

BRVKENTHAL. ACTA MVSEI

XV. 4

MINISTERUL CULTURII
MUZEUL NAȚIONAL BRUKENTHAL

BRVKENTHAL.
ACTA MVSEI

XV. 4

Sibiu / Hermannstadt, 2020

EDITOR IN CHIEF: Prof. Univ. Dr. Sabin Adrian LUCA

SECRETARIAL REDACTION: Dr. Claudia URDUZIA
Dr. Daniela DÂMBOIU
Dr. Ioan TĂUȘAN (Lucian Blaga University of Sibiu)
Iulia-Maria PASCU

MEMBERS OF THE BOARD:

Dr. Dana HRIB
Dr. Raluca-Maria TEODORESCU
Dr. Alexandru SONOC
Dr. Rodica CIOBANU
Dr. Dorin BARBU

ASSOCIATED MEMBERS TO THE BOARD:

Prof. Univ. Dr. Ioan-Aurel POP (Member of the Romanian Academy)
Prof. Univ. Dr. Paul NIEDERMAIER (Member of the Romanian Academy)
Prof. Univ. Dr. Conrad GÜNDISCH (Universität Oldenburg, Germania)
Prof. Univ. Dr. Erika SCHNEIDER-BINDER (Universität Karlsruhe, Bereich
WWF Auen Institut, Germania)
Prof. Univ. Dr. Zeno-Karl PINTER ("Lucian Blaga" University Sibiu)
Prof. Univ. Dr. Rudolf GRÄF ("Babeș-Bolyai" University Cluj Napoca)
Prof. Univ. Dr. Nicolae SABĂU ("Babeș-Bolyai" University Cluj Napoca)
Prof. Univ. Dr. Vlad CODREA ("Babeș – Bolyai" University Cluj Napoca)

LAYOUT: Iulia-Maria PASCU

ISSN: 1842-2691



MUZEUL
NAȚIONAL
BRUKENTHAL

Editura Muzeului Național Brukenthal

Începând cu anul 2009, revista a fost indexată în baze de date internaționale astfel:

2009 – INDEX COPERNICUS <http://www.journals.indexcopernicus.com/karta.php?action=masterlist&id=4759>

2010 – EBSCOHOST <http://www.ebscohost.com/titleLists/tnh-coverage.htm>

2012 – SCOPUS <http://www.elsevier.com/online-tools/scopus/content-overview>

2015 – ERIH PLUS <https://dbh.nsd.uib.no/publiseringsskanaler/erihplus/periodical/info?id=484924>

Începând din anul 2011, publicația este vizibilă și pe platforma editorială **SCPIO** (<http://www.scipio.ro/web/brukenthal.acta-musei>).

Starting with 2009, the publication is indexed in the following international date-bases:

2009 – INDEX COPERNICUS: <http://www.journals.indexcopernicus.com/karta.php?action=masterlist&id=4759>

2010 – EBSCOHOST <http://www.ebscohost.com/titleLists/tnh-coverage.htm>

2012 – SCOPUS <http://www.elsevier.com/online-tools/scopus/content-overview>

2015 – ERIH PLUS <https://dbh.nsd.uib.no/publiseringsskanaler/erihplus/periodical/info?id=484924>

Starting with 2011, the publication is to be found on **SCPIO** editorial platform (<http://www.scipio.ro/web/brukenthal.acta-musei>).

Orice corespondență referitoare la această publicație rugăm a se adresa la:

Muzeul Național Brukenthal, Piața Mare 4-5, 550163, Sibiu. **Tel:** +40/269/217691, **Fax:** +40/269/ 211545;

E-mail: iulia_m_pascu@yahoo.co.uk; **Website:** www.brukenthalmuseum.ro

Autorii își vor asuma întreaga responsabilitate pentru informația de specialitate din materialele trimise, care vor fi supuse procesului de peer review, ale cărui detalii pot fi consultate la <http://www.brukenthalmuseum.ro/publicatii/01.htm>.

Ghidul pentru autori se regăsește pe website: <http://www.brukenthalmuseum.ro/publicatii/01.htm>

Please send any mail or messages regarding this publication at:

Brukenthal National Museum, Piața Mare 4-5, 550163, Sibiu. **Phone number:** +40/269/217691; **Fax** +40/269/211545;

E-mail: iulia_m_pascu@yahoo.co.uk; **Website:** www.brukenthalmuseum.ro

The entire responsibility for the specialized information of the article's content is to be assumed by the author; all materials will be submitted to a peer review process. The details can be found at http://www.brukenthalmuseum.ro/publicatii_en/01.htm.

The guide for the authors can be found at: http://www.brukenthalmuseum.ro/publicatii_en/01.htm.

TABLE OF CONTENTS

Dana Roxana HRIB	<i>Brukenthal National Museum in 2019: a Chronicle of Restoration Exhibitions and Events</i>	649
Polixenia-Georgeta POPESCU, Iulia-Maria PASCU, Ruxandra-Ioana STROIA	<i>Collage Artworks from the 18th Century: Intervention</i>	657
Alexandra GĂLĂBUT; Cristina MIHU	<i>Conservation Aspects of Digitalization – Digital Preservation of Transylvanian Books At Brukenthal National Museums Library</i>	671
Ioan MUNTEAN	<i>The Use of Ultraviolet Light in Painting Research</i>	675
Celestina ALBIȘOR	<i>Restoration of the Work "Apple Flowers" by Transylvanian Painter Sava Henția</i>	683
Ilie MITREA	<i>"St. John the Baptist as a Child" by David Teniers the Young. The Author - a Perfect Master</i>	691
Alexandru Gh. SONOC; Andrei POPA	<i>Some Remarks on a Recently Restored Still Life With Flowers and Insects by Jan Van Kessel the Elder and on Other Works by Him from the Brukenthal National Museum's Collection</i>	699
Ecaterina CONSTANTINESCU; Andrei BUDA	<i>Restoration of a "Stutzhren" Style Fireplace Clock</i>	721
Ioan BRAI	<i>The Restoration of a Lantern Clock</i>	731
Bobic CĂLIN	<i>Restoration of a Nineteenth Century Cutlery Set from the Altemberger House History Museum- Collection</i>	739
Victor Arren TURCU	<i>The Proposal Premises of the Biedermeier Style in Transylvania</i>	749
Mihai IANCOVESCU RUDEANU	<i>Conservation And Restauration Of The Artistic Components On The Fa-Cade Of The Bethlen Gábor College - Aiud</i>	753
Paul Victor LANGA	<i>Effects of Atmospheric Factors on Exterior Wall Paintings. Case Study: Conservation state of the votive Image of the "Saint Nicolas" Church from Turnu Roșu</i>	769
Mirel-Vasile BUCUR	<i>Restoring a Reverse Glass Icon with the Theme "The Holy Martyrs George and Theodore Tiron"</i>	777

REVIEWERS FOR *BRUKENTHAL ACTA MUSEI XV.3*

The staff is deeply grateful to the following specialists who gave of their time to review manuscripts submitted in 2020 for publication in *Brukenthal Acta Musei XV.4*:

BUCUR Mirel Vasile, “Lucian Blaga” University of Sibiu, Romania

GUTTMANN Márta “Lucian Blaga” University of Sibiu, Romania

CORNEANU Sebastian “Lucian Blaga” University of Sibiu, Romania

BRUKENTHAL NATIONAL MUSEUM IN 2019: A CHRONICLE OF RESTORATION EXHIBITIONS AND EVENTS

Dana Roxana HRIB *

Abstract: *The present study is a synthetic presentation of Brukenthal National Museum's cultural offer in the field of restoration during 2019 and other significant aspects.*

Keywords: *Brukenthal National Museum, restoration, 2019.*

Rezumat: *Articolul de față constituie o prezentare sintetică a ofertei culturale a Muzeului Național Brukenthal în domeniul restaurării, pe parcursul anului 2019.*

Cuvinte-cheie: *Muzeul Național Brukenthal, restaurare, 2019.*

1. New laboratories

In 2019, the refurbishment works for the new painting restoration laboratory (Brukenthal Palace), the new ceramic restoration laboratory (Brukenthal Library building) and the new polychrome wood restoration laboratory (Casa Albastră / Blue House) were completed. (Fig. 1) Also in 2019, the works for the new metal restoration laboratory (Casa Albastră / Blue House) have started.

2. Permanent exhibitions: new permanent exhibitions on the 2nd Floor in Brukenthal Palace¹

On the 4th of September 2019, the refurbishment of the permanent exhibition of European art in the Brukenthal Palace (a process started in 2015) was completed by the addition of the last thematic rooms presenting:

The landscape (the room presents 17th – 18th c. works by painters from the Flemish, Dutch, French, Italian, German and Austrian schools. The selection illustrates the complexity of the genre during the Baroque period, from simple

representations of a natural setting, to real or imaginary views. Also on display is a pendulum clock with painting, cca. 1850).

The allegory (the works on display have an allegorical content, being dated in 17th – 18th c. and made by Italian and German Baroque painters. The compositions include, in symbolic forms, philosophical, moral, religious and even political ideas or reflections on the natural cycle of creation and destruction, on the destiny of man, of states and of the world).

The representations of saints (the room displays 17th – 18th c. works by painters from the Flemish, Dutch, French, Italian, German and Austrian schools. Generally, the representations of the saints are based on vague data on their physiognomy and information on their life and deeds, transmitted by the hagiographic works. Artists used to choose anonymous models whose appearance or character traits best matched the traditional information).

The portrait (the room presents 17th – 18th c. works by painters from the Flemish, Dutch, French, Italian, German and Austrian schools. Using gestures, props, chromatic effects and lighting the Baroque portrait aims to portray, in the most impressive way, the character's appearance, with an emphasis on social status and physiognomy, capturing aspects of their personality and psychological profile).

* Brukenthal National Museum / Muzeul Național Brukenthal, dana.hrib@brukenthalmuseum.ro

¹ The short descriptions of permanent exhibitions are selected from the texts given by the curators (Dorin Barbu, Dana Hrib, Adrian Luca, Alexandru Sonoc and Robert Strebeli) for public information.

The hunting scene (are exhibited 17th – 18th c. easel-works representing hunting scenes, made by artists appertaining to the Flemish, Dutch, Italian, German and Austrian schools of painting. Also on display there is a Jugendstil bow pendulum clock, cca. 1930).

The latest additions to the permanent exhibitions in Brukenthal Palace involved the participation of the restoration specialists from Brukenthal National Museum's Restoration Laboratories at all levels employed by the setting of the new exhibition, from conservation and restoration works to curatorial endeavor. (Fig. 2a and 2b)

3. Temporary exhibitions²

a. Organized at the museum locations

Sibiu painters and guests in FITS 2019 (Casa Albastră / Blue House, Multimedia Hall, 15.06 – 31.07): organized by UAPR Sibiu Branch, Radu Stanca National Theater and Brukenthal National Museum, the exhibition was part of the International Theater Festival in Sibiu 2019, the main theme being *the giving*. Self-aware and impressive – most of the time – the artists, no matter what they create, cannot do their job without being generous. Following a selection done by a jury, on display were to be found works of painting, graphic, sculpture, glass and textile, among the exhibiting artists being the Brukenthal Museum restorers Ioan Muntean, Ilie Mitrea and Andrei Popa.

Free time magic (Artists: Celestina Albișor, Dorin Barbu, Călin Bobic, Ioan Brai, Ghoerghe Buleteanu, Camelia Dordea, Cristina Fău, Maria Fota, Mihai Iancovescu Rudeanu, Ilie Mitrea, Ioan Muntean, Iulia Maria Pascu, Andrei Popa, Constantin Scărlătescu, Radu Schuller, Ruxandra Stroia and Victor Arren Turcu, Brukenthal Palace, Cartography Cabinet, 4.07 – 1.09): the exhibition was an educational endeavor for the recovery of an essential factor of life – the art of free time, lost by most of us. Nowadays, most of the spare moments are spent in the digital sphere (smartphones & other). Creativity, however, is the ideal form of relaxation at the end of 8 hours daily work or periods of sustained activity. The project was carried out by the restorers of Brukenthal National Museum and fully demonstrated the unlimited potential of creativity that can be accessed after work or during rest periods. The selection of works

adjoined classic approaches and innovative visions or lesser known techniques: painting on canvas, on water (ebru), on glass and wood, drawing, photography, repoussaged leather, wood and stone sculpture, jewelry, gobelin etc. Dozens of exhibits illustrated as many ideas for a few hours a week when every person can creatively digital detox by drawing, adding color to the environment in which they live, special compositions, personalized accessories or specific patterns of their own. (Fig. 3)

b. Travelling exhibitions

The fascination of restoration: Ioan Muntean (Bistrița Năsăud Museum, partners Brukenthal National Museum and Cultural Association Painter Octavian Smigelschi, 11.01 – 30.12)

Fluo immersion: Andrei Popa (National Museum of Unity, Alba Iulia, partners Brukenthal National Museum and Cultural Association Painter Octavian Smigelschi, 18.04 – 30.05)

Angels and demons. Ioan Munteanu (Oradea City Museum, partners Brukenthal National Museum and Greek-Catholic Bishopric, 4.06 – 30.08)

Full colours: Celestina Albișor and Cristina Fău (Bistrița Năsăud Museum, partners Brukenthal National Museum and Cultural Association Painter Octavian Smigelschi, 11.06 – 30.08)

4. Scientific symposiums

Implementing the Scientific Research in Restoration, Between Desideratum and Reality (Casa Albastră / Blue House, 3 – 4.10): the theme of 2019 session addressed painting restoration. Specialists from Timișoara, Argeș, Oradea, Bucharest and Sibiu were invited to present their work. (Fig. 4)

5. Publishing

Dorin Barbu, Dana Roxana Hrib, Free time magic: Magia restaurării III, Editura Muzeului Național Brukenthal, Sibiu, 2019, 51 p. ISBN 978-606-8815-4-6

Exhibition catalog

6. Participating in projects

Rural Guerilla Reloaded (Organized by Brukenthal von Studio Association and co-financed by Sibiu Town Hall and Local Council, partner Brukenthal National Museum)

Brukenthal Museum participants: Ilie Mitrea, Ioan Muntean and Andrei Popa

NAG (Noaptea Albă a Galeriilor / Long Night of Galleries) 2019

² The short descriptions of temporary exhibitions are selected from the texts given by the curators for public information.

Brukenthal Museum participants: Ilie Mitrea, Ioan Muntean and Andrei Popa.

REFERENCES

- _Dana Roxana Hrib (coord.), Muzeul Național Brukenthal din Sibiu, Raport de activitate 2019
http://www.brukenthalmuseum.ro/despre_noi/rapoarte.html
- _online source on events:
<http://www.brukenthalmuseum.ro/index2.php/en/news/>
- _online source on exhibitions:
<http://www.brukenthalmuseum.ro/index2.php/en/expo>

LIST OF ILLUSTRATIONS

1. The new painting restoration laboratory
2. New permanent exhibition in Brukenthal Palace during refurbishment (left) and after the opening (right).
3. Temporary exhibition *Free time magic*
4. Restoration scientific symposium

LISTA ILUSTRAȚIILOR

1. Noul laborator de restaurare pictură
2. Noua expoziție permanentă din Palatul Brukental; aspecte din timpul reorganizării (stânga) și după deschidere (dreapta)
3. Expoziția temporară *Free time magic*
4. Simpozionul științific de restaurare



1. The new painting restoration laboratory



2. New permanent exhibition in Brukenthal Palace during refurbishment (left) and after the opening (right).



3. Temporary exhibition *Free time magic*



4. Restoration scientific symposium

COLLAGE ARTWORKS FROM THE 18TH CENTURY: INTERVENTION

Polixenia-Georgeta POPESCU *

Iulia-Maria PASCU**

Ruxandra-Ioana STROIA***

Abstract: A number of five collage artworks dated 1737, from the History Museum "Altemberger House" medieval collection are presented in this article. The making of the collage artworks, the materials characteristics, and the state of preservation for: collage, primary paper support, secondary paper support, frame and protective glass are described. For each of their component parts are presented the interventions performed for the conservation and restoration of the artworks.

Keywords: collage artworks, leather, textile, paper, conservation, restoration.

Rezumat: În articol sunt prezentate cinci tablouri-colaj din 1737, din colecția medievală a Muzeului de Istorie. Sunt descrise modul de realizare, caracteristicile materialelor, starea de conservare pentru: colaj, suportul primar din hârtie, suportul secundar din hârtie, rama și sticla de protecție pentru fiecare tablou în parte. Sunt prezentate intervențiile efectuate pentru conservarea și restaurarea tablourilor, pentru fiecare din părțile componente ale acestora.

Cuvinte-cheie: tablou-colaj, piele, textile, hartie, conservare, restaurare.

A. The objects description and preservation state

The five objects are part of thirty-five collage¹ artworks group. From this ensemble, three collage artworks have been previously restored.

Collage artwork "A Greek Merchant", Inv. No.: M 6409, "Altemberger House" History Museum (Fig.1).

The total dimensions of the collage artwork are: length 358 mm, width 267-272 mm. The collage artwork is created from: a primary support (Fig. 2) made of handmade paper with the dimensions: length 237-239 mm, width 162-163 mm and thickness 0.13 mm. The primary support does not have a watermark, the chain lines succeeding each other at an interval of 29 mm. The secondary support

(Fig. 3) made of handmade paper has the following dimension: length of 280 mm, width of 190 mm and thickness of 0.15- 0.25 mm. The sequence of chain lines is 29 mm. The secondary support has a watermark (Fig.4). It also has a rectangular border of two parallel lines, drawn in reddish-brown ink. The maximum size of the border is: length of 224 mm and width of 150 mm. The subject of the collage artwork is a Greek merchant. The character is made of textile (Fig. 5), leather, and paper glued to the primary support painted in a light blue. The different colours and structures fabric used for collage artwork are made of: silk, wool, cotton and bast fibres. The character's shoes are made of leather. At the bottom on the secondary paper support is written in ink: "Ein Gröchischer Kaufmann". The painting is framed in a cream and reddish-brown colored frame. The assembly is protected on the front by preindustrial glass (Pilosi 2001, 66) and on the back by a fir wood plate. To fix the assembly in the frame, four spacers made of paper made of mechanical pulp were used.

