia and arranged with alphanumerical signatures.

Text was printed in one column with roman types and black ink. A few pages were decorated with historiated woodcut initials that enrich the text composition.

There were three different watermarks on the endleaves papers. Two of them were incomplete and showed part of a hand. The third one illustrates a crown with arch consisting of two lines with pearls. *Briquet* included similar watermarks, dated in the 16th century, in their catalogue[2].

[2] Briquet (1907), pp. 295–303; Wenger (2020)

BINDING STRUCTURE

Initial research about how the binding was made is very important to face the following interventions.

In this case, quires were joined by all-along sewing on four double cord supports. A linen thread was used. Fold endleaves and parchment reinforcements were also sewed. They were severely damaged by water and moulds.

Both endbands were lost, although the fragments showed two-coloured endbands, blue and ochre, worked directly over a leather core with beads in front.

Coached laminated boards were attached to the book block through the endbands slips, the endleaves and the parchment reinforcements; sewing supports were cut and did not enter into the boards. All these elements were in poor condition and had lost their functionality.

A full leather cover with blind-tooled decoration completed the binding. Handle finishing tools with Renaissance decorative motifs were used. The leather had important mechanical damages.

Fig. 3: Details of the binding structure.

PAPER INTERVENTION

Paper stabilization was the priority in the conservation processes. This treatment was carried out without removing the original sewing due to its good condition.

The leaves of the text block had deteriorated to varying degrees because of water and mould damage and the paper appeared brittle in some areas. The initial and final leaves presented the most significant damage.

After removing paper surface dirt, a blotter washing technique was carried out: humidity was applied with a wet blotting paper through a Goretex© layer, leaf by leaf.

Although the cleaning is limited, the treatment had other benefits: the paper became flatter and recovered some flexibility.

It was necessary to consolidate the weak paper with a 1% solution of methylcellulose 4000 mPa.s in water and ethanol (1:4).

Finally, infills were made with a Honsarashi Kozo Japanese paper glued with wheat starch.

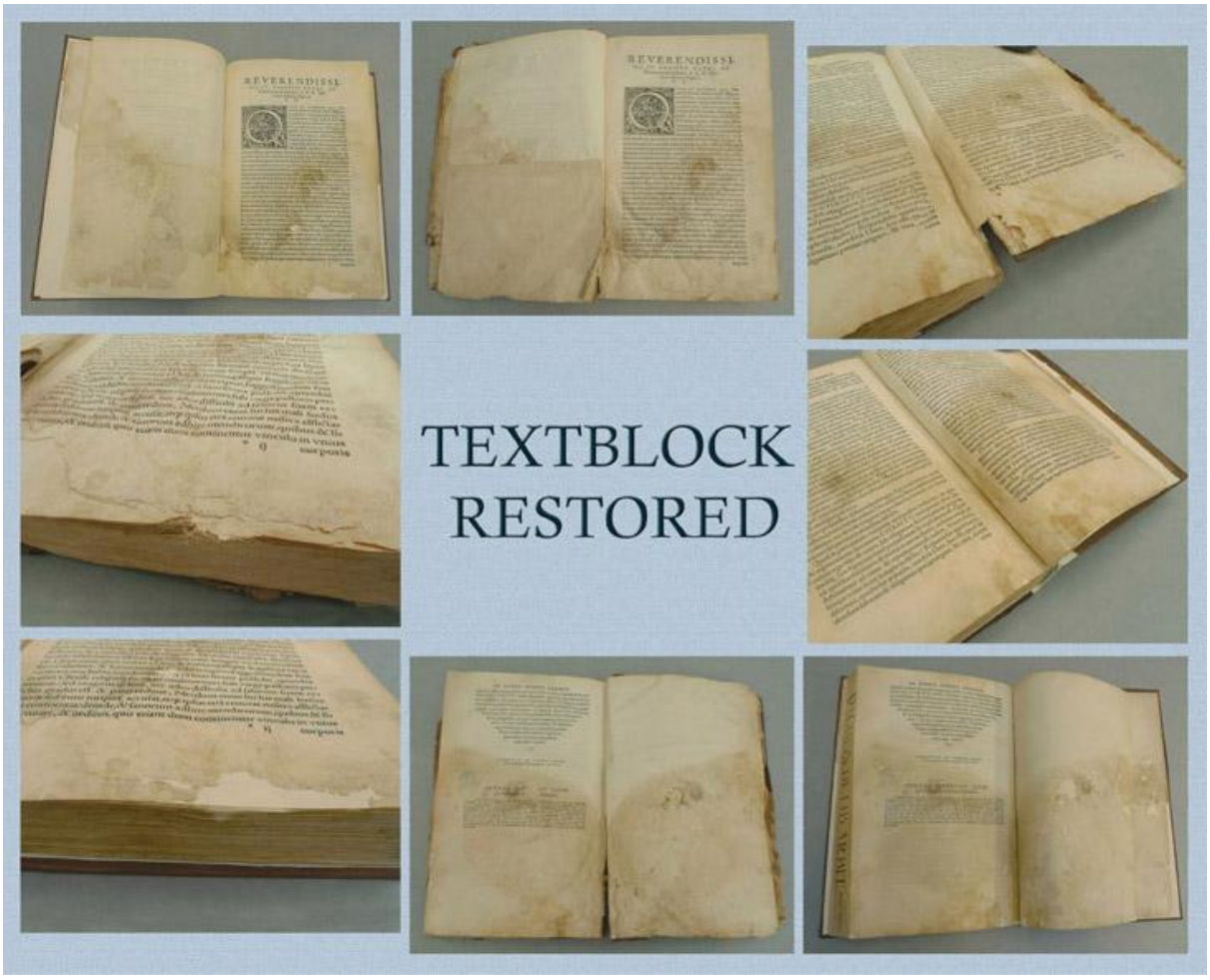

Fig. 4: Comparative pictures of the initial and final state of the book block.

BINDING INTERVENTION

Recovering the functionality of the binding was the main goal of this work. The original structures and materials were respected to the extent that their conservation conditions allowed.

The boards and leather cover was detached from the book block because of the high level of degradation. The same reason was considered when the endleaves parchment reinforcements were separated and treated separately. Once restored, they were sewn again to the text block.

A new endbands were sewn, thus recovering their decorative and structural function.

A crucial point in a binding intervention is to achieve a flexible spine and correct board leverage that will allow good book handling. In this case, a screen of alum-tawed skin was sewn to the original sewing supports.