The preservation state of the collage artworks is as follows: the textile materials have dust and dirt deposits and show small material losses. Physical-mechanical and physical-chemical degradation are observed: gradual discoloration on some areas, weakening of the fibre resistance, the dimensions modification of the textile fibre. The yellow silk fabric of the belt is powdery and disintegrates to

*Brukenthal National Museum, Sibiu, e-mail: popescupolixeniageorgeta@gmail.com

**Brukenthal National Museum, Sibiu, e-mail: iulia_m_pascu@yahoo.co.uk

***Brukenthal National Museum, Sibiu, e-mail: ruxandrastroia@gmail.com

¹ For further reading about collage (Read 2012, 129, 617; Lucie-Smith 1984, 52, 61, 64) and combine painting - *An extension of the principle of collage, in that flat or three- dimensional objects trouves are attached to the surface of the composition, and are sometimes painted over, sometimes left in their natural state* (Lucie-Smith 1984, 54)

touch. The leather, slightly dehydrated, is in good condition.

Primary and secondary supports have physical-mechanical, chemical, and photo-chemical degradation. Loss of flatness is present as we see a slightly wavy surface of the paper. Loose and embedded dirt can be found. The primary support is detached from the secondary support and both present adhesive deposits. The blue background from the primary support has discolorations.

The wooden frame has previous interventions with oil-based paint, dirt, yellowing, traces of blows, scratches and paint layer loss.

The conservation state of the glass is good the main problem is the dirt deposits.

Collage artwork "A Saxon Townswoman", Inv. No.: M 6377, "Altemberger House" History Museum (Fig. 7).

The collage artwork has the total dimensions: length of 354 mm, width of 264 mm. The object is made of a primary support (Fig. 8) made of handmade paper with the following dimensions: length of 240 mm, width of 161-164 mm and thickness of 0.15-0.2 mm. It has a watermark, the chain lines succeeding each other at an interval of 28 mm. The dimensions of secondary (Fig. 9-10) support made of handmade paper are: length of 280 mm, width of 190 mm and thickness of 0.2 mm. The sequence of chain lines for the secondary support is 28 mm. The paper has no watermark and border. At the bottom on the secondary support is written in ink: "Eine Sächsischer Bürgerin im Winter".

The collage artwork depicts a Saxon woman from the city. The character is made of textiles (Fig. 11), paper, and leather, glued to the primary support made of a light blue painted paper. The fabrics used for collage has different structures and different colours made of bast fibres, silk, and cotton. The character's winter coat is made from mineral tanned lambskin. The collar of the coat is fox fur. The boots are created from vegetable tanned cowhide. The collage is put in a cream and reddish-brown colored frame. The assembly is protected on the front by preindustrial glass and on the back by a fir wood plate. To fix the assembly in the frame, four spacers made of handmade paper are used (Fig. 10).

The collage artwork preservation state is as follows: the textile materials have dust and dirt deposits. The fabrics show photo-chemical degradation (discoloration). The fur has physical-

mechanical degradations with hair loss. The boots leather is dehydrated and is hardened. The paper support has accentuated wavy surface with dirt deposits. The primary support is detached from the secondary support and both present adhesive deposits (physical-mechanical degradation). The blue background and paper support discolorations are due to chemical and photo-chemical degradation. The frame is, unfortunately, painted with oil based colour. Has areas that are yellowish, that are scratched and with paint losses. The glass appearance is foggy, small white crystal are formed on the surface that is facing the collage. Dirt deposits are present.

Collage artwork "A Wallachian Shepherdess" Inv. No.: M 6396, "Altemberger House" History Museum (Fig. 13).

The collage artwork has the total dimensions: length of 352 mm, width of 261 mm. The collage artwork is made on a primary support (Fig. 14) made of handmade paper with the dimensions: length 238 mm, width 160 mm and thickness 0.15-0.2 mm. The primary support has a watermark, the chain lines succeeding each other at an interval of 27-30 mm. The secondary support (Fig. 15) made of handmade paper has the dimension: length of 280 mm, width of 190 mm and thickness of 0.2-0.3 mm. The sequence of chain lines for the secondary support is 27-30 mm. It has a watermark and has a rectangular border of two parallel lines (Fig. 16), drawn in reddish-brown ink. The maximum size of the border is: length of 224 mm and width of 150 mm.

At the bottom of the secondary support is written in ink: "Eine Wallachische Schaafs Hirtin". The collage artwork depicts a Wallachian shepherdess. The character is made of textile material and paper (Fig. 17) glued to the primary support painted in a light blue colour. The fabrics used for the collage has different structures and colours and are made of: wool, bast fibres and cotton. The collage artwork is put in a cream and reddish-brown coloured frame. The assembly is protected on the front by preindustrial glass and on the back by a fir wood plate. To fix the assembly in the frame, four spacers made of mechanical pulp paper are used.

The collage artwork preservation state is as follow: the textile materials have deposits of dust and dirt and show physico-chemical degradations (gradual discoloration on portions). Primary and secondary supports have physical-mechanical (dust, dirt adhesive deposits, the primary support is detached

from the secondary support), chemical (stains, discoloration), and photo-chemical degradation (discoloration). The wooden frame surface is covered with oil-based paint. It has dirt, scratches and paint layer loss. The glass has dirt deposits and small white crystal formed on the inner surface that is facing the collage (first stage of the glass disease).

Collage artwork "A Wallachian Woman from the Mountains", Inv. No.: M 6397, "Altemberger House" History Museum (Fig. 19).

The collage artwork total dimensions are: length of 350 mm, width of 255 mm. It is made of a primary support (Fig. 20) of handmade paper with the dimensions: length of 240 mm, width of 160 mm and thickness of 0.15-0.2 mm. It has a watermark, the chain lines succeeding each other at an interval of 27-29 mm. The secondary support (Fig 21) made of handmade paper has the dimension: length of 280 mm, width of 190 mm and thickness of 0.25-0.3 mm. The sequence of chain lines for the secondary paper support is 29-30 mm. It has a watermark and a rectangular border of two parallel lines (Fig. 22), drawn in reddish-brown ink. The maximum size of the border is: length 222 mm and width 146 mm.

The collage artwork depicts a Wallachian woman from the mountains. The character is made of paper and textile material glued to the primary support painted in a light blue colour. The fabrics used for collage has different structures and colours, and are made of: wool, cotton and bast fibres. The shoes are made of wool. At the bottom on the secondary paper support is written in ink: "Eine Berg Wallachin". The collage artwork is put in a cream and reddish-brown coloured frame. The assembly is protected on the front by preindustrial glass and on the back by a fir wood plate. To fix the assembly in the frame, four spacers made of mechanical pulp paper are used.

The collage artwork preservation state is as follows: the textile materials have dust deposits and dirt deposits. There are also gradual discolorations on certain areas of textiles (physical-chemical degradations). The paper degradations are photochemical degradations (yellowing); physical-mechanical degradation (loose and embedded dirt, loss of flatness, detachment of the primary support from the secondary support, adhesives deposits); chemical degradation (discoloration, stains). The glass presents the first stage of the glass disease confirmed by the small white crystals formed on the on the

surface that is facing the collage the foggy appearance. The glass appearance is foggy, small white crystal are formed on the surface that is facing the collage. Dirt deposits are present.

Collage artwork "A Wallachian Monk", No. Inv.: M 6402 "Altemberger House" History Museum (Fig. 25).

The collage artwork has total dimensions of: length 350 mm, width 265 mm. The collage artwork is made of a primary support (Fig. 26) made of handmade paper with the dimensions: length of 240 mm, width of 160 mm and thickness of 0.15 mm. It has a watermark; the chain lines are succeeding each other at an interval of 27-30 mm. The secondary support (Fig. 27) made of handmade paper has the dimension: length of 280 mm, width of 190 mm and thickness of 0.25 mm. The sequence of chain lines for the secondary support is 27-30 mm. It has a watermark (Fig. 28), and has a rectangular border of two parallel lines, drawn in reddish-brown ink. The maximum size of the border is: length 223 mm and width 146 mm. A Wallachian Monk is depicted in this collage artwork. The character is made of paper, and textile material (Fig. 29) glued to the primary support painted in light blue colour. The fabrics used for collage have different structures and colours, and are made of cotton and wool. The shoes are made of wool. At the bottom of the secondary support is written in ink: "Ein Wallachischer ... oder Caluger". The collage artwork is put in a cream and reddish-brown coloured frame. The assembly is protected on the front by preindustrial glass and on the back by a fir wood plate. To fix the assembly in the frame, four spacers made of mechanical pulp paper are used.

The collage artwork preservation state is as follows: the textile materials have dust and dirt deposits. Small material losses can be observed. There are: physical-chemical degradations: gradual discoloration in portions, weakening of the resistance of the threads (in the hat of the represented character). The paper has a slightly wavy surface with loose and embedded dirt deposits. The blue background from the primary support has small areas of discolorations. The primary support is not detached by the secondary support. The frame has areas that are with discoloration, scratched with paint losses, and covered with oil based paint. The glass has dirt deposits is foggy, and small white crystal are formed on the surface that is facing the collage.

B. Restoration interventions.

Restoration interventions were performed by minimal disassembly of the composite materials, without affecting the objects integrity. In order for the conservation and restoration treatment to be optimal, the materials and technique of collage artwork execution paintings were studied, the interventions being recorded in the restoration files and illustrated by a rich photographic documentation in which all stages of the interventions are exposed.

The first interventions consisted of cleaning tests. All the treatments performed were carefully correlated and adapted to the specifics of each material type (Fig. 6,12,18,24,30).

B.1 Interventions on the objects primary support. Interventions on textiles, leather and paper.

The following interventions performed under a magnifying glass were applied on the textile components: dry cleaning to remove dust and adherent surface deposits on wool, silk and cotton fabrics; wet cleansing with slight rehydration of textile fibres; small consolidation and fixing of silk fabrics. Interventions on leather and fur components were also performed under a magnifying glass. The leather was dry cleaned of dust particles difficult to remove and moisturized by dabbing with cotton swabs and sponges. The fur was cleaned dry. (Mason 2016; CCI Note 8/2 2019)

Were used for the restoration of textile, leather and fur components: soft brushes suitable for detaching dust and weakly adherent impurities, vacuum cleaner with a fiberglass cover attached to the nozzle, special erasers for cleaning the surface of the leather support, latex sponges, distilled water, ethyl alcohol, carboxymethyl cellulose, polyvinyl acetate, anionic detergent, filter paper, Japanese tissue paper, cotton swab sticks, non – woven fabric.

The blue painted background of the primary supports as well all paper fragments (face, hands, grass, and other small elements) were dry cleaned with soft brushes, block erasers of different hardness (Cowan, Guild 2001, 6).

B.2 Interventions on the objects secondary support. Check the ink vulnerability on the paper support.

Pretreatment testing was performed directly on small areas to check the ink vulnerability with which the borders were drawn and the text was

written on the bottom edge of the secondary support (Mayer 2020).

Pretreatment testing:

Collage artwork “A Greek Merchant”, Inv. No.: M 6409, “Altemberger House” History Museum.

- Inner border, lower left: the ink is stable in both distilled water and ethyl alcohol-distilled water mixture, 1: 1.

- Outer border, lower left: the ink is stable in both distilled water and ethyl alcohol-distilled water mixture, 1: 1.

- The writing last letter: the ink is stable both in distilled water and in ethyl alcohol-distilled water mixture, 1: 1.

- The end of the text punctuation (dot): the ink is stable in both distilled water and ethyl alcohol-distilled water mixture, 1: 1.

Collage artwork “A Saxon Townswoman”, Inv. No.: M 6377, “Altemberger House” History Museum.

- The writing last letter: the ink is stable in both distilled water and ethyl alcohol-distilled water mixture, 1: 1.

- The end of the text punctuation (dot): the ink is stable in both distilled water and ethyl alcohol-distilled water mixture, 1: 1.

Collage artwork “A Wallachian Shepherdess” Inv. No.: M 6396, “Altemberger House” History Museum.

- Outer border, top left: the ink is stable in both distilled water and ethyl alcohol-distilled water mixture, 1: 1.

- Inner border, top left: the ink is stable in both distilled water and ethyl alcohol-distilled water mixture, 1: 1.

- The writing first letter: the ink is stable in both distilled water and ethyl alcohol-distilled water mixture, 1: 1.

- The writing last letter: the ink is stable both in distilled water and in ethyl alcohol-distilled water mixture, 1: 1.

Collage artwork “A Wallachian Woman from the Mountains”, Inv. No.: M 6397, “Altemberger House” History Museum.

- Outer border, edge, top left: the ink is stable in both distilled water and ethyl alcohol-distilled water mixture, 1: 1.

- Inner border, edge, top left: the ink is stable in

both distilled water and ethyl alcohol-distilled water mixture, 1: 1.

- The writing second letter: the ink is stable both in distilled water and in ethyl alcohol-distilled water mixture, 1: 1.

- The writing third letter: the ink is stable both in distilled water and in ethyl alcohol-distilled water mixture, 1: 1.

Collage artwork "A Wallachian Monk", No. Inv.: M 6402 "Altemberger House" History Museum.

Painting "History Museum- Outer border, right edge: the ink is stable in both distilled water and ethyl alcohol-distilled water mixture, 1: 1.

- Inner border, right edge: the ink is partially vulnerable in distilled water and insoluble in ethyl alcohol-distilled water mixture, 1: 1.

- Outer border, lower edge: the ink is stable in both distilled water and ethyl alcohol-distilled water mixture, 1: 1.

- Inner border, lower edge: the ink is partially vulnerable in distilled water and insoluble in ethyl alcohol-distilled water mixture, 1: 1.

- Outer border, edge, left: the ink is stable in both distilled water and ethyl alcohol-distilled water mixture, 1: 1.

- Inner border, edge, left: the ink is stable in both distilled water and ethyl alcohol-distilled water mixture, 1: 1.

- The writing second letter: the ink is stable both in distilled water and in ethyl alcohol-distilled water mixture, 1: 1.

- The writing third letter: the ink is stable both in distilled water and in ethyl alcohol-distilled water mixture, 1: 1.

B 3. The secondary support restoration treatment.

The mechanical interventions applied were similar for all the collage artworks with the exception of one: dry cleaning was performed to remove loose, superficial, and embedded dirt and adhesive depos-

its (animal glue used to fix the primary support on the secondary support), (Bendix 2011, 5). Appropriate scalpels, erasers and brushes were used. At a single collage artwork, the primary support was not detached from the secondary support (A Wallachian Monk), which made think slightly more difficult to dry clean.

No wet treatment was applied for 4 objects, even if the stability of the ink would have allowed this. The one that was wet cleaned to reduce the soluble deterioration products is the secondary support of the collage artwork "A Saxon Townswoman" (Harnly et al. 2020).

B 4. Interventions on the wooden frames, the glass and the protection plate of the paintings.

In order to restore the frames first the plate, spacers, primary and secondary support, and glass were separated by removal of the red adhesive tape from the back. They were mechanically and chemically cleaned to take out the oil-based paint layer that had an unaesthetic appearance. The frames were primed, levelled, and chromatic integrated (Nicolaus 1999, 257, 277-278). Also, the wooden protection plates of the collage artwork were mechanically and chemically cleaned.

The preindustrial glass with role of the collage artwork protection was wet cleaned (Ceramics and Glass Conservation Studio,V&A 2016).

All components parts that were restored independently were put together and immobilized using the original wooden nails and modern metal nails where the original ones had gone missing. It was decided not to replace the adhesive band.

C. Conclusions

The assemblies of layered materials with different Physico-chemical proprieties are susceptible to deterioration due to the interface between materials and environment changes so the collage artworks are put in the museum storage in optimal temperature and humidity values to minimize the risk of damage.

REFERENCES

- Bendix 2011 Caroline Bendix Preservation Advisory Center – *Cleaning*, British Library, London 2011 [pdf] available at: bendixlibraryconservation.com/publications/ [Accessed 25 August 2020]
- CCI Note 8/2 2019 CCI Note 8/2 (2019-02-22) *Care of Alum, Vegetable and Mineral-tanned Leather* [online] available at: <https://www.canada.ca/en/conservation-institute/services/conservation-preservation-publications/canadian-conservation-institute-notes/care-alum-vegetable-mineral-leather.html>
- Ceramics and Glass Conservation Studio, V&A 2016 Ceramics and Glass Conservation Studio, V & A (2016) *Caring for Your Glass*, [online] available at: <http://www.vam.ac.uk/content/articles/c/caring-for-your-glass/> [Accessed 27 August 2020]
- Cowan, Guild 2001 Janet Cowan and Sherry Guild 'Dry Methods for Surface Cleaning Paper' *CCI Technical Bulletins* No. 11, Canadian Conservation Institute Department of Canadian Heritage, Canada, 2001 [pdf]
- Harnly et al. 2020 Marc W. Harnly, Cecile Mear, Janet E. Ruggles, (10 July 2020), *BPG Washing*, Book and Paper Group Wiki. American Institute for Conservation (AIC). [online] available at: http://www.conservation-wiki.com/wiki/BPG_Washing [Accessed 25 August 2020]
- Lucie-Smith 1984 Edward Lucie-Smith, *The Thames and Hudson Dictionary of Art Terms*, Thames&Hudson Ltd, London, 1984 [pdf]
- Mason 2016 Janet Mason (2016) *Removing Mould from Leather* [online] available at: <https://www.canada.ca/en/conservation-institute/services/conservation-preservation-publications/canadian-conservation-institute-notes/removing-mould-leather.html> [Accessed 30 August 2020]
- Mayer 2020 Debora D. Mayer (15 April 2020) *BPG Spot Tests*, Book and Paper Group Wiki. American Institute for Conservation (AIC). [online] available at: http://www.conservation-wiki.com/wiki/BPG_Spot_Tests#Sensitivity_to_Treatment_Solutions [Accessed 20 August 2020]
- Nicolaus 1999 Knut Nicolaus, *The restauration of paintings*, Könemann, Cologne, 1999.
- Pilosi 2001 Lisa Pilosi 'Technical Examination and Conservation Of Glass' *The Metropolitan Museum of Art Bulletin*, Volume LIX, Number I, 2001 [Pdf] available at: https://www.metmuseum.org/art/metpublications/ars_vitraria_glass_in_the_metropolitan_museum_of_art_the_metropolitan_museum_of_art_bulletin_v_59_no_1_summer_2001 [Accessed 30 August 2020]
- Read 2012 Herbert Read *The Thames&Hudson Dictionary of Art & Artists*, Thames & Hudson Ltd, London, 2012 [pdf]