New boards were attached to the book block, because of the new endband slips and the screen, which reinforced the joints. It was not possible to recover the too badly damaged original boards.

After cleaning, the original leather cover was pasted in its original place again. In the spine, the leather remains were adhered to the sewed screen, thus improving book opening.

The lost material was infilled with several layers of Sekishu Shi Japanese paper dyed with acrylic paints and watercolours.

Finally, to complete the board attachment, parchment reinforcements and pastedowns have been glued to the boards.

In the end, the book recovered its functionality and the main structures and materials were respected. Furthermore, the preservation process included the digitisation and storage in a conservation box.

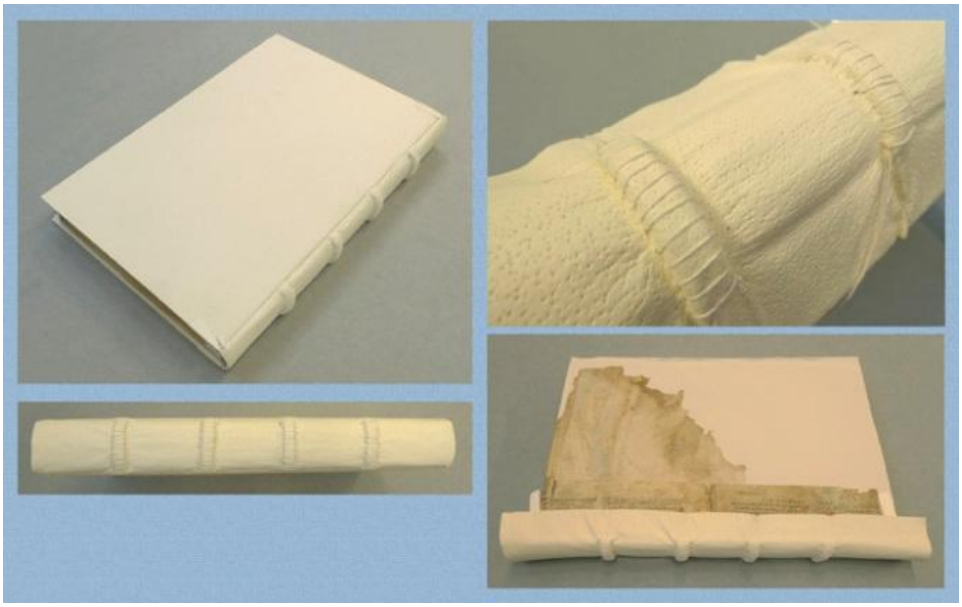

Fig. 5: The sewed screen improves the book opening and the board attachment.

Fig. 6: Comparative pictures of the initial and final state of the binding.

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Acknowledging sponsors

We want to acknowledge all the people who have supported the Centre during the past ten years; they have been many, and we are deeply grateful. We would also like to acknowledge the financial support from industry partners, Formatwerk, Lenzing Paper Industry, and Stora Enso.

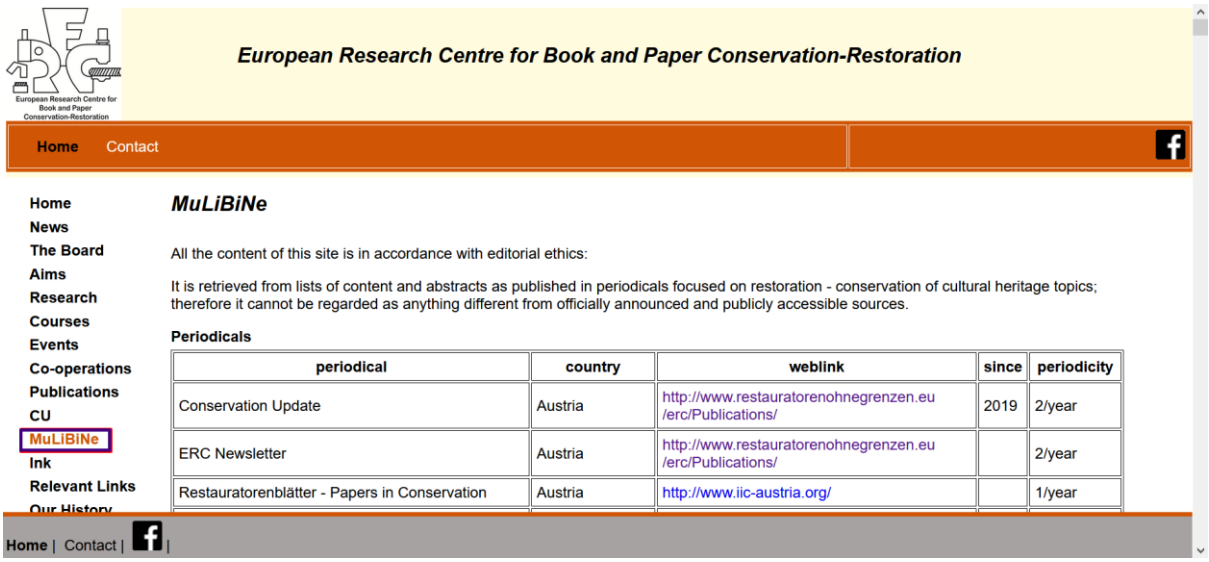
Website

The website was also updated and now includes a list of current Board Members and National Representatives from more than 30 countries; CV's are included in the links.

http://www.restauratorenohnegrenzen.eu/erc/Board/

MuLiBiNe

We want to take the opportunity to explain more about our innovative search engine MuLiBiNe, which was designed to bridge language barriers.



Imagine you are a conservator confronted with a particular issue and unexpected task in practical conservation – you wish to discuss with colleagues and find the latest publications on this specific topic. You search on the Internet and in libraries to find ideas about how to solve the problem.

Imagine that you are a teacher in conservation and have to prepare a lecture on a particular topic – you wish to deliver the latest results on the topic, check the latest publications and research projects to give your student the most up to date information on the subject.

Imagine you wish to attend a research project – you must list the latest publications on your research idea in the project bid. You browse the Internet and library catalogs for these publications, as you must show that you know all the relevant literature.

In all 3 cases, you will search for the topics in all the languages you can speak, but there might be articles – valuable publications – in languages you cannot speak or read. For this, we created MuLiBiNe.

http://www.restauratorenohnegrenzen.eu/erc/MuLiBiNe/

It is a search engine where you get the references to all articles of the particular topic with the keywords entered in any language. The system translates the keywords, and as soon as you know of an item, you may order it via the far distance loan system of your library and have it translated in one or the other way – but the essential element is that you find the article.