LIST OF ILLUSTRATIONS

1. Collage artwork "A Greek merchant" – the overview before restoration
2. Collage artwork "A Greek merchant" – the primary support
3. Collage artwork "A Greek merchant" – the secondary support
4. Collage artwork "A Greek merchant" – watermark
5. Collage artwork "A Greek merchant" – clothing (detail)
6. Collage artwork "A Greek merchant" – the overview after restoration
7. Collage artwork "A Saxon Townswoman" – the overview before restoration
8. Collage artwork "A Saxon Townswoman" – the primary support
9. Collage artwork "A Saxon Townswoman" – the secondary support
10. Collage artwork "A Saxon Townswoman" – reverse
11. Collage artwork "A Saxon Townswoman" – clothing (detail)
12. Collage artwork "A Saxon Townswoman" – the overview after restoration
13. Collage artwork "A Wallachian Shepherdess" – the overview before restoration
14. Collage artwork "A Wallachian Shepherdess" – the primary support
15. Collage artwork "A Wallachian Shepherdess" – the secondary support
16. Collage artwork "A Wallachian Shepherdess" – reverse
17. Collage artwork "A Wallachian Shepherdess" – clothing (detail)
18. Collage artwork "A Wallachian Shepherdess" – the after before restoration
19. Collage artwork "A Wallachian Woman from the Mountains" – the overview before restoration
20. Collage artwork "A Wallachian Woman from the Mountains" – the primary support
21. Collage artwork "A Wallachian Woman from the Mountains" – the secondary support
22. Collage artwork "A Wallachian Woman from the Mountains" – reverse secondary support
23. Collage artwork "A Wallachian Woman from the Mountains" – clothing (detail)
24. Collage artwork "A Wallachian Woman from the Mountains" – the overview after restoration
25. Collage artwork "A Wallachian Monk" – the overview before restoration
26. Collage artwork "A Wallachian Monk" – the primary support
27. Collage artwork "A Wallachian Monk" – the secondary support
28. Collage artwork "A Wallachian Monk" – watermark
29. Collage artwork "A Wallachian Monk" – clothing (detail)
30. Collage artwork "A Wallachian Monk" – the overview after restoration

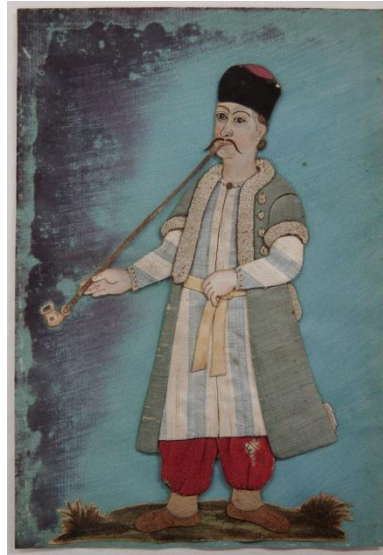
LISTA ILUSTRAȚIILOR

1. Tablou-colaj "Un negustor grec" – imaginea de ansamblu înaintea restaurării
2. Tablou-colaj "Un negustor grec" – suportul primar
3. Tablou-colaj "Un negustor grec" – suportul secundar
4. Tablou-colaj "Un negustor grec" – filigran
5. Tablou-colaj "Un negustor grec" – îmbrăcămintă (detaliu)
6. Tablou-colaj "Un negustor grec" – imaginea de ansamblu după restaurării
7. Tablou-colaj "O orașancă săsoaică" – imaginea de ansamblu înaintea restaurare
8. Tablou-colaj "O orașancă săsoaică" – suportul primar
9. Tablou-colaj "O orașancă săsoaică" – suportul secundar
10. Tablou-colaj "O orașancă săsoaică" – revers
11. Tablou-colaj "O orașancă săsoaică" – îmbrăcămintă (detaliu)
12. Tablou-colaj "O orașancă săsoaică" – imaginea de ansamblu după restaurare
13. Tablou-colaj "O valahă pastoriță" – imaginea de ansamblu înaintea restaurării
14. Tablou-colaj "O valahă pastoriță" – suportul primar
15. Tablou-colaj "O valahă pastoriță" – suportul secundar

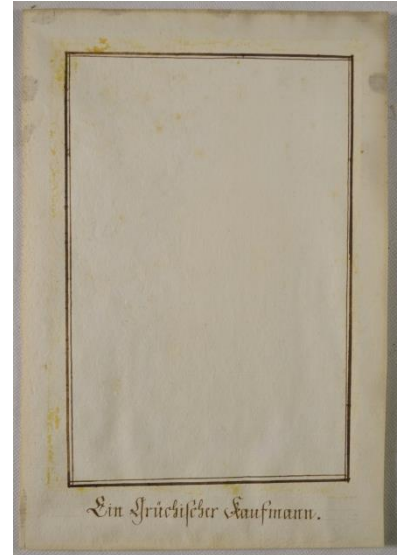
16. Tablou-colaj "O valahă pastoriță" – revers
17. Tablou-colaj "O valahă pastoriță" – îmbrăcămintă (detaliu)
18. Tablou-colaj "O valahă pastoriță" – imaginea de ansamblu după restaurare
19. Tablou-colaj "O valahă de la munte" – imaginea de ansamblu înaintea restaurării
20. Tablou-colaj "O valahă de la munte" – suportul primar
21. Tablou-colaj "O valahă de la munte" – suportul secundar
22. Tablou-colaj "O valahă de la munte" – revers - suportul secundar
23. Tablou-colaj "O valahă de la munte" – îmbrăcămintă (detaliu)
24. Tablou-colaj "O valahă de la munte" – imaginea de ansamblu după restaurare
25. Tablou-colaj "Un calugăr valah" – imaginea de ansamblu înaintea restaurării
26. Tablou-colaj "Un calugăr valah" – suportul primar
27. Tablou-colaj "Un calugăr valah" – suportul secundar din hartie
28. Tablou-colaj "Un calugăr valah" – filigran
29. Tablou-colaj "Un calugăr valah" – îmbrăcămintă (detaliu)
30. Tablou-colaj "Un calugăr valah" – imaginea de ansamblu după restaurare



1.



2.



3.

1. Collage artwork "A Greek merchant" – the overview before restoration
2. Collage artwork "A Greek merchant" – the primary support
3. Collage artwork "A Greek merchant" – the secondary support



4.



5.



6.

4. Collage artwork "A Greek merchant" – watermark
5. Collage artwork "A Greek merchant" – clothing (detail)
6. Collage artwork "A Greek merchant" – the overview after restoration



7.



8.



9.

7. Collage artwork "A Saxon Townswoman" – the overview before restoration
8. Collage artwork "A Saxon Townswoman" – the primary support
9. Collage artwork "A Saxon Townswoman" – the secondary support



10.



11.

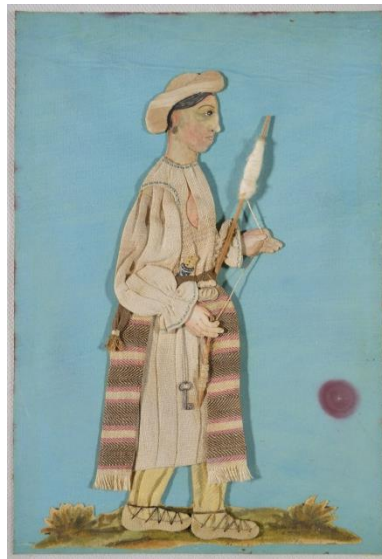


12.

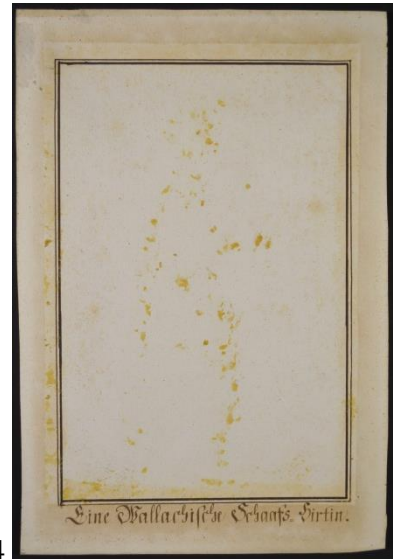
10. Collage artwork "A Saxon Townswoman" – reverse
11. Collage artwork "A Saxon Townswoman" – clothing (detail)
12. Collage artwork "A Saxon Townswoman" – the overview after restoration



13



14



15

13. Collage artwork “A Wallachian Shepherdess” – the overview before restoration

14. Collage artwork “A Wallachian Shepherdess “ – the primary support

15. Collage artwork “A Wallachian Shepherdess “ – the secondary support



16



17

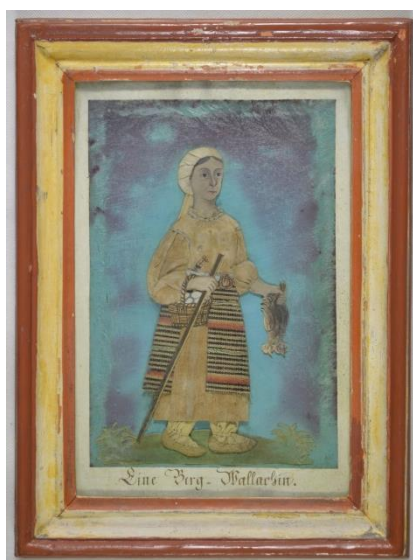


18

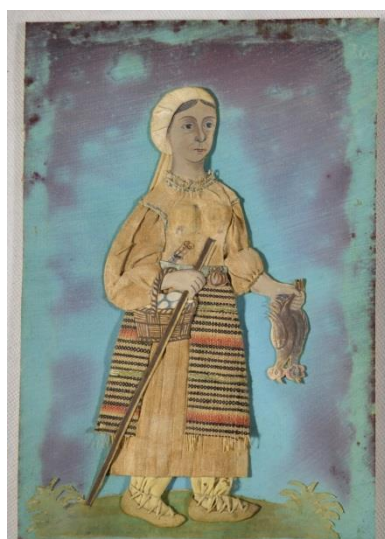
16. Collage artwork “A Wallachian Shepherdess” – reverse

17. Collage artwork “A Wallachian Shepherdess “ – clothing (detail)

18. Collage artwork “A Wallachian Shepherdess” – the after before restoration



19



20



21

19. Collage artwork "A Wallachian Woman from the Mountains" – the overview before restoration

20. Collage artwork "A Wallachian Woman from the Mountains" – the primary support

21. Collage artwork "A Wallachian Woman from the Mountains" – the secondary support



22



23



24

22. Collage artwork "A Wallachian Woman from the Mountains" – reverse secondary support

23. Collage artwork "A Wallachian Woman from the Mountains" – clothing (detail)

24. Collage artwork "A Wallachian Woman from the Mountains" – the overview after restoration



25



26



27

25. Collage artwork "A Wallachian Monk" – the overview before restoration

26. Collage artwork "A Wallachian Monk" – the primary support

27. Collage artwork "A Wallachian Monk" – the secondary support



28



29



30

28. Collage artwork "A Wallachian Monk" – watermark

29. Collage artwork "A Wallachian Monk" – clothing (detail)

30. Collage artwork "A Wallachian Monk" – the overview after restoration

CONSERVATION ASPECTS OF DIGITALIZATION – DIGITAL PRESERVATION OF TRANSYLVANIAN BOOKS AT BRUKENTHAL NATIONAL MUSEUMS LIBRARY

Alexandra GĂLĂBUT *

Cristina MIHU **

Abstract: In 2020, the Brukenthal National Museum in Sibiu joined the European project E-Cultura, for digitalization of 1200 rare books from Transylvania, belonging to the 16th-18th centuries. Us, the conservators worked together to find solutions, with the best interest of the collection in mind at all times. The most challenging aspect was to come up with the right selection criteria for the condition assessment part of the work and to understand the technological aspects of the digitization. This article consist in some brief guideline and particular aspects of our work during the first 6 month of the project.

Keywords: Transylvanian old books, digitalization, conservation, digital preservation, scan, V-shaped book scanner

Rezumat: În 2020, Muzeul Național Brukenthal din Sibiu s-a alăturat proiectului european E-Cultura, pentru digitalizarea a 1200 de cărți rare din Transilvania, aparținând perioadei cuprinse între secolul al XVI-lea și cel de al XVIII-lea. Noi, conservatorii am lucrat împreună pentru a găsi soluții, având în vedere tot timpul interesul pentru colecție. Cel mai provocator aspect a fost să propunem criteriile de selecție potrivite pentru partea de evaluare a stării lucrării și să înțelegem aspectele tehnologice ale digitalizării. Acest articol constă din câteva maniere sumare de practică și aspecte particulare ale activității noastre în primele 6 luni ale proiectului.

Cuvinte-cheie: Cărți vechi din Transilvania, digitalizare, conservare, conservare digital, scanare, scanner pentru carte în format V

In 2020, the Brukenthal National Museum in Sibiu joined the European project E-Cultura, implemented at national level by the Ministry of Culture. Comprising twenty-eight other institutions (museums, libraries, National Film Archive, Romanian Television Society, Romanian Broadcasting Society, National Heritage Institute in Romania, and so on) the main goal of the E-cultura project is to digitize the cultural heritage with the help of current, modern IT technologies, so that the national cultural heritage can be preserved, promoted and passed on to future generations. The platform *culturalia.ro* will be a single point of access to digitized cultural resources and will fulfil two roles, respectively: Digital Library of Romania - component intended for the general public; National Shared Catalogue - a component intended for professionals in various fields. (UMP E-cultura 2018)

The documentary heritage is the common moral property of all mankind. Nevertheless it is recognized that legal ownership may vest in an individ-

ual, private or public organization, or nation. It follows that the heritage derives from all parts of the world and all eras of history, and over time the balance of registered items should reflect this fact. (Edmonson 2002, 28)

The digitization of library collections is transforming the ways that people discover information and conduct research. Libraries have a responsibility to provide global access to their digital collections: the public demands it and scholars expect it. The Internet has broken down traditional barriers: geographic distance, economic circumstances, political boundaries, and cultural sensitivities. Researchers are developing new fields of inquiry, often stimulated by the capacity of new technologies.

United Nations Educational, Scientific and Cultural Organization define *digitization* as: *the creation of digital objects from physical, analogue originals by means of a scanner, camera or other electronic device. It is undertaken as part of a process that*

*Brukenthal National Museum, Sibiu, e-mail: alexandra.galabut@brukenthalmuseum.ro

**Brukenthal National Museum, Sibiu, e-mail: cristina.mihu@brukenthalmuseum.ro

includes: selection; assessment, including of needs; prioritization; preparation of originals for digitization; metadata collection and creation; digitization and creation of data collections; submission of digital resources to delivery systems and repositories. (UNESCO 2011, 1)

Digitization transforms the discoverability and use of rare and special collections to a greater extent than it does for the general library collection. Once these collections are accessible, they become a core resource. Without digitization, rare and special collections usually remain hard to access due to their fragile state and preservation risks. As a result, digitization guidelines have proliferated in many forms over the last fifteen years at the international level and all of them reflect a set of best practices that continues to evolve (Project European Regia 2011, 16)

Rather than concentrating on technology issues or specific methods of digital capture this article is based on the conservation and preservation aspects during digitization of the modern Transylvanian old book collection from Brukenthal's National Museum Library. Conservators worked alongside the curatorial staff, evaluate appropriate equipment, suggest adaptations to photographic cradles and assist with handling in the studio. We all worked together to find solutions, with the best interest of the collection in mind at all times. For us conservators, the most challenging aspect was to come up with the right selection criteria for the condition assessment part of the work. So, we needed to understand well the new technology and establish selection criteria for the project that was safe for the collections.

In our case the ScanVpage developed by 4DigitalBooks Switzerland, a semi-automatic V-shape book scanner, is used. The equipment consists of a motorized V-shape book cradle, a motorized V-shape glass and a scanner. The glass and cradle have a 120° V-angle. Documents up to double A3 or double ledger can be scanned, maximum document thickness being around 125 mm. The book stand cranks may be used to change the book cradle opening to accommodate for the thickness of the book to be scanned. This specific type of scanner (scanVpage) is installed with cameras Canon EOS 5D SR. A resolution of 600 DPI is required so the lenses used are 105mm SIGMA. For a good quality scan, ScanVpage takes into consideration the thickness of the book. Loading a book means that the thickness of the object is used to determine the proper book cradle height so as to have the book pages in focal plane.

The first technical criteria that set a guideline for selection was the standard shaped cradle set at an opening of 120°. That for all books photographed on it would need to open to this angle. During the process of producing a digital image the book is located by two small sliding blocks in the gutter, one at the head and one at the tail of the spine. Conservators often disagree on the use of glass plates to keep the original flat during digital capture considering the risk of damaged pages or spines to be too great. For us manual book scanning mode minimizes the pressure exerted by the glass plates. So to hold the leaves of the book flat a glass wedge at a matching 120° angle, supported on sliding rails, is pulled down and held in place by the operator.

The cradle moves from side to side to allow the operator to locate the sharp edge of the acrylic wedge in the gutter of the book. Fortunately the V shaped profile of the cradle have an adjustable spine area and this minimize strain and damage to tight-back bindings with thick raised sewing supports or the joints of hollow back bindings. However the cradle has a hard surface and might not comfortably accommodate bindings with metal furniture or clasps. For the scanner to correctly work the glass wedge is brought into contact with the book. For books with tight-back bindings this has two potential problems; the first is a handling one where the operator governs both the pressure of the wedge and the accurate location of its sharp edge in the gutter of the book. Great care would be needed to ensure that this did not cause mechanical damage to the book, so all of these challenging books were scanned by a conservator.

As the international guidelines suggests involvement of conservators in such project is due to the sensitive conservation treatment of many individual items, improvements to historic housing and mounting methods, the assessment of digitisation equipment and procedures, and the training of all project staff in safe object handling. Materials that are to be digitized are usually removed from their permanent storage location and their subsequent movements should be tracked as closely as possible. Fragile materials are always evaluated by a conservator to minimize the potential for physical damage during the digitization process (Lladó-Buisán 2016, slide 6).

The scanning team consist in two curators/librarians and one conservator, and also having Cristina Mișu, on preventive conservation of the books selected that are inspected at the beginning and at the end of the process. Cristina also

undertake the dry cleaning procedures of the books that are to be scanned, viewing them page by page to ensure that no damage will be caused by handling procedures or the glass plate. The scanning technicians received a proper training to ensure the safe handling of the materials, and at least one conservator is present in the studio, so all concerns and unusual cases are discussed in real time, reducing the risk of damage.

When digitizing rare and unique material, it is important to preserve and recreate as much as possible the look and feel of the original object. The entire physical object should be captured and not just the intellectual content. It is necessary to photograph entire pages front and back (including beyond the edges) and not to crop images within the page edges. Bound volumes should be photographed cover-to-cover, including flyleaves, empty pages, pastedowns and bindings (front and back covers and their interiors, the spine and the edges). No matter the format, the entire work or artefact should be reproduced.

Conflicts between requirements of image quality and preservation concerns are inevitable but once a material digitized, however, a digital copy may help to ensure preservation of the original by serving as a surrogate. Digital files can also be used to create preservation microfilm of fragile originals.