We have new national representative

Besides the Board, there is a growing community of national representatives who maintain communication with the respective countries. The ERC now has representatives from 35 countries. A full list along with the details of the board can be found below: http://www.restauratorenohnegrenzen.eu/erc/Board/

We have a new representative for the first time ever from the Netherlands. We have a colleague, who came into our team and who has joined the community in the second half of the 2020. Please welcome:

Karin Scheper
(The Netherlands)

Research

We are pleased to announce that the ERC is a partner in the research project 'Digitale Transformation der österreichischen Geisteswissenschaften / Digital transformation of Austrian Humanities.'

Lead by the University of Graz and involving the majority of Austrian Universities, this project will focus on the digitization of teaching in higher education.

2. ARTICLES

Natalia CHERNOVA[1], Natalia PAVLICHENKO[2], Alexander WOJNAROWSKI[3]

1 The Archive of the RAS, SPb., Russia
2 Institute for the History of Material Culture, RAS, SPb., Russia
3 Saint Petersburg State University, SPb., Russia

Conservation of the Lapidary Inscriptions Estampages from the Collection of the Russian Archaeological Institute in Constantinople

Abstract

The paper presents a novel *algorithm* for *the conservation* of rag paper estampages using manual infilling of paper pulp. A method of their conservation using three - dimensional (3D) models are also presented. The paper focuses on the collection of estampages of lapidary inscriptions in Greek, which have been kept at the St Petersburg Branch of the Russian Academy of Sciences Archive. These estampages were made by staff from the Russian Archaeological Institute, Constantinople 1895–1914 while in the Balkans and the Middle East.

Keywords: conservation, estampage, lapidary inscriptions, Russian Archaeological Institute in Constantinople, 3D models.

Introduction

In 1931, the Archives of the Academy of Science (now Saint Petersburg Branch of Archives RAS) received an unregistered collection of estampages included in a packet of documents from the Manuscript Department at the Library of the Academy of Science. There were a total of 130 sheets of lapidary inscriptions, icons, and architectural fragments. In 2016, N. Pavlichenkov identified these documents as the famous Collection of the Russian Archaeological Institute in Constantinople (RAIC).

Collection History

This first and the only Russian archaeological institution abroad was founded in 1895 in Istanbul.[1] According to the Statute of the Institute, it was intended to "direct local scientific studies by Russian scholars of antiquities and history of Greece, Asia Minor and generally the lands which sometimes were part of the Byzantine Empire, primarily of the Christian time." The Institution's very name indicates its orientation to Byzantine studies, while the classical antiquities have been studied at RAIC only occasionally.

The achievements of RAIC include the investigations of the Kahrieh Jami mosque, the basilica of the Monastery of John the Forerunner at Stoudios (Monastery of Studios), and the remains of the Great Palace in Istanbul. A remarkable page in the history of RAIC is also the discovery of the ancient capital of Bulgaria, Aboba-Pliska.

Along with the studies in Istanbul and its surroundings, workers of RAIC, headed by its permanent director Feodor I. Uspenskiy, undertook numerous 'archaeological excursions' over Asia Minor, Macedonia, Bulgaria, Serbia, and Syria.

Making of estampages and their role in the preservation of historical objects

An estampage is a paper imprint of an inscription or a representation which has been found on some hard material, mainly stone. To produce an estampage, a wet paper of paper either rag or filter paper is placed onto the surface. It is vehemently hammered into the stone's surface using a special flat brush made of wild pig bristles and is left to dry in the open air. An estampage as a relief document is an exact mirror copy of an inscription or a representation.[2]

The first to employ estampages for studying inscriptions was the Dutch humanist and antiquarian Stephanus Vinandus Pighius (1520–1604).[3] In the first half of the 19th century, estampages started to be actively used by epigraphists, (particularly Egyptologists) as the estampages were better fit to render the peculiarities of writing the hieroglyphs than drawings (rubbings).

Of the three methods of copying inscriptions (drawing or rubbing, squeezing and photographing) available for researchers in the late 19th – early 20th century, squeezing was at the same time the cheapest and the most exact. Among the merits of estampages was also that they could easily be transported and that they could be preserved for a long

[1] Basargina (1999), p. 4–14, 32.

[2] Hübner (1881), p. 24–28; Larfeld (1914), p.157–159; Woodhead (1959), p. 78–83; McLean (2005), p. 67–72; Pavlichenko (2018), p. 465–467.

[3] Larfeld (1914), p. 158; Schmidt (2003), p. 5.

time. Besides, at the time it was easier to obtain an estampage in the field conditions than to make a high-quality photo. The French epigraphist Louis Robert noted in the 1950s that estampages by Philippe Le Bas (1794–1860) of Asia Minor inscriptions imprinted in the 1840s were useful for researchers equally as the new estampages.[4] In one of the manuals on Latin epigraphy, it is noted that in 1973, estampages by Theodor Mommsen for the IIIrd volume of Corpus Inscriptionum Latinarum were found in an excellent state of preservation.[5] The same is true concerning the estampages of the Imperial Archaeological Commission kept in the Manuscript Archives of the Institute for the History of Material Culture (IHMC) RAS, the majority of which were printed in the second half of the 19th and early 20th century.[6]

At the turn of the 20th century, it was appropriate for the publication of inscriptions to have both a photograph and the estampage. The skill of taking estampages became indispensable for an epigraphist.

It is known that in 1926 the scientific archives of RAIC after its closure were transferred from Istanbul to the Byzantine Commission.[7] In 1930, after the abolishment of the Byzantine Commission, the archive materials of the Institute were received by the Archives of AS USSR in Leningrad (now Saint Petersburg).[8] All these transfers were conducted without any formal acts and inventories. The books and manuscripts from that archive were placed at the Library of the Academy of Sciences. The museum objects were passed to the State Hermitage. At some stage, the collection of the estampages, having no inventory records indicated its relation with RAIC, was separated from the main stock of the Institute's archive. Afterward, some of the estampages turned to be in the Leningrad Institute of History, Philosophy, and Linguistics and in 1931, they were transferred to the State Academy of the History of Material Culture (SAHMC), first to the Institute of the History of Slaveholding Society, and in 1935 to the Archives of SAHMC.[9] A small number of the imprints remained in the Manuscript Department of the Library of the Academy of Sciences and afterward, together with the rest of the packet, were transferred to the AS USSR archives.