Control of environmental and security conditions during digitization and transport are also important

assets to this kind of project. In our case the use of special equipment such as temperature and relative humidity data loggers and dehumidifiers, allowed us to control and set the environmental parameters of the scanning studio as close as possible to those of the storage rooms: an air temperature of 18-21°C and 50- 60% of relative humidity. It is very important to avoid sudden changes of climate: a maximum change of 2°C and 3% of relative humidity per 24 hours are acceptable according to the International Standard DIN ISO 11799:2005-06 (UNESCO 2000, 4). All original materials should be returned to their permanent storage locations as soon as possible, after being carefully checked for possible losses or damages. All the movements of these items are tracked and documented.

Special lighting sources are used to avoid damage by light exposure. Today, ultraviolet and infrared filters are a basic requirement. In recent years, the cold light emitting diode (LED) lighting in scanning systems has replaced conventional fluorescent tubes. A very short exposure to flashlight leads to better photographic results and guarantees a high frequency of image taking.

Conserving an original document and protecting its integrity means that no information is lost, and all future options for preservation and access are kept open. Original documents often have intrinsic worth that will never accrue to a copy.

REFERENCES

- Bibliothèque nationale de France, Bayerische Staatsbibliothek, Universitat de València, Herzog August Bibliothek Wolfenbüttel, and Bibliothèque Royale de Belgique, 2011
- International Federation of Library Associations and Institutions, 2014
- Ministerul Culturii România – Unitatea de Management a Proiectului, 2018
- Ray Edmonson, 2002
- UNESCO, 2000*
- Virginia María Lladó-Buisán, 2016
- Project Europeana Regia. State of the Art in Image Processing, 2011, available on <http://www.europeanaregia.eu/en/project-europeana-regia/project-documentation> at 2.08.2020
- IFLA, Digitization of Rare Book and Manuscript Collections, Netherlands, 2014 available on <http://www.ifla.org/> at 2.08.2020
- E-cultura: Biblioteca Digitală a României, Bucharest, 2018, available on <https://www.umpcultura.ro/proiecte-in-implementare> , at 5.08.2020
- Ray Edmonson, (*UNESCO*), Memory of the world general guidelines to safeguard documentary heritage, Paris, 2002
- UNESCO, Fundamental Principles of Digitization. Of Documentary Heritage, 2000, available on <http://www.unesco.org/> at 1.08.2020
- Conservation approaches to the digitisation of collections at Bodleian Libraries: supporting and preserving, Oxford University, 2016, available on https://www.ndl.go.jp/jp/preservation/pdf/forum27_text1.pdf at 25.08.2020

THE USE OF ULTRAVIOLET LIGHT IN PAINTING RESEARCH

Ioan MUNTEAN*

Abstract: *The use of ultraviolet light in painting research is one of the non-destructive methods, which imposes a low cost and reveals a range of general information on the surface layer.*

Keywords: *Ultraviolet light, identification of previous restoration interventions, control of cleaning operations, identification of the work of art.*

Rezumat: *Utilizarea luminii ultraviolete în cercetarea picturilor este una din metodele nedistructive, care impune un cost redus și relevă o gamă de informații cu caracter general asupra stratului de suprafață.*

Cuvinte-cheie: *Lumină ultravioletă, identificare intervenții anterioare de restaurare, controlul operațiunilor de curățare, identificarea operei de artă.*

Various methods are used today in the research of paintings, starting from visual study in various light registers, to the very complex analyses in which the composition of its component materials is determined. Studying the paintings through ultraviolet light is a research method that does not involve a high cost of work equipment and can provide a number of information needed to determine the diagnosis of the work before restoration. This information must be correlated and supplemented with the results of other types of research.

In relation with the integrity of the studied object, this research method is classified as a non-destructive one, so that it can be performed directly on the object without taking samples. However, it should be noted that ultraviolet radiation is a factor in the degradation of a significant number of an art work components, in this regard in the rules of restoration and conservation a special chapter is dedicated for their protection. Although the nature of the data provided by this research method is general, in which no precise data is provided on the chemical composition of the layers or structure of the object, this simple way of research can cover a number of information necessary for the restorer in diagnosing the work.

Ultraviolet radiation is part of the spectrum of electromagnetic radiation. These ultraviolet rays are named after the light in the visible spectrum with which they are adjacent. They have a wavelength shorter than light in the visible spectrum and longer than X-rays or gamma rays.

The spectrum of electromagnetic radiation is divided according to the wavelength criterion in several areas, from high to low frequencies: gamma radiation, X-ray, ultraviolet radiation, light radiation, infrared radiation, microwave, and radio radiation (waves) (Table 1, 2).

In turn, the spectrum of ultraviolet radiation, between wavelengths 10 - 380 nm (1 nanometer = 10⁻⁹ m), with a frequency of 750 THz (380 nm) to 30 PHz (10 nm), is divided into several subgroups as we see in Table 3.

For the research of art works with the help of ultraviolet light, sources that emit a wavelength of UV-A or UV-B type are used; UV-C type sources are generally used in the medical field for surface sterilization or in the food industry with germicidal role.

Although the A or B type of ultraviolet light is less harmful to humans than type C, protective measures should be taken when used. The eyes and skin should be exposed as little as possible and the working time in which the object is exposed should be as short as possible.

What exactly can be identified with the help of ultraviolet light? To answer this question it should be mentioned that ultraviolet radiation has an effect on the surface of objects, and depending on several factors such as the age of materials or their composition, a process of fluorescence occur, with different values caused by these factors. So, if we hypothetically have a painting covered with a

* Brukenthal National Museum, Sibiu, e-mail: ioni_muntean@yahoo.com

layer of varnish that has two different ages, we will have two different surfaces, with distinct fluorescence. In the same way we will have different fluorescence on surfaces and colour layers that have different ages. This way of researching the work of art can highlight the **previous restoration interventions** and their magnitude, being a good element of measure on the restoration operations to be performed. For example, in the case of the portrait of *Baron Samuel von Brukenthal* (Fig. 1) executed by Johann Georg Weinkerth, the retouching interventions on the skin areas were relatively well executed, with a slight change of the original chromatic. At an examination in natural light they seemed to be fine, but when I studied the work with the help of UV light, I've noticed very well the previous retouching intervention. These retouching areas appear darker and warmer when exposed to UV light (Fig. 2).

This research method is not effective when we are dealing with old retouching interventions over which a new layer of varnish has been applied. In UV light this painting will have a similar fluorescence on the original and retouching colour layer. This is caused by the varnish layer having an identical fluorescence on the two different surfaces. In the case of the painting *Heaven* made by Michael Willmann (Fig. 3-4), we had a surface in the lower left corner that during the cleaning operation turned out to be widely repainted. This repainting surface could not be highlighted by UV light (Fig. 5). Before the restoration, the varnish layer had a unitary fluorescence on the entire surface of the painting, only on the area where different pieces of canvas joined, a newer retouching was visible.

The information obtained solely on the basis of this method, which are not correlated with the results of other research methods, cannot provide sufficient data to establish a correct and complete diagnosis of the work of art.

With the help of UV light **working steps** can be checked. For example, the quality of a previously applied varnish layer or the exact determination of its presence or absence can be highlighted. In the case of *Church singer* work by Octavian Smighelschi (Fig. 6), we highlighted the presence of a layer of varnish applied unevenly, with the use of the brush, the traces and its path being easily visible in UV light.

Also for the work *Landscape at Balchik* made by Theodorescu Sion (Fig. 7-8), which was painted on both sides of the canvas, I highlighted (with the use of UV light) the fact that this work was varnished on one side only. The second executed

painting, the one that was signed, enjoyed the protection of a layer of varnish, while the first one that is hidden from the public eye is not covered by varnish, its fluorescence being very weak.

UV light is also used in another stage of restoration work, that of **controlling the cleaning operation**. When we have to remove an old layer of varnish that is altered, we can verify this operation with the help of UV light. But as Nikolaus Knut noted, "the ultraviolet fluorescence technique has only a limited utility in monitoring varnish removal, because not only residual varnishes are fluorescent, but also resin-containing colour layers" (Nikolaus 1999, 361). Therefore, for old paintings executed in Dutch technique, in which mediums rich in natural resins are used, this research method is not effective.

Another area of in which UV light is used is that of **determining the authenticity of the art work**. Forgery of paintings by applying false signatures is one of the oldest methods used by crooks. For an old work, which does not raise suspicions about the authentic antiquity, but which is executed by an anonymous painter, if it resembles the style of a quoted painter, then by applying a false signature it is desired to reassign it and implicitly increase its commercial value. In this case, UV light can also be used to establish the authenticity of the work of art. The fact that there is a difference in age between the components of the work of art and the new signature, makes the colour tones observed in UV light different. In addition, very often these false signatures are applied directly over the varnish layer and this makes this difference even more visible. It should be emphasized that these results can be flawed by the addition of UV protection substances in the new colour. The results of these visual observations in UV light must be correlated with the results of other research methods in order to obtain an accurate diagnosis.

In this image (Fig.9) we can see the original signature of the painter Nicolae Grigorescu, present under the varnish layer, which is poorly applied, and also small areas of chromatic retouching being present. The chromatic retouching has a dark purple colour, the colour of the original signature is red and it is located under the varnish layer that has a light blue appearance. In contrast to this image we have the case below (Fig.10), when the colour used to the signature is applied over the varnish layer. Here the signature has a dark purple colour, similar to the colour retouching areas, and the varnish layer has the same bluish bloom. The authenticity of the work of art cannot be established following a

single research method, but the use of UV light in regard.
research is one of the first steps to be taken in this

REFERENCES

- Nicoaus 1999 Knut Nicolaus, *The restoration of paintings*, Editura Könemann 1999.
- Stoner and Rushfield, 2012 Stoner, Joyce Hill and Rushfield, Rebecca, *The conservation of easel paintings*, Editura Routledg 2012e

LIST OF ILLUSTRATIONS

Table

1. Spectrum of electromagnetic radiation
2. Spectrum of electromagnetic radiation: wavelength, frequency, photonic energy
3. Spectrum of ultraviolet radiation

Figure

1. The painting *Baron Samuel von Brukenthal*, author Johann Georg Weinkert in ultraviolet light.
2. Portrait detail of *Baron Samuel von Brukenthal*, author Johann Georg Weinkert in ultraviolet light
3. Detail from the *Heaven* painting, author Michael Willmann, before restoration
4. Detail from the *Heaven* painting, author Michael Willmann, after restoration
5. Detail from the *Heaven* painting, author Michael Willmann, before restoration in ultraviolet light
6. *Church singer*, author Octavian Smighelschi, ensemble in ultraviolet light
7. *Balchik*, author Theodorescu Sion, ensemble side II in ultraviolet light
8. *Balchik*, author Theodorescu Sion, ensemble side I in ultraviolet light
9. *Peasant woman* signature detail, author Nicolae Grigorescu
10. False signature detail, Nicolae Grigorescu, applied over the varnish layer

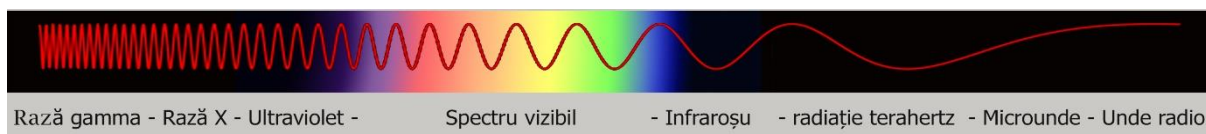
LISTA ILUSTRAȚIILOR

Tabel

1. Spectrul electromagnetic
2. Spectrul electromagnetic: lungime de undă, frecvență, energie fonică
3. Spectrul ultraviolet

Figură

1. Pictura *Baronul Samuel von Brukenthal*, autor Johann Georg Weinkert în lumină ultravioletă.
2. Detaliu portret *Baronul Samuel von Brukenthal*, autor Johann Georg Weinkert în lumină ultravioletă
3. Detaliu *Raiul*, autor Michael Willmann, înainte de restaurare
4. Detaliu *Raiul*, autor Michael Willmann, după restaurare
5. Detaliu *Raiul*, autor Michael Willmann, înainte de restaurare în lumină ultravioletă
6. *Cantor*, autor Octavian Smighelschi, ansamblu în lumină ultravioletă
7. *Balcic*, autor Theodorescu Sion, ansamblu fața II în lumină ultravioletă
8. *Balcic*, autor Theodorescu Sion, ansamblu fața I în lumină ultravioletă
9. Detaliu semnătură *Țărancă*, autor Nicolae Grigorescu
10. Detaliu semnătură falsă, Nicolae Grigorescu, aplicată peste stratul de vernis



1. Spectrum of electromagnetic radiation

Electromagnetic Spectrum c			
Name	Wavelength	Frequency (Hz)	Photon energy (eV)
Gama Rays	smaller than 0.01 nm	over 30 EHz	124 keV – 300+ GeV
X Rays	0.01 nm – 10 nm	30 EHz - 30 PHz	124 eV – 124 keV
Ultraviolet	10 nm – 380 nm	30 PHz - 790 THz	3.3 eV - 124 eV
Vizible	380 nm - 700 nm	790 THz - 430 THz	1.7 eV – 3.3 eV
Infrared	700 nm – 1mm	430 THz - 300 GHz	1.24 meV - 1.7 eV
Microwaves	1 mm – 1 metru	300 GHz – 300 MHz	1.24 ueV – 1.24 meV
Radio	1 metru – 100000 km	300 MHz – 3 Hz	12.4 fev - 1.24 meV

2. Spectrum of electromagnetic radiation: wavelength, frequency, photon energy

Name	Wavelength in nm	Photon energy
UV from nearby	400–300 nm	3,10–4,13 eV
UV-A	400–315 nm	3,10–3,94 eV
UV-B	315–280 nm	3,94–4,43 eV
UV-C	280–100 nm	4,43–12,4 eV
UV from the univers, vacuum radiation	200–10 nm	6,20–124 eV
Extrem UV	121–10 nm	12,4–124 eV

3. Spectrum of ultraviolet radiation



1.



2.

1. The painting *Baron Samuel von Brukenthal*, author Johann Georg Weinkerth in ultraviolet light
2. Portrait detail of *Baron Samuel von Brukenthal*, author Johann Georg Weinkerth in ultraviolet light



3. Detail from the *Heaven* painting, author Michael Willmann, before restoration



4.



5.

4. Detail from the *Heaven* painting, author Michael Willmann, after restoration
5. Detail from the *Heaven* painting, author Michael Willmann, before restoration in ultraviolet light



6. *Church singer*, author Octavian Smighelschi, ensemble in ultraviolet light



7.



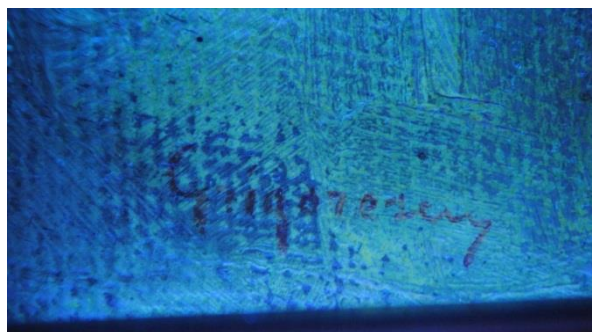
8.

7. *Balchik*, author Theodorescu Sion, ensemble side II in ultraviolet light

8. *Balcic*, autor Theodorescu Sion, ansamblu fața I în lumină ultrevioletă *Balchik*, author Theodorescu Sion, ensemble side I in ultraviolet light



9.



10.

9. *Peasant woman* signature detail, author Nicolae Grigorescu

10. False signature detail, Nicolae Grigorescu, applied over the varnish layer

RESTORATION OF THE WORK "APPLE FLOWERS" BY TRANSYLVANIAN PAINTER SAVA HENȚIA

Celestina ALBIȘOR*

Abstract: *This article is a brief presentation regarding the artistic course of the painter Sava Henția. Marked by academism, in the first part of his activity, uses a language based on the value of the line and volume, gradually the painter is interested in the possibilities of manifestation through color. In the portfolio of artistic are present portraits, compositions and allegories with mythological themes battle scenes, campaign scenes, being considered a true war reporter, but we also find landscapes and dead natures. The work by the Transylvanian painter Sava Henția "Flowers of Apple" in 1902 went through an extensive process of restoration, all restoration – preservation operations are described below.*

Keywords: *static nature, academism, restoration*

Rezumat: *Articolul de față constituie o prezentare succintă în ceea ce privește decursul artistic al pictorului Sava Henția. Marcat de academism, în prima parte a activității sale, utilizează un limbaj întemeiat pe valoarea liniei și a volumului, treptat pictorul este interesat de posibilitățile manifestării prin culoare. În portofoliul artistic sunt prezente portrete, compoziții și alegorii cu tematică mitologică scene de luptă, scene de campanie, fiind considerat un adevărat reporter de război, dar regăsim și peisaje și naturi moarte. Lucrarea realizată de pictorul transilvănean Sava Henția „Flori de măr” în anul 1902 a trecut printr-un proces amplu de restaurare, toate operațiunile de restaurare – conservare sunt descrise mai jos.*

Cuvinte-cheie: *natura statică, academism, restaurare.*

Artistic achievements

A romanian painter, graphic designer, muralist and book illustrator, Sava Henția, born on February 1, 1848, Sebesel, Alba, shows a particular inclination for drawing since the communal school. He studied at the School of Belle Arts in Bucharest, where he taught Gheorghe Tattarescu and Theodor Aman (Fig.1) (Artnet 2020, Wikipedia 2020).

Marked by academism, Henția considers the drawing, first of all, as a preparatory stage in the elaboration of a definitive work (which is why it never even displays drawings). And yet in the domain of graphics must be looked under artistic report some of the most valuable of his works. Spontaneous works, performed without the compulsion of obedience to requirements other than that of the artist's sincerity in the face of reason, the drawings revealed in this master of the line, beyond the ability to render the data of reality with maximum fidelity objectives, the gift of conveying a fresh emotion, a poetic feeling in the face of the natural manifesta-

tions of nature and life (Drăgoi 1979, 7.)

The artist's initial orientation towards academism (an expression to an extent of his temperament, of a certain conformism of his psychic structure) is primarily a tribute to the artistic atmosphere of the era, still dominated in us by the obstinate prestige of academism (and in Paris, the official art, in the horizon in which it consumes its efforts to complete the artistic formation, is dominated by the same orientation (Drăgoi 1979, 5).

Exhibited both in Bucharest in 1874, after returning to the country, these paintings were highly appreciated by the public of the time and even earned their author a medal "for mythological composition".