Scientific significance of the collection

Presently, at the Archive of the Russian Academy of Sciences, there are housed about 60 estampages and drawings of inscriptions in Greek, Latin, and Old Bulgarian from the collection of RAIC. These inscriptions are dating from the 1st cent. BC to 1342 and come from Turkey, Bulgaria, Macedonia, Greece, Albania, and countries of Asia Minor. This collection also includes estampages of icons and parts of architectural decorations[10]. Most of the estampages from Asia Minor excursions of RAIC are kept in the Manuscript Department of IHMC RAS.[11]

The scope of scientific interests of Uspenskiy was focused primarily on Slavic antiquities. Therefore, one of the most significant activities of the Institute involved the

[4] Robert (1953), p. 120.
[5] Gordon (1983), p. 31.
[6] IHMC RAS, Fund II.
[7] Basargina (1995), p. 87–92; Basargina (1999), p. 144–145.
[8] SPb Branch SA RAS, Fund 127, Inv. 3, file 8.
[9] IHMC RAS, Fund II.
[10] SPb Branch SA RAS, Fund 127, Inv. 3
[11] IHMC RAS, Fund II, files 258–281.

excavations of 1899–1900 in the Bulgarian settlement of Aboba, resulting in the discovery of the ancient capital of Bulgaria, Pliska. The direction of these excavations was conducted by Uspenskiy himself jointly with the Bulgarian scholar Karel Škorpil who probably made the estampages.

All the estampages from the collection of RAIC undoubtedly are of great scientific value because they reflect the best preservation state of the inscriptions. The estampages of the inscriptions from the territory of what is now Syria and adjoining countries, where many Classical-Age and Islamic antiquities have been destroyed, are facsimile copies of the now lost monuments. The expedition of RAIC worked in Syria from April 15 until June 1 of 1900. The route's initial point was Palmira, then the itinerary of the expedition passed via Himş (Homs, Emesa), further on from Aleppo to the monastery of St Symeon the Stylite (Qal'at Seman) and, finally, via Antioch to Alexandretta.[12] In the collection of RAIC, there are estampages of inscriptions of the 2nd–7th centuries from the territory of Great Syria: Baalbek (Lebanon), and cities and settlements in the territory of modern Near East: Koryphe (Jebel Sheikh Bararkat), Emesa (Homs), Sadad, Qasr al-Banat (Raqqa), Damask and Maaloula.[13] The collection contains estampages of inscriptions from Gerasa (now the city of Jerash in Jordan).[14]

The collection of estampages at the RAIC has survived the two World Wars and the siege of Leningrad. It also has suffered all the vicissitudes caused by the movements of the museum and archive collections in the 1920s and 1930s. Very probably, the estampages from Archive RAS, and the part of the collection from IHMC RAS, is all that is preserved from the whole estampage collection of RAIC.

Investigation and Conservation

The repeated movements of the collection from the RAIC collection and violations of the storage regime have led to a situation where most of them need conservation treatment.

At the Laboratory of Preservation and Conservation of Documents (SPb Archive RAS), the question arose about the conservation of the relief documents on rag paper. In 2017, N.Chernova developed a protocol for the treatment of estampages, which used a fairly old and simple manual infilling technique of paper pulp. Estampages are documentary items which after making, result in relief images that have been created in the paper.

As it was mentioned above, during the making of an estampage, wet paper is hammered into the surface of the stone with considerable mechanical stress so that in the sheet of paper, structural changes take place and it creates some kind of 'memory' that 'consolidates' by the bright sun. Since the paper sheet had already shrunk during the estampage making process, it was assumed that its size would not change during the secondary wetting. The numerous examinations of modern rag paper estampages, and the scientific photography methods confirmed this supposition.

It was experimentally confirmed that estampage moistening in the course of conservation, in our case infilling of paper pulp, distorts neither the dimensions of the

[12] Uspenskiy (1902), p. 251, Tab. 1.
[13] SPb Branch SA RAS, Fund 127, Inv. 3, file 36–42.
[14] SPb Branch SA RAS, Fund 127, Inv. 3, file 26–35.

sheet nor the size of the letters. Therefore, it was decided to continue the experimental conservation of the fragments from the collection of estampages of RAIC unfit for reading and attribution[15]. Conservation of these fragments proved the precedent investigations (Fig. 1, 2).

The conservation procedure included bathing in water, consolidating with Methyl-cellulose (0,1-0,2%), drying with Holytex and vacuum table, mending with wheat starch paste, and filling losses with paper pulp. Manual infilling of paper pulp contained both short and long fibres, was applied on the front side because the reverse side of an estampage is more important for an epigraphist to study.