In the first part of its activity Sava Henția uses a language based on the value of line and volume, deepens the theme of anatomy and proportions of the human body, studies artistic composition, rendering the emotions of the woman's face, plasticity rendered with great sobriety. Gradually the painter

*Brukenthal National Museum, Sibiu, e-mail: celestina_romocian@yahoo.com

is interested in the possibilities of manifestation through color, changes his bill of execution through broken, fast coughs, building the forms with vibrancy in the desire to restore atmosphere and light. He devotedly wanted to be a creator of great compositions and made mythological-themed allegories, under the stylistic influence of Pierre Prud'hon, according to Mircea Popescu, which was characterized by velvety shadows from which he was bathed in a silvery light, teenage nude full of sensuality. He made in Paris the allegories *Psyche abandoned by Amor and Aurora* (Fig. 2).

He participated in the War of Independence (1877-1878), during which time he painted numerous campaign scenes, being considered a true war reporter.

Prevented by infirmity from being in the front lines, Sava Henția rarely has the opportunity to capture the enduring hypostases of the battles or the expression of the heroism of the soldiers of battle. As a true war reporter, however, he accompanies the troops, starting from Corabia, the gathering place of the Romanian troops, to Nicopolis; attention to the aspects characteristic of front life in the lull between two battles, shows a living interest in the life of Bulgarian peasants.

Like the other painters participating in the 1877 campaign, Nicolae Grigorescu, Carol Popp de Szathmári and G.D. Mirea make a series of historical paintings, performing scenes full of consequences for the destiny of a people.

The portraits were for Sava Henția one of the defining directions he went, in the pursuit of the realistic style he practiced. Can be identified some works in which the landscape has retained the artist, more than the action itself, the frames are rendered in great light, light is sometimes suggested by white interventions, most often by graphic processes, color being applied directly to the canvas, through spontaneous, rigorous coughs. Few of Sava Henția landscapes are pure, without any human presence in nature, how discreet that would be.

He did not follow Grigorescu's path, nor did Andreescu', who gave up the canons of workshop academism and escaped into nature, painting the beauties of Barbizon. He didn't, which somehow turned on his approach to landscape. But here, too, the painter found unsuspected resources to recover the handicap, confirming once again that he was able to approach any genre and any technique in his own way (Popa 2018, 496).

The portraits represented for Sava Henția, one of the defining directions that he went in the pursuit

of the realistic style he practiced. After his time as a corresponding painter of the War of 1877, Henția painted portraits predominantly until the end of his life. After returning from France he made a series of portraits, especially those from 1877 to 1884: the portrait of Dr. Marcovici, General Carol Davila and the most successful, of his wife. Ms. Davila is depicted in a national costume.

The best dead natures were made between 1870-1900 in which light is rendered differently, emphasizes the materiality of almost tactile objects, renders still nature with game, flowers and nature with fish. A vivid sense of the real also conveys the dead natures with flowers, works that together with portraits of children are the most suggestive for the lyrical vocation of painting artist. If in the first static natures with flowers (*Flowers* 1882, *Flower pots* -1887, *Liliac*-1894, *Roses* -1897), the decorative effect generated by the arrangement and description, savoury, of the appearance of the flowers, starting with *Apple Flowers* -1902 and *Flowers of Cherry* -1902, the painter sees himself less interested in arrangement and description, than in the poetic suggestion of a tender feeling, of warm intimacy, to which the gentle colours of the flowers offer an ideal support. (Drăgoi 1979, 23)

Plastic description of the painting "Apple flowers"

The bill of composition is light, organized vertically, renders sprigs of apple flowers in a ceramic dish that has the shape of a dark ochre amphora. The chromatic dominance of the background is dark neutral brown, the flowers rendered from spontaneous touches of white and pink, with accents of light red and sky blue are supported by leaves in shades of green (Fig. 5).

The size of the work is 78x51 cm, in the inventory register in the Brukenthal National Museum with no. 2290, in the Romanian art collection. Executed in the technique oil on canvas, rectangular in shape, the work consists of chassis, cloth support, primer, paint layer, varnish and is painted in a fashion folded in the academic style. The signature is on the bottom left, in red "S. Henthia 1902".

Description of conservation status before restoration

The chassis is a simple one, without sleepers, made of resinous wood, consisting of 4 perches joined at the corners in mortise and tenon. It is equipped with tension feathers, 8 in number from which a wedge is missing from the top right. At the top are

pasted 2 labels (one very little legible) and the second with the number 328. On the side wooden perch are marked the inventory numbers of museum 2290. The painting is made of a single piece of linseed material with small the fabric, is around caught with metal nails, arranged at a distance of about 9 cm.

The layer is applied in a demipaste manner, presents a network of cracks on the entire surface. In order to establish the state of preservation of the painting was researched in direct, light from one side and counter-jour light, ultraviolet light was also used. The aging of the materials is observed; the canvas is oxidized and deformed. At the bottom, the painting has scratches, loss of color to the support.

The varnish is applied in a thin, even layer, but due to time it has browned and lost its shine in some areas.

The frame is with profile showing scratches and losses.

Restore operations

Following the diagnosis we performed several stages of restoration.

The first stage of the restoration was the application of the Japanese paper on the entire pictorial surface with a rabbit glue 6%, this ensuring a temporary protection until doubling (Fig. 6). The canvas was removed from the chassis; the back was cleaned with the scalpel, the brushes from the natural hair and removed the dirt with the help of the vacuum cleaner (Fig. 7). We used for the operation of doubling a thermoplastic adhesive Beva 371, in the form of film, which has a thickness of 0.67mm. The work required duplicated because the original canvas was oxidized. Prolonged exposure of painting, ultraviolet (UV) rays is an important degradation factor (Fig. 8).

These rays present in light, are at the origin of the polymerization of the oils of paintings, which results in darkening due to photo-oxidation phenomena

and more generally, photochemical phenomena between different component materials (Baroni 1993, p. 43).

By the method of doubling with thermoplastic adhesive, we gave the original support degraded the initial flexibility. The cloth used for dubbing was from the flax with the same grain's, in this way, we followed one of the basic rules of the restoration, namely the compatibility of the materials. The cloth on the new chassis was also caught in metal staples to make contact between the cloth and the metal to reduce the formation of rust.

Today, some painters replace the nail with metal staples implanted with a bow gun – a modern solution dating back several decades. The staples cannot be blamed neither for the inefficiency or the alleged 'lack of elegance', their use being more convenient and anyway a matter of obtaining (Lăzărescu 1996, 63).

After doubling, I removed the Japanese paper and went through the cleaning tests.

Varnish solubility tests were performed on various surfaces, and it was therefore concluded that Solvanol is the best solution for the aging of the lake. In the filled areas, where the dirt entered the rough surfaces, I cleaned with the microscope and scalpel and a solution of water with ammonia.

The painting was puttying on areas with stratigraphic loopholes, grinding of puttying areas was carried out with cotton swabs moistened in lukewarm water. (Fig. 9).

Once the gaps are brought to the same level as the pictorial layer, the chromatic integration in the imitation style has been switched, invisible to the eye but can be easily highlighted with a UV light. Colors from the Maimeri Restauro range have been used, specially manufactured for this restoration operation: they are stable, respect the principle of reversibility, apply over the varnish layer and interact less with the original color layer (Fig. 12).

REFERENCES

- Moldoveanu, 2003 Aurel Moldoveanu – *Conservarea bunurilor culturale*, 2003
- Popa 2018 Cristian Popa, *În căutarea cenușăresei. Peisajul în opera pictorului Sava Henția (1848-1904)* Terra Sebus, 2018
- Drăgoi 1979 Livia Drăgoi, *Sava Henția*, Editura Meridiane, 1979
- Lăzăreanu, 1996 Liviu Lăzăreanu, *Pictura în ulei*, Editura Sigma plus 1996
- Popescu 1954 Mircea Popescu, *Sava Henția*, Editura de stat pentru literatură și artă 1954
- Baroni, 1993 Sandro Baroni *Restaurarea și conservarea tablourilor*, Paris, 1993.
- Artnet 2020 Artnet, *Sava Hentia (rumänisch, 1848 – 1904)* [online] available at: <http://www.artnet.de/künstler/sava-hentia/> [accessed 20 February 2020]
- Wikipedia 2020 Wikipedia (5 mai 2020), *Sava Henția*, [online] available at: https://ro.wikipedia.org/wiki/Sava_Henția [accessed 20 May 2020]

LIST OF ILLUSTRATIONS

1. *Portrait of Sava Henția* published in the journal *Familia*, no. 16, from 1883
2. *Psyche forsaken by Amor*, collection of the Brukenthal National Museum
3. *Pot with geraniums* -1897, private collection
4. *Spring flowers* -1879, private collection
5. *Apple flowers* -1902 collection of the Brukenthal National Museum
6. The application of the Japanese paper
7. The cleaning of the verso
8. Doubling of the canvas
9. Grouting operation
10. Assembly prior to restoration
11. Assembly prior to restoration, in UV light
12. Assembly after restoration

LISTA ILUSTRAȚIILOR

1. *Portretul lui Sava Henția* publicat în revista *Familia*, nr. 16, din 1883
2. *Psyche părăsită de Amor*, colecția Muzeului Național Brukenthal
3. *Ghiveci cu muscate* -1897 colecție privată
4. *Flori de primăvera* -1879, colecție privată
5. *Flori de măr* -1902 colecția Muzeului Național Brukenthal
6. Aplicarea foiței japoneze.
7. Curățirea versoului
8. În timpul operațiunii de dublare
9. În timpul operațiunii de chituire
10. Ansamblu înainte de restaurare
11. Ansamblu înainte de restaurare în lumină UV
12. Ansamblu după restaurare



1.



2.

1. *Portrait of Sava Henthia* published in the journal colecție privată, no. 16, from 1883
2. *Psyche forsaken by Amor*, collection of the Brukenthal National Museum



3 *Pot with geraniums* -1897



4. *Spring flowers* -1879



5. *Apple flowers* -1902



6. The application of the Japanese paper



7. The cleaning of the verso



8. Doubling of the canvas



9. Grouting operation



10. Assembly prior to restoration



11. Assembly prior to restoration, in UV light



12. Assembly after restoration

"ST. JOHN THE BAPTIST AS A CHILD" BY DAVID TENIERS THE YOUNG. THE AUTHOR - A PERFECT MASTER

Ilie MITREA*

Abstract: *David Teniers the Younger or David Teniers II (December 15, 1610 - April 25, 1690) was a Flemish painter. The painting I am talking about in this study is "St. John the Baptist as a Child". The support is a wooden panel made in the workshops in Antwerp, this is what the stamp on the back of the panel tells us. The shape of the paintings is oval. After the analysis on the compositional structure we found that the last number of Fibonacci in the gold section diagram is 987 (the unit of measurement of the number is mm and is related to the size of our work). The 1617 regulations of panel manufacturers in Antwerp state that members should contact the dean or keurmeester (inspector) to evaluate their panels for painting, and if accepted they were stamped with the Antwerp coat of arms: two hands above a castle.*

The work underwent previous restoration interventions. The panel was consolidated with the help of dowels and the other restoration interventions went normally as follows: consolidation, cleaning, grouting and chromatic integration. At the end the picture was varnished.

Keywords: *panel, wood, Antwerp, Teniers, monogram, numbers of Fibonacci, the golden section.*

Rezumat: *David Teniers cel tânăr sau David Teniers II (15 decembrie 1610 - 25 aprilie 1690) a fost un pictor flamand. Pictura despre care vorbim în acest studiu este Sf. Ioan copil. Suportul este un panou de lemn fabricat în atelierul din Antwerp acest lucru ni-l spune ștanța de pe spatele panoului. Forma picturii este ovală. După analiza asupra structurii compoziționale am constatat că ultimul număr al lui Fibonacci în schema secțiunii de aur este 987 (unitatea de măsură a numărului este mm și se raportează la dimensiunea lucrării noastre). Reglementările din 1617 ale producătorilor de panouri din Antwerp precizează că membrii ar trebui să contacteze decanul sau keurmeesterul (inspector) pentru a-și evalua panourile destinate picturii, iar dacă sunt acceptate se ștanțau cu stema Antwerp: două mâini deasupra unui castel.*

Lucrarea a suferit intervenții anterioare de restaurare. Panoul sa consolidat cu ajutorul tacheșilor iar celelalte intervenții de restaurare au decurs normal după cum urmează: consolidare, curățare, chituire și integrare cromatică. La final pictura a fost vernisată.

Cuvinte-cheie: *panou, lemn, Antwerp, Teniers, monogramă, numerele lui Fibonacci, secțiunea de aur.*

David Teniers the Young, or David Teniers II (15 December 1610 – 25 April 1690) (Fig. 3) was a Flemish painter. Teniers was born in Antwerp as the son of David Teniers the Elder and Dymphna of Wilde. His father was a painter too. Three of his brothers also became painters: Juliaan III (1616-1679), Theodoor (1619-1697) and Abraham (1629-1670). His two older brothers' artworks are virtually unknown. His younger brother Abraham's work was very close to David's. From 1626, young David studied under his father coordination. He collaborated with his father from the beginning of his career. The father and son pair created together a

series of twelve panels that tell stories from Torquato Tasso's epic *Gerusalemme Liberata* (Museo del Prado, Madrid).

Regarding his personal life, Teniers the Young married Anna Brueghel, daughter of Jan Brueghel the Elder. Rubens became Anna Brueghel's guardian after her father's death, so Teniers was able to cement a close relationship with the great Flemish artist. During this period, Teniers began to earn his reputation as an artist and received numerous orders.

He was an innovator in a wide range of genres such as history painting, genre painting, land-

* Brukenthal National Museum, Sibiu, e-mail: iliemitrea@yahoo.com

scape painting, portrait and still life. Nowadays, he is the most remembered Flemish painter of his time. Teniers is also best known for the development of the peasant genre (Chilvers 2003, 584), tavern scene, images of collections and scenes of alchemists and doctors. He was a court painter and curator of the collection of Archduke Leopold Wilhelm, art lover and Governor General of the Netherlands. He was the founder of the Antwerp Academy, where young artists were trained to draw and sculpt hoping to revive the Flemish art, after its decline which followed the death of Flemish artist leaders Rubens and Anthony van Dyck in the early 1640s. He influenced the next generation of Nordic-gender painters, as well as French rococo painters such as Antoine Watteau.

In 1632–33 he was registered as *wijnmeester* (i.e. the son of a master) in the guild of St. Luke of Antwerp (Wadum 2009, 184). In 1644–1645 he was dean of the guild of Saint Luke. The artist probably travelled to England on 29 December 1635, in the same year, and he signed a contract with Antwerp art dealer Chrisostomos van Immerseel, resident in England, at Dover.

Teniers also painted for Philip IV of Spain, and was invited to participate in a project that involved Jacob Jordaens, Cornelis de Vos, Jan Cossiers, Peter Snayers and other painters of the time. Among the other distinguished patrons was Queen Christina of Sweden, and various nobles, and his success brought him considerable wealth (Wikipedia 2020).

Unique composition

The painting (Fig.1) from the Brukenthal National Museum collections has an unusual composition for that period of art history (Fig.4, 5 and 6). It's (Fig.1) stands out through several aspects such as: the theme executed by the artist, the support and the form. The image depicts St. John as a child, standing near a lamb, taking water from a spring. The support is a wooden panel manufactured in the workshops in Antwerp. The painting shape is oval; the support itself is cut in oval (Fig. 2). Figure 1 represents an open composition, more precisely a landscape with a character in the foreground and a lamb. The connection between the animal and the character is made by the presence of vegetables (radishes, kohlrabi, pumpkins, etc.). Taking in consideration the detail of these radishes and kohlrabi's, and abstracting them from the rest of the composition, we observe a static nature of self-repute. The work is painted in the spirit of the time, with coloured tones and greys which gives a rather dark appearance. The dynamics of the paint-

ing are stated by the gesture of the character and part of the landscape. (St. John takes water from a spring). Surprising, the character is not paying attention to what he is doing; his eyes are directed toward the viewer.

Warm colours predominate throughout the painting although; on the upper right we get cold shades describing the sky of the landscape.

It's a vertical composition. Although the descending diagonal of the composition is supported only by the main character and the sky, it seems to be stronger than the descending one, which is supported by the whole compositional ensemble such as: animal, vegetables and character.

Following the studying the golden section and the numbers of Fibonacci (Wikipedia 2020b) (Bouleau 2014, 187-240) (Fig.7) we have found that the present composition use this scheme and falls within it. After analysing the compositional structure (Fig.8) we found that the last number of Fibonacci in the golden section scheme is 987 (the unit of measurement of the number is mm and relates to the size of our work).

Unpredictable base support

Wood as a support for painting is generally unpredictable. It is a material that works over time, so its well-being depends on temperature and humidity, but also by the master who designed it (Dardes, Rothe 1988, 154). For this type of support it is very important to take into consideration when it was cut, how it was cut and how it was prepared. Here, we have a support consisting of 3 pieces of oak wood, glued together with a natural adhesive composed of animal glue. In the making process, the traverses were not added to the panel to give greater strength to the junctions. It is a wooden panel with dimensions of 69 cm by 93.5 cm and thickness of 1.2 cm, made in the workshops of Antwerp, this I can say with certainty because of the mark that the panel has on the back (Fig.2).

The 1617 panel manufacturers' regulations in Antwerp state that members should contact the dean or the *keurmeester* (inspector) to evaluate their panels for painters and, if accepted, subsequently issued with the Antwerp coat of arms: two hands above a castle (Stoner, Rushfield 2012, 95-96). If, however, defects were observed in the wood, it was the duty of the deans to break the defective panel, although there are numerous examples of approved panels that had one or more defects. Before approving and marking the panels, the panel manufacturer was obliged to print his personal mark -

monogram or homemade mark - in the panel wood (Wadum, 2015).

From a study made by Jorgen Wadum *The Antwerp Brand on Paintings on Panel* (Wadum 1998, 179-185) I have discovered that the brands have a wide variety of towers and hand shapes that are due to the numerous tools used. The guild documents from 1663 mention: "... the old container with the painted shield of Saint Luke, in which are kept the branded punching tool (plural!) with which the works of the manufacturers will be signed and marked ... ". The number of guild punching tool that were in circulation at one time is unknown, but so far we have registered 18 different marks used on panels dating from c. 1600 to 1650. During the evaluation, the information on more than 500 panels and their different marks indicate the Antwerp coat of arms of the manufacturers and the letter A. Based on the data available from the registration of the panels with the Antwerp brand on the back, we can now assume that several stamps were already available in 1617, when the regulations on the mark were established. The iron with no. 1 to 4 are the first, remaining in use until 1620 or at the latest 1630. Around 1620 three rooms were introduced ex. 6 and 7, being used until 1640. Stamps 8A, 9, loA & loB seem to have been introduced in the second half of the 1620s, and are used for about the next ten years. Stamps such as 8B, IIA, 12, IIB and IIE deduce that they are the newest marks to be issued between 1630 and 1638. Three of these marks are in use in 1650, after this date we have no reliable records of the practice of branding panels.

Here are some examples of monograms that were part of the Antwerp panel makers' guild: a clover leaf, the house brand belonging to panel maker Michiel Claessens. The clover leaf was recorded on a series of European picture panels which were all produced in the workshop of the house called Het Gouden Klaverblad in Korte Gasthuisstraat in Antwerp, between 1590 and 1637. The design of the Antwerp brand on our panel could determine the production period 1618-1626.

Another monogram consists of a six-pointed star has been used by a panel manufacturer in Antwerp that has activated in the interval 1619-1650 and is not yet identified.

In addition to the above cases, another monogram is identified: "GA" (interconnected). This mark was engraved on several panels used by Jan Brueghel I and his circle from 1598. The manufacturer can be identified as Guiliam Aertssen (active 1612 – after 1626) (Wadum 1998, 190-198).

A significant study about the panels in Antwerp can be found in a publication that talks about Christian IV's winter room at Rosenborg Castle (Wadum 2015).

Restoration of the painting

After preparing the photographic documentation and analysing the work in direct light, radiant light and under UV lamp, the state of conservation of the painting is as follows: the wood panel has slight curves on the sides, which show that the wood fibres are placed vertically. The consolidation of the panel on the back, no longer fulfils its function, detachments between the original panel and the traverses can be observed. The work underwent previous restoration interventions. The panel was reinforced on the back twice – were applied the first time, four oak traverses with a width of about 11 cm, and the second time, 4 firs wood traverses with a width of 6 cm and a thickness of 2 cm. Chromatic integrations are also observed on the face of the painting. Like any other painting that has not entered a restoration laboratory, it has adherent dirt and traces of dust on the entire painted surface and on the back. The varnish layer is aged. The panel is composed of 3 pieces of wood and one of the biggest problems is the crack on the right side of the junction between the central piece and the right side of the panel.

The process of restoration took place according to the norms and without involving certain special actions. The painting was dusted with soft brushes, and then Japanese paper was used to consolidate on the cracked area. I chose to remove the traverses (Fig.9) from the back to give the panel another type of consolidation. This was done with a saw, chisel and scalpel. The consolidation of the panel was done with the help of 10 pieces of oak wood (Fig. 10) having the dimensions: width 1.6 cm, length 7 cm and thickness 0.8 cm. These were glued with rabbit glue with a concentration of 30% on the joint areas of the panel.

After consolidating the wood panel (Paul 1995, 195-197), I moved on to the next stage, which consists in removal of Japanese paper and the cleaning of adherent dirt and varnish. The cleaning was performed with a 2% concentration ammonia water and a solution of acetone and white spirit (80% / 20%). Filling of the gaps was needed on very small areas of the crack. This was done with putty composed of 8% rabbit glue + mountain chalk. After sanding and smoothing the excess putty, the chromatic integration in watercolour was conducted (Winsor & Newton). The integration in watercolour was followed by the total varnishing of the

works, this operation being performed with the brush using a Regal Varnish Mat -1094 + Gloss-1263 varnish. Chromatic integration in varnish colours (Maimeri Restauro) was achieved after drying the varnish applied with the brush. After the end of the integrations in varnish colours, a final varnish of aerosol type (Brillant-Gloss Lefranc & Bourgeois) was necessary.

The frame of the work needed a completion of two of the ornaments on the corners (Fig. 11), and after their realization the painting was fixed in the frame and at the moment the painting can be viewed in the European Art Gallery of the Brukenthal National Museum.

REFERENCES

- Bouleau 2014 Charles Bouleau, *The Painter's Secret Geometry: A Study of Composition in Art*, Dover Publications Inc, US, 2014 [pdf]
- Chilvers Chilvers, Ian, *The Concise Dictionary of Art & Artists*, 3rd ed., Oxford University Press, New York, 2003
- Dardes, Rothe 1988 Dardes, Kathleen, and Andrea Rothe, eds. 1998. *The Structural Conservation of Panel Paintings: Proceedings of a Symposium at the J. Paul Getty Museum, 24-28 April 1995* Los Angeles, CA: Getty Conservation Institute. 'Part Two: History of Panel-Making Techniques'. Pages 109-185 [pdf] available at: http://hdl.handle.net/10020/gci_pubs/panelpaintings
- Stoner, Rushfield 2012 Joyce Hill Stoner, Rebecca Rushfield, *Conservation of Easel Paintings*, Routledge Taylor & Francis Group, London and New York, 2012,
- Wadum 1998 J. Wadum, 'The Antwerp Brand on Paintings on Panels', in *Looking Through Paintings. The Study of Painting Techniques and Materials in Support of Art Historical Research*. E. Hermens (ed.), Leids Kunsthistorisch Jaarboek XI, (1998).
- Wadum 2009 J. Wadum, *Technical art history : painters' supports and studio practices of Rembrandt, Dou and Vermeer*, 'Looking through Painting, The study of Paintings Technique and Materials in support of Art Historical Research, 2009 [pdf] available at: https://pure.uva.nl/ws/files/748091/66760_07.pdf
- Wadum 2015 J. Wadum, (04 May 2015) *Panel Makers' Marks and Frames* 'Christian IV's Winter Room and Studiolo at Rosenborg Castle' [online] available at: <http://gersondenmark.rkdmonographs.nl> [Accessed 19 August 2020]
- Wikipedia 2020 Wikipedia (28 August 2020), *David Teniers the Younger*, [online] available at: https://en.wikipedia.org/wiki/David_Teniers_the_Younger [Accessed 31 August 2020]
- Wikipedia 2020b Wikipedia (10 July 2020) *Fibonacci number* [online] available at: https://en.wikipedia.org/wiki/Fibonacci_number [Accessed 20 August 2020]
- Bouleau 2014 Charles Bouleau, *The Painter's Secret Geometry: A Study of Composition in Art*, Dover Publications Inc, US, 2014 [pdf]

LIST OF ILLUSTRATIONS

1. Front *John the Baptist Child*, Brukenthal National Museum, Romania
2. Back *John the Baptist Child*, Brukenthal National Museum, Romania
3. *Painter David Teniers*, Private collection
4. *Child St. John*, Ciro Ferri, private collection
5. *John the Baptist Child*, Bartolome Esteban Murillo, Prado Museum, Spain
6. *John the Baptist Child*, Bartolome Esteban Murillo, Kunsthistorisches Museum Wien, Austria
7. Fibonacci numbers
8. The golden section on *John the Baptist Child* by David Tenier
9. Removal of the crossbar
10. Removal of the crossbar
11. Frame ornament detail

LISTA ILUSTRAȚIILOR

1. *Sf. Ioan Botezatorul copil* (față), Muzeul Național Brukenthal, România
2. *Sf. Ioan Botezatorul copil* (Spate), Muzeul Național Brukenthal, România
3. *Pictorul David Teniers cel Tânăr*, colecție privată
4. *Sf. Ioan copil* de artistul Ciro Ferri, colecție privată Italia
5. *Sf. Ioan Botezatorul copil* de artistul B. Esteban Murillo, muzeul Prado, Spania
6. *Sf. Ioan Botezatorul copil* de artistul B. Esteban Murillo, Kunsthistorisches Museum Wien, Austria
7. Numerele lui Fibonacci
8. Secțiunea de aur aplicată pe pictura Ioan Botezatorul Copil de David Teniers
9. Îndepărtarea traverselor (Detaliu spate)
10. Confectionarea tachețiilor și îndepărtarea vechilor traverse
11. Ornament floare de pe ramă



1.



2.



3.

1. Front *John the Baptist Child*, Brukenthal National Museum, Romania
2. Back *John the Baptist Child*, Brukenthal National Museum, Romania
3. Painter David Teniers, Private collection



4.



5.



6.

4. *Child St. John*, Ciro Ferri, private collection
5. *John the Baptist Child*, Bartolome Esteban Murillo, Prado Museum, Spain
6. *John the Baptist Child*, Bartolome Esteban Murillo, Kunsthistorisches Museum Wien, Austria

Șirul lui Fibonacci:

Start: 0 și 1
 $0 + 1 = 1$
 $1 + 1 = 2$
 $2 + 1 = 3$
 $3 + 2 = 5$
 $5 + 3 = 8$
 $8 + 5 = 13$
 $13 + 8 = 21$
 $21 + 13 = 34$
 $34 + 21 = 55$
 $55 + 34 = 89$
 $89 + 55 = 144$
 $144 + 89 = 233$
 $233 + 144 = 377$
 $377 + 233 = 610$
 $610 + 377 = 987$
 $987 + 610 = 1597$
 $1597 + 987 = 2584$
 $2584 + 1597 = 4181$
 $4181 + 2584 = 6765$
 $6765 + 4181 = 10946$

Raportul de aur, sau numărul $\Phi = 1,61803...$

$2 : 1 = 2$
 $3 : 2 = 1,5$
 $5 : 3 = 1,6666$
 $8 : 5 = 1,6$
 $13 : 8 = 1,625$
 $21 : 13 = 1,6153$
 $34 : 21 = 1,6190$
 $55 : 34 = 1,6176$
 $89 : 55 = 1,6181$
 $144 : 89 = 1,6179$
 $233 : 144 = 1,61803$
 $377 : 233 = 1,61803$
 $610 : 377 = 1,61803$
 $987 : 610 = 1,61803$
 $1597 : 987 = 1,61803$
 $2584 : 1587 = 1,61803$
 $4181 : 2584 = 1,61803$
 $6765 : 4181 = 1,61803$
 $10946 : 6765 = 1,61803$

Numărul Φ se obține împărțind un element al Șirului lui Fibonacci la precedentul său.

7. Fibonacci numbers



8. The golden section on John the Baptist Child by David Tenier



9 Removal of the crossbar



10. Removal of the crossbar



11 Frame ornament detail

SOME REMARKS ON A RECENTLY RESTORED STILL LIFE WITH FLOWERS AND INSECTS BY JAN VAN KESSEL THE ELDER AND ON OTHER WORKS BY HIM FROM THE BRUKENTHAL NATIONAL MUSEUM'S COLLECTION

Alexandru Gh. SONOC*

Andrei POPA **

Abstract: By conservation, the painting *Bouquet with roses* by Jan van Kessel the Elder regained its original splendour, which allowed a better understanding of its hidden meaning: that the sexual predators are attracted by their prey's frivolity and, as a consequence, a wise person should avoid to act not only as a predator, but also as a prey. This less known still life can be better compared now with other works of this famous Flemish artist, among which should be as well the other two works on oak panel signed by him from the Brukenthal National Museum's collection: a recently restored garland of flowers surrounding the Nativity scene and another but smaller still life with flowers and insects, whose conservation will be finished soon. The author of the two recently restored miniatures on copper from the same museum's collection, depicting each of them (but less precisely and skilfully) two parrots on swags of flowers, fruits and vegetables seems to be rather an imitator of „the other” Jan van Kessel.

Keywords: Jan van Kessel the Elder, still life with flowers and insects, cleaning, excessive puttying, photography in UV light, microscopic photography.

Rezumat: Prin restaurare, tabloul *Buchet cu trandafiri* de Jan van Kessel cel Bătrân și-a recăștigat splendoarea originală, ceea ce a permis o mai bună înțelegere a semnificației sale ascunse: că prădătorii sexuali sunt atrași de frivolitatea prăzii lor și, în consecință, o persoană înțeleaptă ar trebui să evite să acționeze nu numai ca prădător, ci și ca pradă. Această natură moartă mai puțin cunoscută poate fi mai bine comparată acum cu alte lucrări ale acestui vestit artist flamand, printre care ar trebui să fie și celelalte două lucrări de același artist din colecția Muzeului Național Brukenthal: o recent restaurată ghirlandă cu flori înconjurând scena Nașterii Domnului și o altă natură moartă cu flori și insecte, a cărei restaurare se va încheia curând. Autorul celor două miniaturi pe cupru recent restaurate din colecția aceluiași muzeu, înfățișând pe fiecare dintre ele (dar mai puțin precis și cu mai puțină iscusință) doi papagali pe ghirlande de flori, fructe și legume, pare a fi mai curând un imitator al „celuilalt” Jan van Kessel.

Cuvinte-cheie: Jan van Kessel cel Bătrân, natură moartă cu flori și insecte, curățire, chituire excesivă, fotografiere în lumină UV, fotografiere microscopică.

In the Brukenthal National Museum's collection there are 3 paintings on oak panel by Jan van Kessel the Elder, in different conditions of preservation: *Bouquet with roses* (39 x 26.5 cm; inv. nr. 636; signed right lower: *Joann: v. Kessel*; Fig. 7), *Bouquet with a cockchafer* (24.7 x 19 cm; inv. 637; signed on the table's edge: *J. v. Kessel. f.*; Fig. 14) and *A flower garland with the birth of Christ* (44 x 33.5 cm; inv. 638; signed and dated in the middle lower: *J. v. K. h. fecit A° 1654*; Fig. 17). The latter was restored some years ago by Ilie Mitrea, in

order to take part in the exhibition organized at Het Noordbrabants Museum in 's-Hertogenbosch, Netherlands (June 18 – October 10, 2016), which was curated by Paul Huys Janssen, Alexandru Gh. Sonoc and Adrian Luca (Janssen *et al.* 2016, 102-103). To these still lifes on panel can be added 2 small paintings on copper previously considered to be in the manner of one of the van Kessel painters, which were restored also recently (in 2018), by Cristina Fău, in order to be permanently exhibited: *Still life with a red and a yellow parrot* (13 x 16.3

*Brukenthal National Museum, Sibiu, e-mail: sandysonoc@yahoo.com

**Brukenthal National Museum, Sibiu, e-mail: andrei_kokelburg@yahoo.com

cm; inv. 639; Fig. 21) and *Still life with green parrots* (12.8 x 16 cm; inv. 649; Fig. 22).

In October 2019, *Bouquet with roses* was in a poorer condition of preservation than the other still life with flowers and insects painted on oak panel. Therefore, it was the first to be brought to the museum's Laboratory for Painting Conservation, where it was restored by Andrei Popa. This painting's sculpted Baroque frame, dating maybe since late 18th c. (but modified in the second half of the 19th or rather during the 20th c., when all its four L-shaped corner appendices were cut off) was conserved by Victor Turcu.

1. The painting's conservation.

The panel on which the work *Bouquet with roses* is painted shows an old break in two parts, which were reunited, most likely in 1899, on the occasion of the only known previous conservation (Csaki 1901, 171, cat. nr. 617; Csaki 1909, 190, cat. nr. 636), when the conservator secured the panel by adding on its backside a massive Florentine cradle. Being so severely damaged, the painting's conservation was done in Vienna, by Eduard Gerisch, Imperial Councillor and Custodian at the Imperial and Royal Academy of Fine Arts. For a flat rate of 10,000 Austro-Hungarian crowns (Csaki 1921, 29), he restored during 1896-1899 not less than 879 paintings from the Brukenthal Museum's collection, of them 299 in Vienna (and of which 245 had to be lined) and 580 right in the museum's gallery, during July – September 1897 (Csaki 1901, IV; Csaki 1921, 29). After the cradle was mounted, on it was transferred an old gallery label written with iron gall ink, with the Gallery text *Niederländische Schule* (meaning „Dutch School” in German) and two old gallery numbers (*No 182*, barred and a new one replacing the former, namely 278). The latter number corresponds to that under which this painting is mentioned in the 1893 edition of the Brukenthal Museum's gallery guide (Führer 1893, 34, cat. nr. 278). The consolidation work was done very well and no further damages appeared. To fix the panel in its frame were used as usual at that time smaller iron nails. However, during the 20th c. the panel needed to be fixed in the frame, using two clamps improvised from two pieces of aluminium strip. During the 20th c. were added two small labels with the new gallery (and inventory number) 636, printed with red ink and a typed label in Romanian, printed with black ink, containing some information about the work: school, name and lifespan of the author, title (in German as well), dimensions, inventory number.

The main problems for which the conservation of this painting was asked were of various nature: it was improperly mounted in its frame, of which the *passe-partout* was detached (Fig. 1 and Fig. 2), in the upper right corner of the panel there was a large gap (caused by a historical xylophagous attack) and the work had an unpleasant general appearance, caused by the yellowed varnish, following natural aging processes (Hill Stoner, Rushfield 2012, 214), by the presence of dust and dirt, as well as by excessive puttying or by the colour change in the retouches (Hill Stoner, Rushfield 2012, 215).

The restoration began with the removal of dust and subsequently cleaning tests were performed (Hill Stoner, Rushfield 2012, 537). The rosin varnish could be best removed with a solution of ethanol and turpentine in equal parts (Hill Stoner, Rushfield 2012, 527, 541; Knut 1999, 342). Further action was taken on the excess putty, which was very well highlighted, like the repainting, during the exposure of the work to UV light (Fig. 3) (Hill Stoner, Rushfield 2012, 294). The removal of putty was risky, because it was harder than the original painting layers it covered and which therefore could have been affected if performing a solvent cleaning. This putty was present in consistent quantities, especially in the area where the two reattached panel parts joined, because after they were glued a small level difference remained between them, and the putty applied in this area covered the original painting layers. The cleaning of the excessive putty was performed under a microscope (Hill Stoner, Rushfield 2012, 306), using a scalpel and was done very carefully, in order to avoid that the original layers of painting could be affected.

Working under the microscope, the historical retouches on the areas where flowers are painted, respectively on the areas with tones containing white lead (basic lead carbonate) had to be removed as well with the scalpel. They were then treated with ammonium hydroxide applied with cotton buds, in order to remove any traces of dirt.

More delicate problems posed the cleaning of the dark areas of the painting, where there was some historical repainting, made in the technique of glazes and containing resins in their composition, which required a very careful cleaning (Nicolaus 1999, 356) and constant checking under UV light. In areas where the original colour is sensitive, it was chosen to have only to thin the repainting, so that the initial tones (preserved in fragments, with

many abrasions) are not affected even more (Fig. 4).