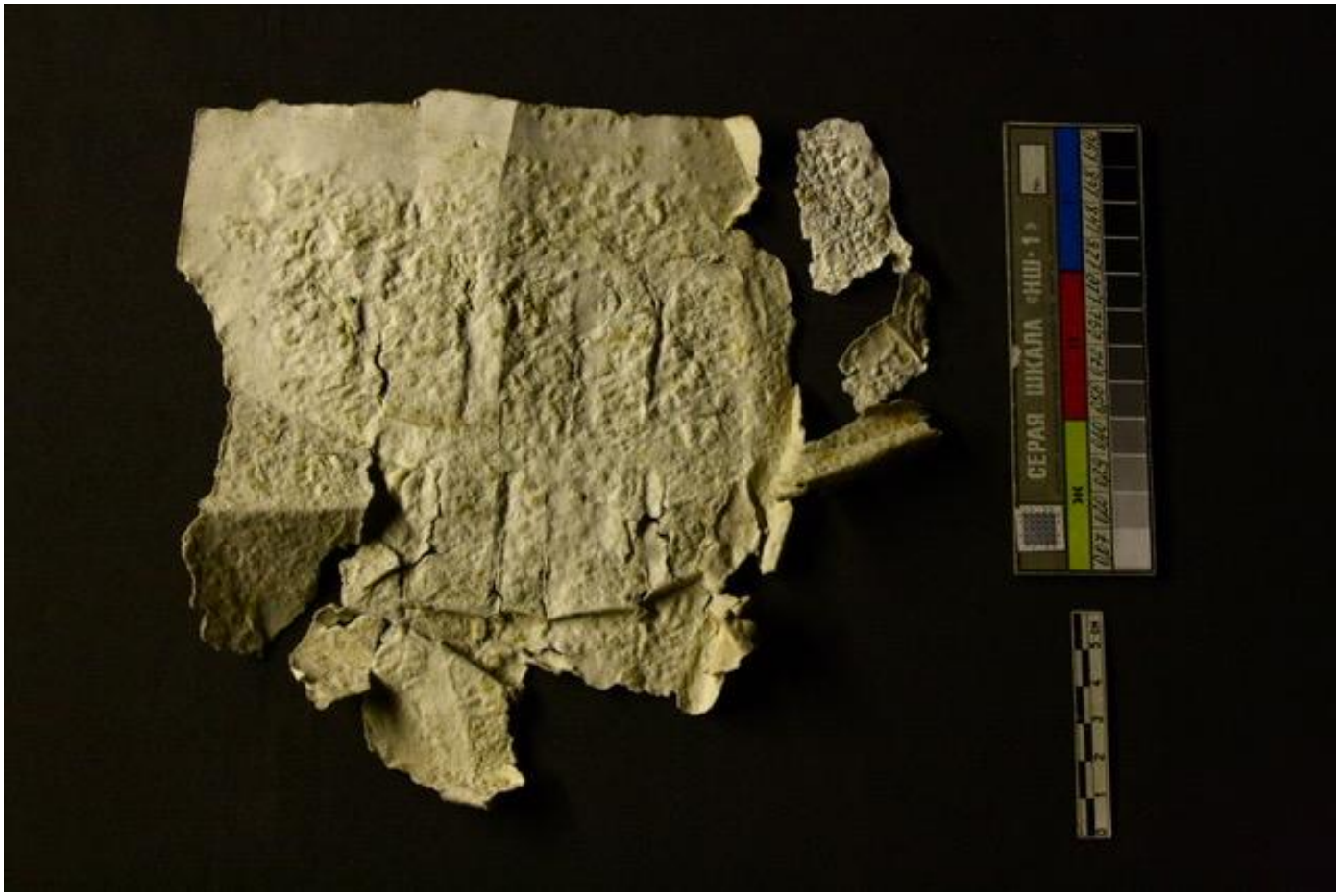


Fig. 1: Estampage fragment unable for reading before the conservation treatment, the front side.

[15] Azizova et al. (2017), p. 14–17.

Fig. 2: Estampage fragment unable for reading after the conservation treatment, the front side.

The results of laboratory research and consulting with the epigraphy specialists, allowed us to perform the conservation treatment of the estampage of a Greek inscription, 2nd cent, AD from Gerasa (now the city of Jerash in Jordan), dedicated to Poseidon, the Earth-shaker.[16]

Moreover, the conservation treatment of the estampage of an inscription from Maaloula has been carried out. This was an imprint from an epitaph probably of the 5th – 6th century, found on the walls of a tomb cut in a rock in Maaloula's settlement in the Anti-Lebanon mountains in the vicinity of the St. Thekla monastery (Syria)[17]. At present, the fate of this monument remains unclear; at least, it is not recorded in modern electronic corpuses of Greek lapidary inscriptions.

Among the conserved estampages, there is an inscription about the death of Negavonais of the Kubairs clan. This was one of the Old-Bulgarian inscriptions found in Bulgaria (city of Provadiya) during the archaeological expeditions of RAIC. It is dated to 827–829 AD. The Khan Omurtag mentioned in the inscription was the ruler of Bulgaria in 814–831, and in the course of conflicts between the Bulgarians an/d Franks, he undertook several

[16] Chernova et al. (2018), p. 815–822.

[17] Waddington (1870), p. 584 № 2565; Chernova et al. (2019), p. 166–169.

raids against the Slavs of the Middle Danube region. The inscription confirms the Bulgarian army's movements in the northwestern part of the Bulgarian state near the Tisa River. During the crossing of that river, the commander Negavonais of the Kubairs was drowned. The document's value is because this estampage is a facsimile copy of an inscription informing us about important events of the political history of Bulgaria of the 820s and conveys a notion about the language of that period. The estampage is composed of three sheets made by Karel Škorpil, probably, immediately after the inscription had been discovered, thus fixing it at its best state of preservation[18] (Fig. 3, 4).

To control the preservation state and quality of the conservation, both prior and after the treatment, 3D scanning was carried out. These operations were carried out using a high-precision 3D scanner Artec Space Spider[19]. This apparatus uses photogrammetry methods and allows researchers to scan an object in a contactless way without placing the marks upon the object that are very important in digitization of museum and historical artefacts. Scanning was conducted at a resolution of 0.1 mm. The precision of measurement using this equipment is at the level of 0.03–0.05 mm. As a result of scanning, detailed polygonal three-dimensional models were built for the estampages before and after the conservation treatment (Fig. 5, 6).