During this stage, it was possible to study, under the microscope, the very finely made signature known to exist on the edge of the niche in which the vase with the bouquet is placed, but which even after conservation is barely perceptible with the naked eye. The study of the microscopic photography taken on this occasion confirms the attribution of the work to an artist from the Lower Countries, named Jan van Kessel (Fig. 5a-b), who signed using a Latinized form of his first name: *Joann: v. Kessel*. This signature, which was already noted and mentioned in the first half of the 19th c. (Die Gemälde- Galerie 1844, 44, cat. nr. 36), generated later divergent opinions about the real identity of the author of the work (Führer 1893, 34, cat. nr. 278; Frimmel 1894, 15 and 49, cat. nr. 278). After only a few years, on the occasion of the painting's conservation performed in 1899, the signature was overpainted, considering probably that there is no reason to doubt the attribution of this work to Jan van Kessel the Elder. Consequently, the signature is only mentioned in the 1901 and 1909 editions of the Brukenthal Museum's gallery guide (Csaki 1901, 171, cat. nr. 617; Csaki 1909, 190, cat. nr. 636), without to be reproduced in facsimile in the 1909 edition. Actually, at that stage of the research the artistic personality of the various artists named Jan van Kessel was insufficiently known. As it was emphasized mostly very recently (Ertz, Nitze-Ertz 2012), this situation generated worldwide a series of confusions in the attribution both of their works and of their imitators' ones. Regarding the two anonymous copper miniatures on copper from the Brukenthal National Museum's collection, which were mentioned above as considered to be in the manner of one of the van Kessel painters, the confusion still persists, in a certain measure. Therefore, the rediscovery of the signature on the painting *Bouquet with roses* offered the opportunity to verify the current attribution of this work not only on stylistic criteria, as before, but also by a graphic analysis of the signatures on all three signed works on panel from this museum's collection attributed to Jan van Kessel the Elder, all of which come from the old collection of Baron Samuel von Brukenthal and even to review, on stylistic criteria, the attribution of the two anonymous miniatures on copper, which did not previously belong to the baron's collection.

Therefore, on the signature's area in *Bouquet with roses*, the cleaning of the repainting which covered it was done only partially, only as long as the letters needed to be brought to light, and with great care, so as they should not to be affected by the cleaning. After each step, the solvent-treated areas were neutralized with a solution of flaxseed oil and turpentine in equal parts.

For the conservator, the cleaning work was very exciting, due to the painting's great artistic quality and to the surprising results revealed by the microscopic examination of the signature and of various flowers' and insects' details. The whole operation was performed with increased precision, aroused by a great admiration for such an old and valuable painting.

The next required operation were the consolidation of the wooden support in the gap's area with a skin glue solution (in a concentration of 8 %), followed by the volumetric completion (Hill Stoner, Rushfield 2012, 470), which was performed with Balsite, a two-component (Balsite K + Balsite W) epoxy-based putty.

After this, the gaps where filled with putty consisting of 7% rabbit-skin glue solution and mountain chalk (Knut 1999, 237) and after drying they were polished using wet cotton buds, in order to remove the excess of putty, then was made a chromatic integration of the puttied areas using watercolours (Knut 1999, 260). A general varnishing of the work was made using dammar varnish applied with the brush (Hill Stoner, Rushfield 2012, 217). After the varnish dried, was made another chromatic integration (Fig. 6), with retouching colours (Knut 1999, 274, 276).

At the end, the work was properly mounted in the frame, with large size metallic fix plates (from Deffner & Johann) and using protection material against abrasions in the areas where the frame comes in contact with the painting layers (Fig. 7).

(Andrei Popa)

2. The description of the work. Its presumed symbolic meaning and remarks on its date.

The work (Fig. 7), which as mentioned is signed *Joann: v. Kessel* on right lower, comes from the former collection of Baron Samuel von Brukenthal (1721-1803), the museum's founder, but due to its condition of preservation it was less exhibited and studied during the second half of the 20th c. The

mentioned signature was noted already during the collector's lifetime, as resulting from his gallery's handwritten catalogue (c. 1800) and the first printed gallery guide mentioned it as well and assigned the work to Jan van Kessel, but without more precise remarks about the identity of the painter (Die Gemälde- Galerie 1844, 44, cat. nr. 36). In the 1893 edition of the gallery's guide the work is attributed to Jan van Kessel the Younger (Führer 1893, 34, cat. nr. 278). Considering Theodor von Frimmel's opinion (Frimmel 1894, 15 and 49, cat. nr. 278), since the 1901 edition of the Brukenthal Gallery's guide the work is assigned to Jan van Kessel the Elder (Csaki 1901, 171, cat. nr. 617; Csaki 1909, 190, cat. nr. 636; Csaki 1926, 17, cat. nr. 636; Spek 1941, 21, cat. nr. 636). However, due to the work's poor condition of preservation and especially because of the dirt and to the aged varnish, the painter's signature could not be seen almost at all before the conservation of the painting, as many other relevant details (the niche, various parasites on the plants, specific details of the insects).

In a glass carafe placed in a niche, there is a bouquet of flowers, consisting of 4 roses (*Rosa sp.*), among which 2 are white and 2 are pink, 4 white daffodils (*Narcissus sp.*), an European Michaelmas daisy (*Aster amellus*) behind the upper white rose (Fig. 8d), a Mexican morning glory (*Ipomoea tricolor*) with a bud, two David's lilies (*Lilium davidii*) and a tulip (*Tulipa sp.*), which rises above all the other flowers (Fig. 9). To the right, next to the Mexican morning glory, there is an orange flower, most likely a pot marigold (*Calendula officinalis*), also with buds (Fig. 9). On the left, above a daffodil, there is a white cabbage butterfly (*Pieris brassicae*) (Fig. 8b) and on the shaft of another daffodil, which is rising above the others, there is a red larva. Above the bouquet, also on the left, but on the niche's edge, rests a female butterfly of the species known by the vernacular name „orange tip” (*Anthocaris cardamines*) (Fig. 8a), and in the middle, next to a pink rose, stands a butterfly of another species, known by the vernacular name „red admiral” (*Vanessa atalanta*) (Fig. 8c). On the right, a butterfly of another species is depicted sitting on a leaf, above one of the two David's lilies. On the leaf of one of these lilies there is a caterpillar (Fig. 9), and on one of the white roses a beetle with elytra (harder forewings) of dark pink colour, bearing each of them a brown dot (Fig. 8d). On the right, on a rose leaf, there are two red larvae. Lower, on the niche's bottom, on the left, there is an European cockchafer (*Melolontha sp.*) (Fig. 8e) and on the right another beetle (whose

species seems more difficult to be ascertained, although of a size similar to that of a cockchafer), which seems trying to escape from a small puddle in which it is trapped (Fig. 8f).

For a better understanding of the composition's symbolic meaning, it is important to determine as accurately as possible both the flower species and the insects depicted by Jan van Kessel the Elder, because he painted different kinds of insects with almost scientific accuracy, relying on illustrations in scientific books on entomology as well as even on real insects. Thus, his paintings reflects the sense of curiosity, discovery, wonder, as well as the urge to collect that led in his very time to the creation of many cabinets of art and curiosities. For this reason, the artist's works are in no way inferior to those produced by Maria Sibylla Merian (1647-1717) and later by August Johann Rösel von Rosenhof (1705-1759). Indeed, although there were few works on the rendering of insects in fine art works (Schimitschek 1977), Anni Sinreich accounted no less than 32 species of insects on only 7 works exhibited in 1980 in the Palais des Beaux Arts of Brussels (Sinreich 1981).

However, in respect of their significance for the Dutch and Flemish culture, about the most of the depicted insects can be said less than about the cockchafer, which is a well-known species in western Europe, although nowadays in many areas it is much rarer than it was a few decades ago, before the extensive use of chemicals in agriculture and forestry. In that old days, the cockchafer was very common in the Netherlands, where due to its harmless nature (as it cannot bite or sting humans) this beetle was a popular kind of „toy” for young people. Thus, a leg of the beetle was tied to a string after which the cockchafer was „released” and the one whose beetle flies the highest has won according to the rules. In another game, the beetle was taken in hand, after which was spelled the phrase: „*Mulderke, mulderke tel oe geld en leer ons toch eens vliegen – anders komen de dieven, die nemen oe dan mee en gooien oe dan in de zee*” (meaning: „Count money and teach us how to fly – otherwise will come the thieves, who take you and throw you in the sea”). The beetles then flew out of control, an explanation for this being that the beetles became more active due to the heat released by the hands. (For the use of cockchafer in games by Dutch children and young people: Van der Donk, Van Gerwen 1981, 134). The quoted phrase can be explained by the fact that despite to the major problems caused to the agriculture, to the forestry and to the lawns by a large number of this beetles,

in the Lower Countries the cockchafer is the traditional symbol of prosperity (sometimes understood more precisely to be based on parsimony), as resulting as well from the sayings „*Een meikeverjaar – een goed / productief jaar*” (meaning: „A cockchafer year – a good / productive year”) and „*Tellen als een mei-kever – zeer nauwkeurig / gierig kunnen tellen*” (meaning: „To count as a cockchafer – to can count very accurately / stingy”). The explanation for the last saying may be the folk belief that this beetle knows exactly when to rise from the ground (in May and not in April, when it is too cold), according to a Flemish proverb from Brabant: „*Ne meikever in april, is ne zot die niet weet wat hij wil*” (meaning: „A cockchafer in April, is a fool who doesn't know what he wants”). Due to its taste recalling that of crayfish, in Germany, Luxembourg and France the cockchafer was considered till mid-20th c. an edible insect (Hauer 2005, 122-123; Massard 2007), a source of cheap food, suitable thus both for stingy people and for the poor ones.

The depicted flowers are of various origins, but widely naturalised in north-western Europe since the 16th c. (excepting only the roses, which were cultivated at first in Antiquity and early Middle Age in southern Europe, Middle East and north-western Africa, but later in other European regions too): the daffodils are native to southern Europe and North Africa (particularly in the Iberian Peninsula, where there is a great diversity of them), the tulips are spread from southern Europe and Central Asia and to the Middle East (but the cultivated ones came from Anatolia and Central Asia), the pot marigold is native to southern Europe, the Mexican morning glory is native to Mexico and the David's lily to north-eastern India as well as to western and central China. Only the European Michaelmas daisy is a flower which grows in rocky limy areas, the edges of the bushes and copses, but also the sub-alpine meadows, marshy places and lake sides in most European mountain regions (in the Pyrenees, in the Alps, in the Carpathians, in the Balkans and in the Caucasus), as well as in Anatolia, Siberia and Central Asia or is cultivated in parks and gardens. Excepting the daffodils, which can be considered also among the mid-spring flowers, the others are rather late spring and summer flowers, some of them being in blossom even in early autumn, till mid-October.

Some of these plants have edible flowers, like the rose, the pot marigold and the tulip or bulbs, like the David's lily (for some of the mentioned edible

plants: Bissell 2012; Tepe 2013, 155; Lim 2014, 70) and some of them were used in the traditional medicine (as the rose and the daffodils) or are still used even nowadays, in the modern pharmacology (as the pot marigold). Some are known to have toxic parts (like the bulbs of the daffodils and of the tulips as well as the seeds of the Mexican morning glory). Especially the latter should be noted, due to their entheogenic properties, which made them used in traditional rituals of various native Mesoamerican cultures (Carod-Artal 2015), although this aspect may have been less known to a Flemish still life painter like Jan van Kessel the Elder. However, it is obviously that there is an ambivalence of the depicted plants: they are beautiful, some of them are also useful, but never should be forgotten that under beauty can be hidden a mortal danger.

Most of the flowers have also a symbolic meaning, which may be different in some European and Oriental cultures and even in a certain European region (as in the Netherlands, for instance), but may explain their choice and their position in the bouquet depicted by Jan van Kessel the Elder. The artist may have emphasized the tulip because the Dutch regarded its lack of scent as a virtue, as it demonstrates the flower's chasteness (Pollan 2002, 95). Obviously, the artist seems to have known this Dutch folkloric belief, as no insect is rendered sitting on the tulip or attracted by it and no caterpillar or insect is feeding on it, unlike about the roses, the daffodils and even the lilies, which are cherished not only for their look, but also for their strong scent. Thus, the meaning of the composition would be that the sexual predators are attracted by their prey's frivolity and, as a consequence, a wise person should avoid to act as a predator or as a prey. Both insects trying more or less successfully to depart from the flowers (the cockchafer rendered on the left side lower and the other beetle from the opposite side, which is also trying to depart from the drop of water in which it seems to be trapped) should be understood, maybe, as visual supports of this warning. This corresponds undoubtedly to the artist's intention, who follows an intellectual tradition which begins in Antiquity with Plinius the Elder's view of the utility of studying the insects, whose opinion was later shared by certain early naturalists (or rather philosophers of nature), as Ulisse Aldrovandi and the Protestant physician Thomas Muffet and by the more recent Jesuit naturalist Athanasius Kircher (Bauernfeind 2015, 55-57), according to which God's wisdom can be recognized even in the

smallest beings (Bauernfeind 2015, 58), as told in a well-known biblical verse (*Psalms*, 147:5). Around 1600, in the visual arts this verse was already specifically connected with depictions of insects, following a tradition originating in the late medieval miniaturists of the Gent-Bruges School and which leads right to Jooris Hoefnagel, who influenced Jan van Kessel the Elder's interest for the accurate rendering of animals and plants (Bauernfeind 2015, 53-55).

Bouquet with roses recalls very well a work dated in the first half of the 17th c., namely *Bouquet in a niche* (oil on panel, 74 x 52 cm) by Osias Beert the Elder (c. 1580-1623) from Rockox House in Antwerp, which is however more impressive, due to its monumentality and to the painter's effort to suggest very naturalistically, by colour and texture, a niche sculpted in ochre sandstone (Fig. 10). It is known that Osias Beert the Elder's influence lasted among the Antwerp still life painters, as his nephew and student Frans Ykens, Jacob Foppens van Es and Jacob van Hulsdonck. However, Jan van Kessel the Elder's authorship should not be doubted, because stylistically the signed painting *Bouquet with roses* from the Brukenthal National Museum's collection has many analogies among this artist's works showing bouquets, which are dated during the period 1652-1661 (mostly however before 1660). The later compositions of this kind are more elaborated, showing in the lower part besides insects also birds (but disproportionately small, if compared with the flowers and the vase in which they are put, as well as with the butterflies, caterpillars, the snails), with an ochre or pale grey background (Hairs 1985, 296, pl. 98), like in *Roses in a glass vase with insects, butterflies, a bee, a dragonfly, and 2 bluetits*, 1669 (oil on panel, 22.5 x 17.2 cm; signed and dated lower right: *I.V. Kessel fecit. A^o. 1669*), which was sold in London in a Sotheby's auction on December 3, 2008 (lot 22) for 181,250 £. (Baadj 2012, 383, cat. nr. 21; cf. Hairs 1985, 483). According to Nadia Baadj, flower bouquets and flower garlands encircling a central religious scene, secular portrait or vignette comprised the overwhelming majority of the artist's works until the mid-1650s, when he turned to animals (particularly insects) and other subjects (Baadj 2012, 34). Both such garlands of flowers and still lifes with flowers and insects by Jan van Kessel the Elder are unknown in an earlier period and a later date for some of the latter kind of compositions, in the 1660s, although supposed sometimes, seems not to be supported by dated works, excepting the scarce late still lifes with flowers, insects and birds, mentioned above.

Among the analogies for *Bouquet with roses* firstly should be mentioned another painting (although smaller) from the Brukenthal National Museum's collection (Fig. 14), namely *Bouquet with a cockchafer* (inv. 637), which in the meantime (in June 2020) was also brought to the museum's Laboratory of Painting Conservation and will be restored as well by Andrei Popa. The latter painting may be best compared with *A vase of flowers* (Fig. 16) from the Fitzwilliam Museum in Cambridge (oil on panel, 29.8 x 21 cm; inv. PD.1979-93), which is dated in the 1650s (Baadj 2012, 363, cat. 1). It should be mentioned that the smaller works painted on panel are actually another series, although it is contemporary with the series of works on larger panel.

By its size (39 x 26.5 cm), *Bouquet with roses* belongs to the series of larger paintings on panel, but with similar main features of the composition: a bouquet in a glass vase, dominated by a standing flower and often showing near the vase in which the bouquet is displayed some fallen drops of water. In comparison with this work from the Brukenthal National Museum's collection, such compositions could be sometimes more elaborated, showing more flowers and even some items (as a ribbon, a pocket watch, a fruit etc.) added in the lower part, where in *Bouquet with roses* only beetles are depicted. Although painted on panel, the compositions of this more elaborated kind, as *Still life with flowers in a glass vase, with a red admiral butterfly, a bee and other insects, and a pocket watch, a peach and a beetle on the bottom edge* (oil on oak panel, 39.3 x 30.2 cm; signed and dated top right: *J.v. kessel. fecit/ A^o 1652*) (Fig. 12), recall the series of still lifes with flowers and insects painted in 1652 on copper, most likely for a Spanish patron, about which will be referred below. Even the work mentioned above, sold in a Sotheby's auction in London on December 8, 2011 (lot 202) for 385,250 £, comes from a Spanish family collection and its previous owner was also a Spaniard, namely Pedro Fernández Durán y Bernaldo de Quirós (1846-1930). Its date corresponds to the date of the series of even larger sizes painted on copper and is therefore crucial for dating the still lifes with flowers and insects painted on panel.

The closest analogy for *Bouquet with roses* may be a pair of works painted on panel but transferred on canvas, having also a simpler composition, which was sold in a Christie's auction in New York on January 31, 1997 (lot 16) for 178,500 \$: *Roses, cornflowers, a poppy and a tulip in a glass vase on a table with moths, beetles, a caterpillar and but-*

terflies (35 x 24.2 cm; signed: *I.V.Kessel. f*) and *Roses, jasmine, convolvulus, primula and a tulip in a glass vase on a table with butterflies and a caterpillar* (35.3 x 24.5 cm; signed: *I.V.Kessel. f.*). A further panel, which is dated 1652 and is of almost the same size as the two aforementioned works, was sold in London by a Christie's auction on December 8, 2008 (lot 5) for 361,250 £. Another good analogy, painted also on panel, but of a more elaborate composition and showing instead of a glass carafe a roemer chalice is *Tulips, roses, peonies and other flowers in a roemer* (oil on panel, 51.9 x 37 cm, including the 2.5 wide old panel strip added each at left and right; signed lower right: *J. V. Kessel. f.-*), sold at a Sotheby's auction in New York on June 6, 2013 (lot 39) for 275,000 \$ (Fig. 11). According to the auctioneer, the work was authenticated and dated with the help of Fred G. Meijer from Rijksbureau voor Kunsthistorische Documentatie (RKD) in the 1650s, not in the 1660s, as previously (Ertz, Nitze-Ertz 2012, 298, cat. 493). By its size and the added panel strips, the latter work recalls *Flowers in a roemer with butterflies, a dragonfly and a beetle on a ledge* (52.4 x 32.6 cm, including the 2.5 wide old panel strip added each at left and right; signed lower right: *J. V. kessel*), dated in the 1660s and auctioned by Christie's on December 10, 2003 (lot 12) in London (Baadj 2012, 382, cat. 20). Good analogies are as well other 2 signed paintings on panel, dated in the 1660s: *Vase of flowers* (32 x 22 cm; signed: *JvKessel*) from Musée des Beaux-Arts in Tournai, Belgium (Baadj 2012, 381, cat. 19) and *Tulips, roses, hyacinths, cornflowers in a glass vase with butterflies and a beetle on a lodge* (38.2 x 30.2 cm; signed) auctioned by Christie's on November 18, 1993 (lot 132) in Amsterdam for 149,500 Dutch guilders (Baadj 2012, 380, cat. 18), i. e. 67,840.14 €.