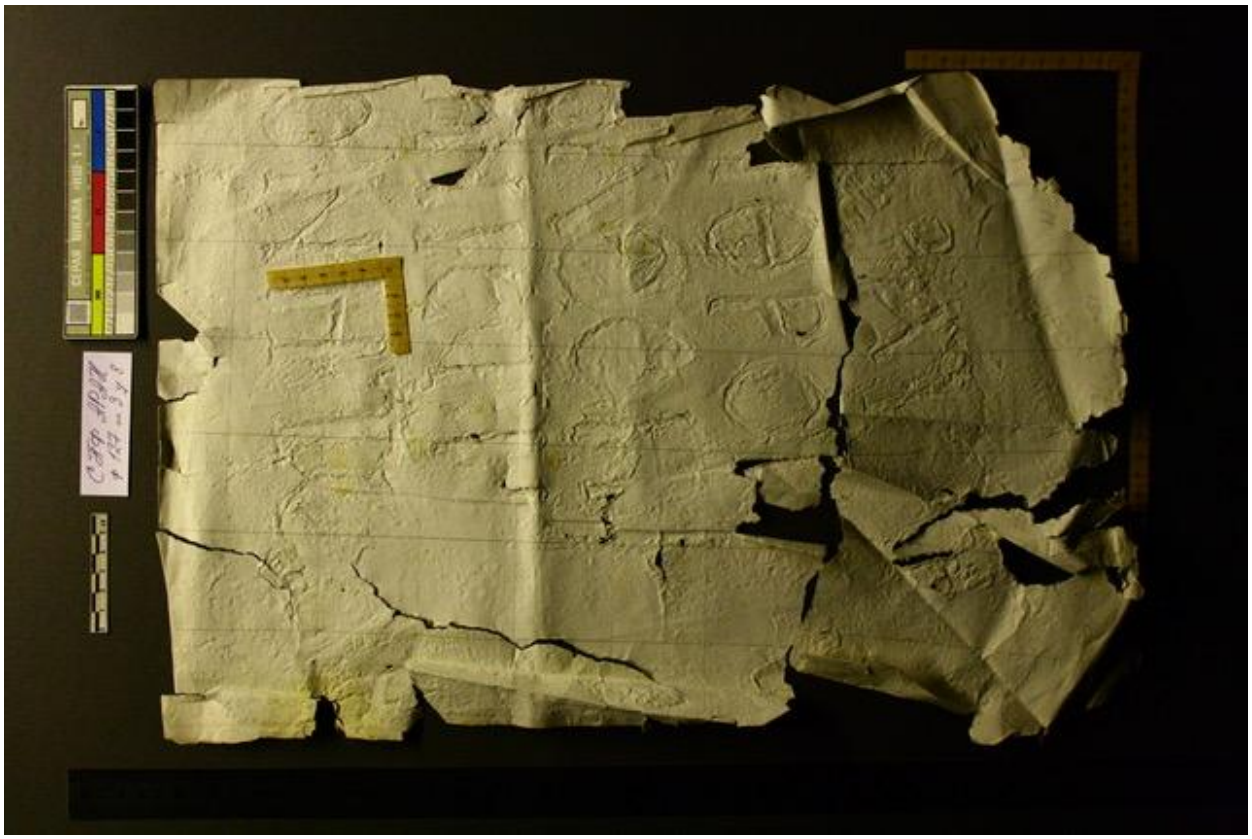


Fig. 3: The same estampage (overall view) before the conservation treatment: the front side.

[18] SPb Branch SA RAS, Fund 127, Inv. 3; Uspenskiy (1905), p. 190 № 3; Beshevliev (1992), p. 230 № 60

[19] Artec3D (2020)

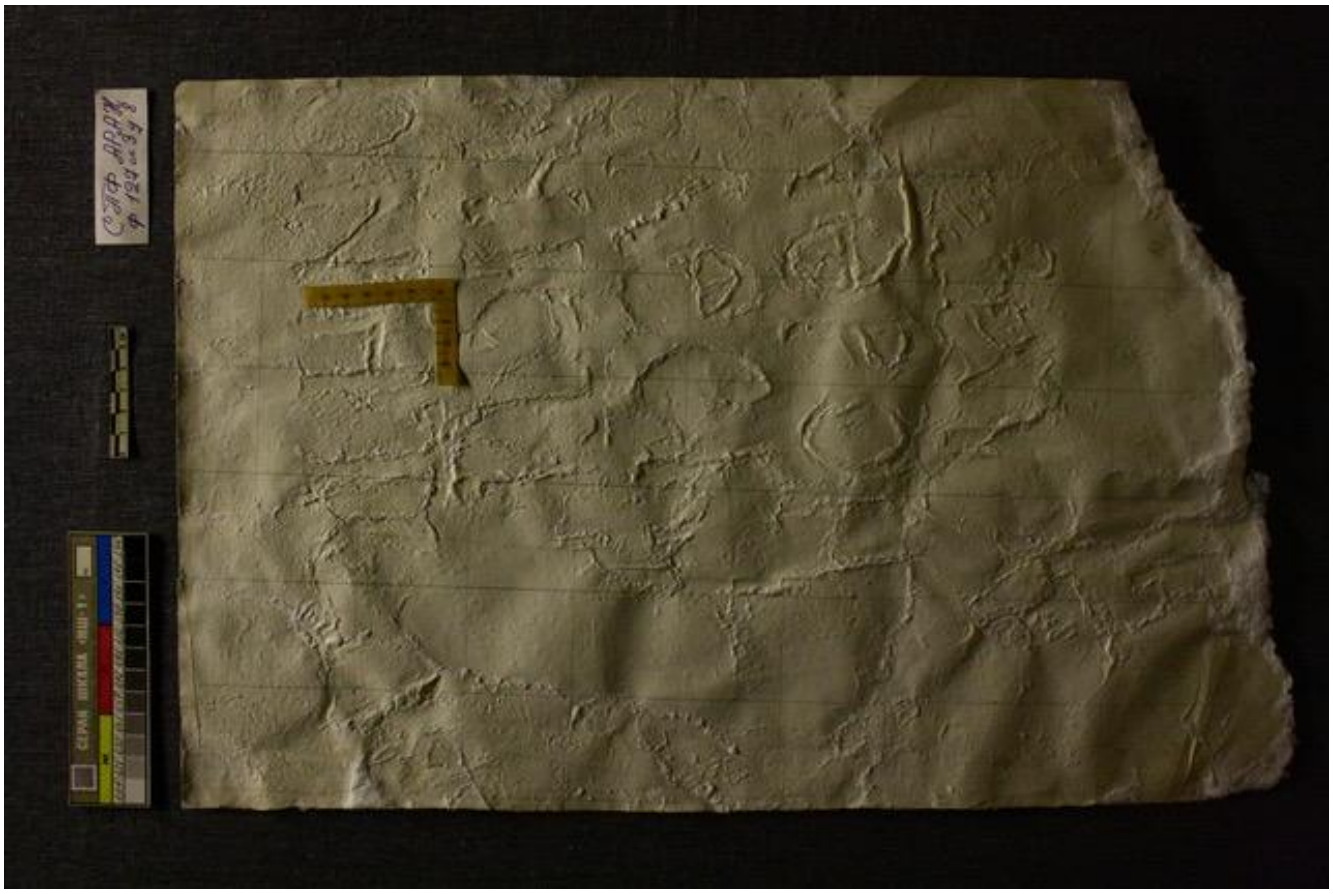


Fig. 4: The same estampage (overall view) after the conservation treatment: the front side.

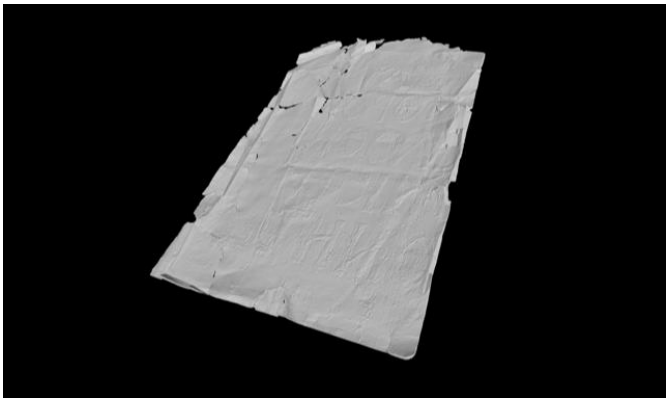


Fig. 5: 3D model of the same estampage's reverse side before the conservation treatment.

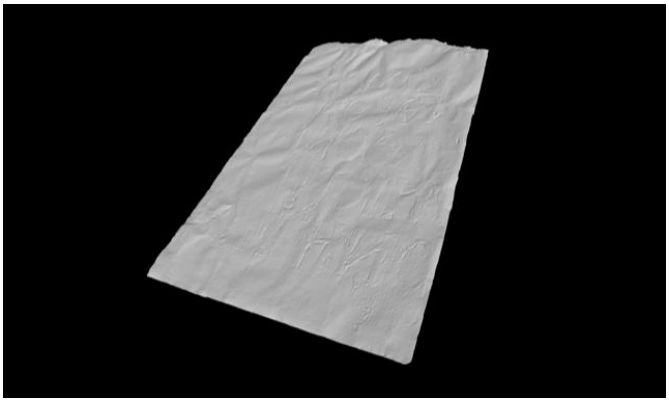


Fig. 6: 3D model of the same estampage's reverse side after the conservation treatment.

To estimate the changes of the estampages geometry before and after the treatment 3D models were obtained. Then the letters height measured on the 3D models were compared. The comparison showed that the difference in the letters' height before and after restoration in the majority of cases did not exceed 0.15 mm. Only in the areas of the highest losses, deviations up to 0.7 mm were recorded that, in our opinion, is a good result, taking into consideration the scale of these losses, and it confirms the effectiveness of this method of restoration. Of note is also the effectiveness of the 3D digitalization of historical artefacts of this type. The availability of detailed digital 3D copies allows us to control the quality of the conservation procedures and guarantees against the irretrievable loss of the pieces. Also, using digital 3D copies yields to researchers an entire series of additional possibilities concerned with applying digital technologies – from the treatment of images to analysis of the geometry and symbolic systems.

Thus, the research conducted in the course of estampages conservation has demonstrated that, for these documents bearing relief representations, the most sparing method of restoration and compensation of losses and breakages is manual addition of wet paper pulp onto absorbing surfaces.

Instrumental analysis

Within the framework of complex research, the back side of estampage which had been contacted to the artifact's surface was examined.

To obtain the maximum information on the origin of stone artifact, the small particles from verso were analysed by instrumental methods before conservation treatment. Professor E. Bakhvalova conducted the measurements, using an X-ray RAM-30μ microscope that allows to investigate microparticles by optical microscopy, roentgenography, and local X-ray fluorescent elemental microanalysis enabling elemental mapping. A small particle less then 1 mm in size was extracted from the reverse side of the estampage, for a semi-quantitative estimation, a measurement in one point was conducted for 100 s (Fig. 7). The spectral analysis demonstrates that calcium is the main component of the material. As both marble and unmetamorphosed limestone consist mainly of calcium carbonate (CaCO3). Therefore the spectral database for marble and limestone would enable us to identify the rock from which the stone with inscription was cut, and of which the estampage was taken.

In the particle sampled, calcium, iron, silicon, and slight contents of zinc, copper, nickel, manganese, and titanium were identified[20] (Fig. 8).

Unfortunately, in our case, a quantitative identification was made difficult by the sample's small size. There was no saturation layer for X-ray radiation. Besides, the sample may not have been a representative one, i.e., not corresponding to the average composition of the material from which it was taken. To obtain more precise data, it is necessary to investigate the reverse side of the estampage, which adjoined the stone with the inscription.

The scientific research on the estampages has been continued to obtain more detailed data about the historical stone and paper

[20] Chernova et al. (2018), p. 742.

monuments. The conservation treatment experience is going to be analysed, updated and shared with the professionals.

The historical research was performed and led by N. Pavlichenko according to the Project 0184-2019-0005 of Fundamental Scientific Investigations of the State Academies of Sciences (FNI GAN): “Culture of states of the Classical period in the Northern Black Sea region. Subcultures of the ruling elite and common people”.

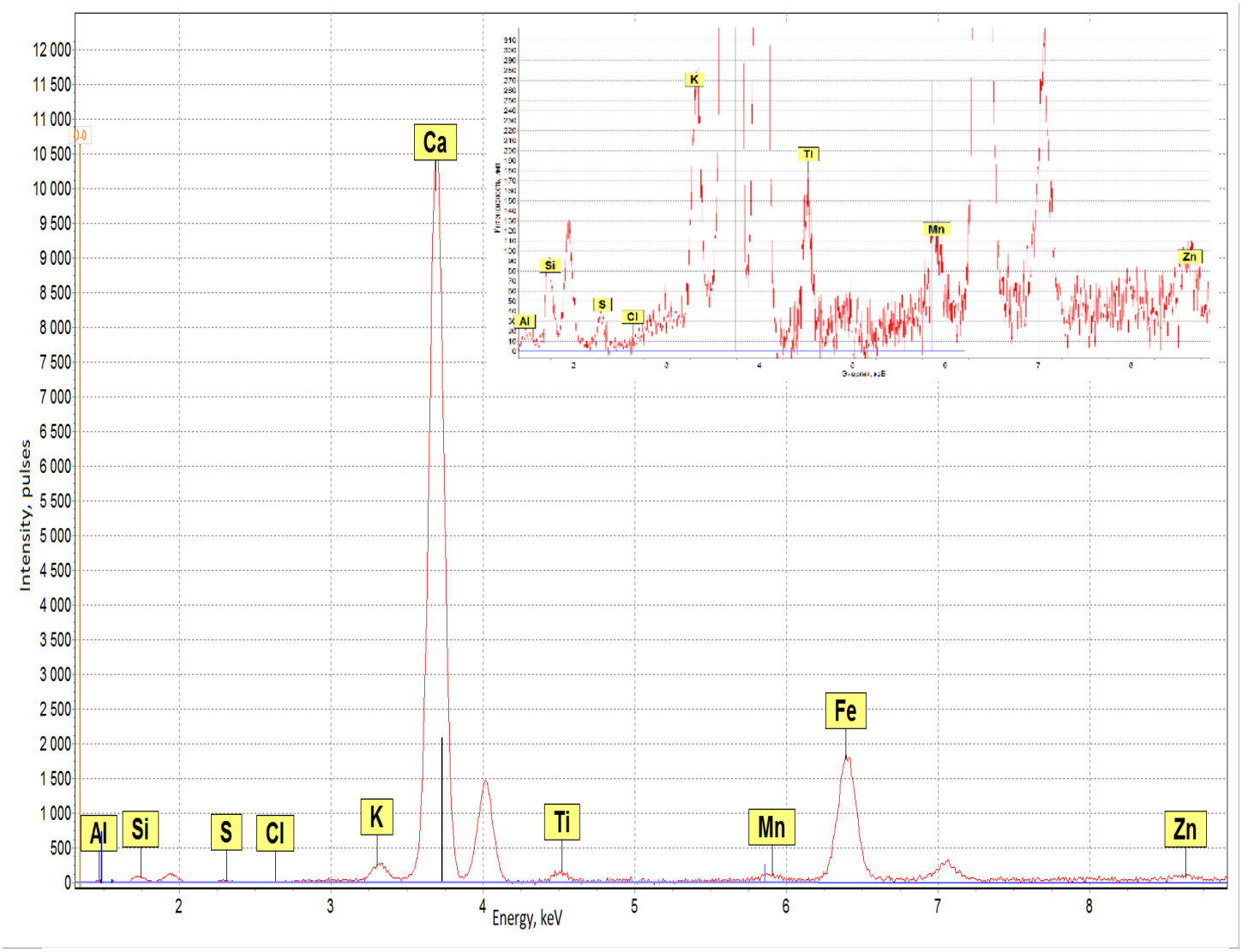


Fig. 7: The spectrum of the particle from reverse side of estampage.

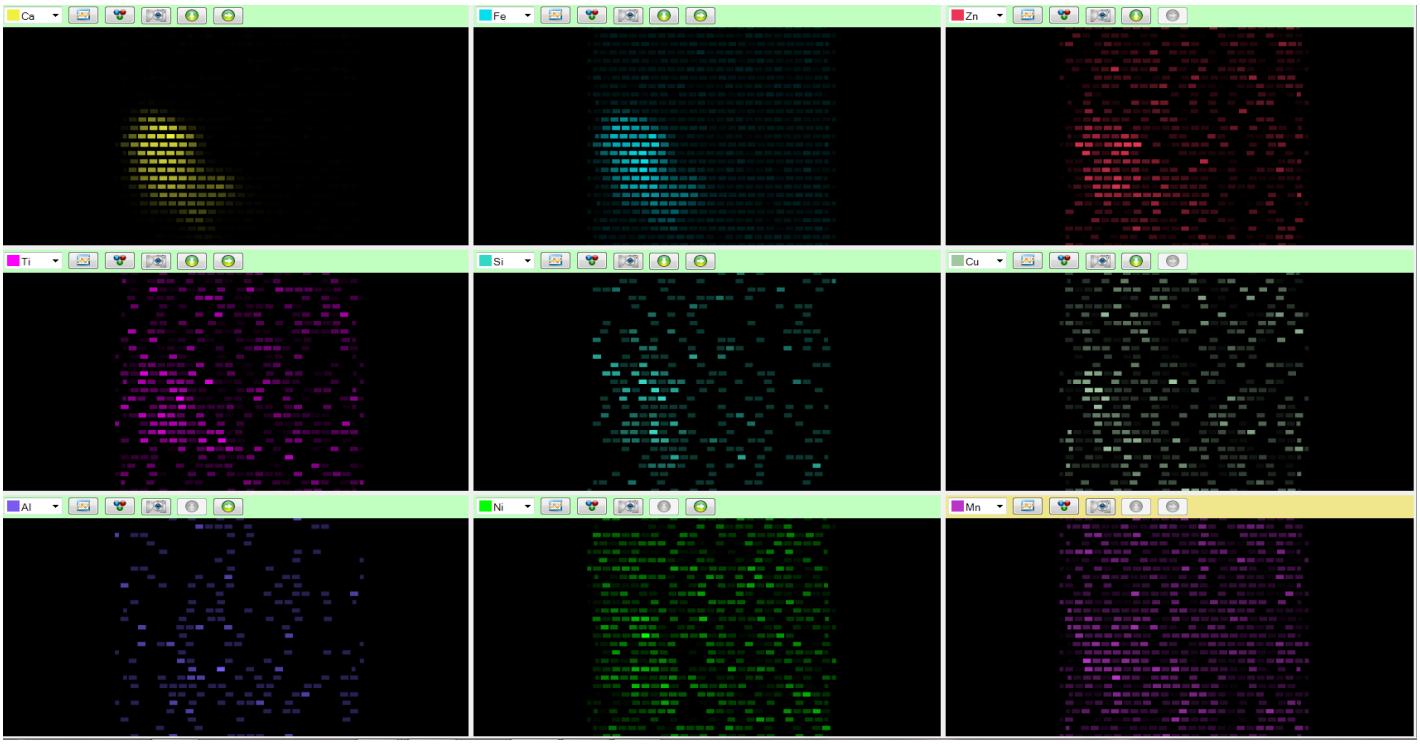


Fig. 8: Elemental particle mapping (Ca, Fe, Zn, Ti, Si, Cu, Al, Ni, Mn), X-ray fluorescent method.

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3. UPCOMING EVENTS

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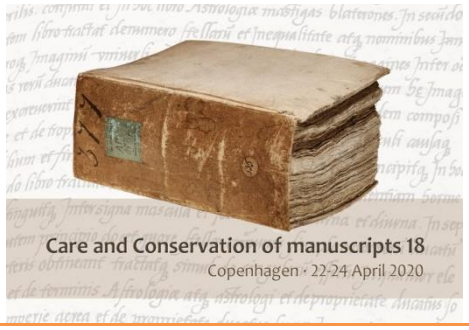
Other's events

2021

Time / Place	Event	Organizer	Links
March 18th – 20th Zagreb, Croatia	**NSK 2021 international virtual conference, Solidarity in Culture: Heritage Protection under Conditions of Crisis** 	National and University Library in Zagreb	Information – click here
April 14th – 16th Copenhagen, Denmark	**Care and Conservation of Manuscripts 18 - postponed to 2021** 	Arnamagnæan Institute, University of Copenhagen	Information – click here

May	11th – 15th Jacksonville, Florida	**2021 AIC Annual Meeting - BPG/PMG Joint Session** 	The Book and Paper Group (BPG) and Photographic Materials Group (PMG) of the American Institute for Conservation (AIC)	Information – click here
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