As previously mentioned, the earliest bouquets on panel by Jan van Kessel the Elder have certain analogies with a series of similar paintings on copper, among which should be mentioned firstly *A still life of tulips, a crown imperial, snowdrops, lilies, irises, roses and other flowers in a glass vase with a lizard, butterflies, a dragonfly and other insects* (78.7 x 60.5 cm; signed and dated lower right *J v Kessel fecit/1652*) (Fig. 13) from the former collection of Count de Villalcazar de Sirga and of his descendants (Baadj 2012, 367, cat. 5), auctioned at Bonhams in London on July 7, 2010 (lot 79), which is the largest of a series whose size range from 76 x 59 cm to 77.5 x 60 cm. Of this series two pendant works were sold previous-

ly, by the same auctioneer, on December 14, 1999 (lot 78, respectively lot 77): *A still life of flowers in a roemer on a stone pedestal* (Baadj 2012, 367, cat. 5) and *A still life of flowers in a blue and white porcelain vase*. Other two pendant works of the same series were auctioned by Christie's in New York on May 31, 1991 (lot 86, respectively lot 87): *Flowers in a glass vase with a caterpillar and a beetle on a ledge* (Baadj 2012, 369, cat. 7) and *Flowers in a Chinese Transitional blue and white jardinière on a ledge* (Baadj 2012, 370, cat. 8). To them may be added two paintings (but not pendants) from the Heinz family collection in Washington D. C. (Wheelock 1989, 112-114), as well as some other works illustrated in the catalogue of paintings from this collection exhibited at the National Gallery of Art in Washington D. C. and at the Museum of Fine Arts in Boston in 1989 (Wheelock 1989, 113, fig. 2-4), including a pair of paintings in the collection of the Marqués de Goubea in Spain. Another work of the same series, namely *Irises, peonies, narcissi, a tulip, in a blue and white porcelain vase with ormolu mounts on a pedestal* (77 x 59 cm; signed and dated: *J. V. Kessel fecit. A° 1652*), sold on December 5, 2007 (lot 24) at a Sotheby's auction in London (Baadj 2012, 368, cat. 6, fig. 2.16). *Flowers in a porcelain vase* (75.6 x 57.5 cm; signed and dated: *JvKessel fecit A° 1652*), one of the paintings from the Heinz family collection (Baadj 2012, 365, cat. 3), seems to be actually the pendant of the aforementioned painting auctioned at Bonhams on December 14, 1999 (lot 77). *Flowers in a glass vase* (75.6 x 57.5 cm; signed: *JvKessel fecit*), the other painting from the Heinz family collection (Baadj 2012, 366, cat. 4), seems to be actually the pendant of the aforementioned painting auctioned at Bonhams on December 14, 1999 (lot 78).

Very recent, on a Christie's auction in New York, on April 19, 2018 (lot 13) was sold for 324,500 \$ a painting similar to those of this series, but dated some years later, which comes from a private collection in the U. S. A.: *Roses, tulips, carnations an iris and other flowers in a Chinese Transitional blue and white jardiniere with moths and other insects on a ledge* (oil on copper, 76.5 x 59 cm; signed and dated lower right: *J v Kessel fecit 1657*). Excepting the latter one, provenance records show that the paintings of this series were all originally in Spanish private collections and according to the research of Ingvar Bergström, the author of the mentioned exhibitions catalogue entries, the commissioner of these large and monumental paintings on copper (whose size surpass by

far his pictures of bouquets) was an important patron, but who seems difficult to be identified with King Philip IV (as there are no records that the artist travelled to Spain unlike his son Jan van Kessel the Younger, who stayed in Madrid and became a court painter to Philip IV), although the works of Jan van Kessel may have been introduced by his Antwerp contemporary Daniel Seghers to the King of Spain (Wheelock 1989, 113), as the latter artist had important Spanish patrons, as known from his remaining inventories. The prices asked or paid for paintings from this series reflects (despite the usual oscillations on the international market) their high artistic quality: from 324,500 \$ to 495,000 \$ in New York and from 639,500 £ to 1,200,000 £ in London, obviously much higher than the highest prices of the still lifes with flowers and insects painted on panels, as the works from the Brukenthal National Museum's collection are.

The third painting on panel by Jan van Kessel the Elder from the Brukenthal National Museum's collection, which is signed and dated 1654 (Fig. 17), may be best compared with a work on panel of almost the same size, showing a garland surrounding a *grisaille* (Fig. 19): *Swags of tulips and other flowers on a stone cartouche with insects and the Christ Child as Salvator Mundi* (oil on oak panel with the mark of François de Bout (active 1637-1649), 39.7 x 28 cm; signed: *J van kessel*), dated in the 1650s (Baadj 2012, 401, 39), which was purchased for the SØR Rusche collection at Christie's in London on December 8, 1995 (lot 40) and sold again at Sotheby's in London on May 10, 2019 (lot 234) for 25,000 £. On the occasion of this last sale it was noted that as François de Bout delivered oak panels to David Teniers the Younger and as the latter is known to have painted figures in the centre of Jan van Kessel the Elder's works with flower garlands, the image of Christ Child may be painted by David Teniers the Younger, although according to other opinions its author would be Erasmus Quellinus the Younger (Raupp 2004, 150-153, cat. nr. 30). During the last two decades the collection mentioned above was exhibited frequently and even this only recently quite well-known painting (Blankert *et al.* 2000, 49; Raupp 2004, 150-153, cat. nr. 30; De Goede, Gosselink 2008, 113, cat. nr. 115; Ertz, Nitze-Ertz 2012, 343, cat. nr. 591) was exhibited twice, but only in Rotterdam Kunsthall (September 2000, 9 – January 2001, 7 and February 9 – May 18, 2008). Other analogies may be rather larger paintings with garlands surrounding a *grisaille* with biblical characters, painted either on copper or on canvas: *Swags of tulips, roses, lilies, carnations, hyacinths, cornflowers, forget-me-nots*

and other flowers decorating a stone cartouche with a Relief of the Virgin and Child (oil on copper, 89 x 63 cm; signed: *J van Kessel*; indistinct inscriptions), dated in the 1650s, now in the Ball State Museum of Art in Muncie, Indiana (Baadj 2012, 396, cat. 34), which previously was sold in a Christie's auction in New York on January 31, 1997 (lot 24) for 57,500 \$ and *Garland of flowers with a cartouche of the Holy Family*, 1650s (oil on canvas, 91 x 75 cm), dated in the 1650s (Baadj 2012, 395, cat. 33), which was auctioned in Brussels at S.A. Servarts N.V. on April 27, 1994 (lot 689). For the *grisaille* in the centre of the work from the Brukenthal National Museum's collection, which is still less known due to its previous poor condition of preservation, no author was publicly proposed until now. Theodor von Frimmel, who considered the painting from this museum's collection as being a work showing an „extraordinary careful, rough treatment” (Frimmel 1894, 15) and further noted a painting dated in 1653 from Augsburg as being a very close analogy for it, was the first who mentioned that this *grisaille* is not a work by Jan van Kessel the Elder (Frimmel 1894, 16). Later, of all the 3 paintings signed by Jan van Kessel the Elder from the Brukenthal National Museum's collection, this is the single one about whose attribution Jan De Maere had apparently no doubt, as it is the single one he mentioned in his „reasoned catalogue” of the Flemish paintings from the Brukenthal collection (De Maere, Sainte Fare Garnot 2009, 187).

On *Bouquet with a cockchafer* (Fig. 14) and on *A flower garland with the birth of Christ* (Fig. 17) from the Brukenthal National Museum's collection, which as previously mentioned are also signed works, the flowers and insects are also accurately depicted, which allows to determine most of them quite precisely, as normal for the flowers and insects painted by him. Not only some flowers, but also certain insects can be found both on *Bouquet with roses* and on one of the latter mentioned paintings or even on both. Certain insects are placed even in similar places in the composition of the works. As consequence, there is no doubt that all three signed paintings from the Brukenthal National Museum's collection show undoubted features of original works of this Antwerp painter: naturalistic details, seemingly faithful to the minutely observed flowers arrangements and bright, fresh colours.

Another evidence for Jan van Kessel's authorship results from the study of the signatures (Fig. 5 a-b, Fig. 15 and Fig. 18). On all these three panels the

signatures show the same graphology features of the more frequent letters *J*, *v*, *K*, *s* and *e* and of the less frequent letter *l*, although the way in which the forename Jan is abbreviated occurs only on *Bouquet with a cockchafer* (Fig. 15) and on *A flower garland with the birth of Christ* (Fig. 18) and the abbreviation of the painter's last name only on the latter work. The comparison with other signatures of Jan van Kessel the Elder show that not only the graphology features are the same, but also the way in which the artist used to abbreviate his name and the formulas he used to sign (the more frequently occurring *J. v. Kessel*, respectively *J. v. K.* and less frequent *Joan: v. Kessel*, accompanied by *fecit* (abbreviated as *f.*) and sometimes by the indication of the year preceded by the abbreviation *A^o* for *Anno*.

Therefore, the author of all three signed panels from the Brukenthal National Museum's collection is undoubtedly Jan van Kessel the Elder, the grand-grandson of Pieter Brueghel the Elder, the grandson of Jan Brueghel the Elder, the son of Paschasia Brueghel (and thus the nephew of Jan van Brueghel the Younger, but also of David Teniers the Younger) and the father of other two painters (Jan van Kessel the Younger and Ferdinand van Kessel); in the van Kessel's family line, he was the son of Hieronymus van Kessel the Younger and the grandson of Hieronymus van Kessel the Elder, both latter being two less known painters (Van den Branden 1883, 1098-1101). Undoubtedly, Jan van Kessel the Elder took much inspiration from the work of his relative Jan Brueghel the Elder, who was a pioneer in the development of the genre of garland paintings, which grew out of the imagery of the Counter-Reformation. Despite his family ascendance and training, the precision and clarity of Jan van Kessel the Elder's brushwork (Fig. 8c-d and Fig. 9) reflects rather the influence of Daniel Seghers than that of the Brueghel circle, although he was almost certainly trained by his uncle Jan Brueghel the Younger, whose work he copied (Denucé 1934, 157). Even Jan van Kessel the Elder painted as well genre scenes, biblical and historical scenes, allegories, landscapes (often with animals in the foreground), still lifes with animals and even just animals, he was known and is still celebrated as a talented and innovative *blomschilder* (Baadj 2012, 29-39), how the inhabitants of the Lower Countries use to call a painter of flowers.

By his style Jan van Kessel the Elder cannot be confused with his contemporary but younger namesake Jan van Kessel (1641-1680), a

draughtsman and landscape painter from Amsterdam, who occasionally painted animals, especially birds, as in the painting *A landscape with a cockerel and a turkey squabbling, and other fowl* (oil on panel, 17.8 x 24.5 cm; signed and dated lower centre: *I. V. Kessel. F 1663:*), auctioned in London at Sotheby's on April 14, 2011 (lot 127) and sold for 12,500 £. As well, he can not be confused with another contemporary animal painter from Antwerp, named also Jan van Kessel, known as „the other” Jan van Kessel (c. 1620-c. 1661), but who moved to Amsterdam and had a different style. Another anonymous still life painter, who is the author of about 200 small works which may be dated most likely in late 16th and early 17th c. but were wrongly assigned formerly to Jan van Kessel the Younger (hence his notname Pseudo Jan van Kessel the Younger) or even to the studio of Jan van Kessel the Elder and may haven't worked in the Lower Countries (although he was Flemish or trained by a Flemish artist), did not sign his works and has also a different style. According to newer opinions, the still lifes attributed to Pseudo Jan van Kessel the Younger are not at all the works of an individual, than rather the product of a studio.

Unlike to these signed works are the already mentioned two anonymous miniatures on copper assigned to the manner of Jan van Kessel the Elder, on which the swags of fruits, vegetables, flowers and birds are depicted less skilfully. However, on *Still life with a red and a yellow parrot* (inv. 630) may be recognized the species of the depicted parrots, as on left the scarlet macaw (*Ara macao*) and on right the blue-and-yellow macaw (*Ara arauna*) (Fig. 21). By contrary, in *Still life with green parrots* (inv. 640) the same anonymous artist may have intended to render two red-shouldered macaws (*Diopsittaca nobilis*), but the colours of their plumage is not accurately depicted (Fig. 22). These compositions in general but also in details are far from Jan van Kessel the Elder's highly decorative compositions, especially from his garland of flowers, whose characteristic elements are not fruits and vegetables associated with some flowers, insects and birds, but closely tied flower bunches composing the garland, intertwined with leaves and curling branches and accurately depicted butterflies, without birds. The two works do not come from the former collection of Baron Samuel von Brukenthal, being acquired during 1803-1844, as they are mentioned for the first time in the first printed guide of the Brukenthal Museum's gallery, as being the works of an anonymous German painter (Die Gemälde- Galerie, 104, cat. nr. 35 and

36), like later in the 1893 edition (Führer 1893, 55, cat. nr. 208 and 207). In the editions of 1901, 1909 and 1926 the works were mentioned to belong to the manner of a painter from the Van Kessel family, but without to specify to which one (Csaki 1901, 172, cat. nr. 620 and 621; Csaki 1909, 191, cat. nr. 639 and 640; Csaki 1926, 17, cat. nr. 639 and 640). Only in 1941 the works are mentioned as belonging to the manner of Jan van Kessel the Elder (Spek 1941, 21, cat. nr. 639 and 640). They may have been embedded as decorations in a box or in a piece of furniture. Actually, the two miniatures may be attributed neither to „the other” Jan van Kessel nor to Jan van Kessel the Younger, as they are of an obvious lower quality and may be rather (and in best case) the works of a member of Jan van Kessel the Elder’s circle or even to an artist who had less connection with Jan van Kessel the Elder or with his son Jan van Kessel the Younger, respectively with the still life painters Pseudo van Kessel (who was obviously influenced by Osias Beert the Elder and Jacob van Es and who may be a Flemish artist by the name of Raffo Morghen or less probably the German painter Gorthard de Wedig, working in Cologne) and Pseudo Jan van Kessel the Younger. It should be mentioned here, however, that the works of Pseudo van Kessel and of Pseudo Jan van Kessel the Younger are also of a better quality than the two anonymous paintings on copper from the Brukenenthal National Museum’s collection. Their author tried rather to imitate in a very simplified manner the garlands of fruits and birds painted by „the other” Jan van Kessel, like *Swags of fruit and flowers surrounding a cartouche with a sulphur-crested cockatoo* (oil on canvas, 147 x 119 cm) x, dated during 1634-1661, from the Fitzwilliam Museum in Cambridge (Fig. 20) (For more information on the works of „the other” Jan van Kessel, of Jan van Kessel the Elder and of Jan van Kessel the Younger: Ertz, Nitze-Ertz 2012).

(Alexandru Gh. Sonoc)

Conclusion.

By conservation, the painting *Bouquet with roses* by Jan van Kessel the Elder regained its original splendour, which allowed a better understanding of its hidden meaning: that the sexual predators are attracted by their prey’s frivolity and, as consequence, a wise person should avoid to act not only as a predator, but also as a prey. This less known still life can be better compared now with other

works of this famous Flemish artist, among which should be as well the other two works on oak panel signed by him from the Brukenenthal National Museum’s collection: a recently restored garland of flowers surrounding the Nativity scene and another but smaller still life with flowers and insects, whose conservation will be finished soon. The author of the two recently restored miniatures on copper from the same museum’s collection, depicting each of them (but less precisely and skilfully) two parrots on swags of flowers, fruits and vegetables seems to be rather an imitator of „the other” Jan van Kessel and not an artist working in the manner of Jan van Kessel the Elder (as previously believed) or of Jan van Kessel the Younger or an imitator of one of the two latter Antwerp artists.

All these works, which hopefully will enjoy more attention and appreciation not only from the museum’s visitors, but also from the art historians, are very illustrative for the development of the interest for the wonders of nature in the age of the curiosity cabinets and of the early research of Botany and Zoology, following the progress of the geographical discoveries and of the sea trade, particularly in Antwerp, where there was an unique convergence of circumstances which included the growth of a popular, commercial strand of natural history, a thriving culture of art collecting and connoisseurship focused on local artists, and a burgeoning luxury industry, as it was emphasized (especially during the last two decades) by various researchers of Jan van Kessel the Elder’s and of his circle’s and followers’ work (Krempel 1973; Lauresseyns 1980; Sinreich 1981; Schütz 2004; Baadj 2012; Ertz, Nitze-Ertz 2012; Groeneveld-Baadj 2012; Groeneveld-Baadj 2013; Bauernfeind 2015; Baadj 2016). Through a combination of wit, technical virtuosity and allusions to local art-historical lineage, Jan van Kessel the Elder’s paintings encourage viewers to simultaneously think about art, in terms of collecting, connoisseurship, citation, and think anew about nature.

The possibility to determine certain flowers and species of insects and birds, which was noted and exploited only after the conservation of this group of paintings, contributes as well to a better understanding of Baron Samuel von Brukenenthal’s choice to have more works by Jan van Kessel the Elder and his followers or competitors, considering the collector’s keen interest for still lifes with flowers and animals, but also for works of artists considered at that time of a particular interest.

REFERENCES

- Baadj 2012 Baadj, Nadia Sera. „Monstrous creatures and diverse strange things”: *The Curious Art of Jan van Kessel the Elder (1626-1679)* (doctoral thesis, University of Michigan), Ann Arbor (2012).
- Baadj 2016 Baadj, Nadia. *Jan van Kessel I (1626-1679): Crafting a Natural History of Art in Early Modern Antwerp*, Turnhout (2016).
- Bauernfeind 2015 Bauernfeind, Robert. *Die Ordnung der Dinge durch die Malerei. Jan van Kessels Münchner Erdteile- Zyklus* (doctoral thesis, Universität Augsburg), Augsburg (2015).
- Bissell 2012 Bissell, Frances. *The Scented Kitchen: Cooking with Flowers*, 2nd expanded edition, London (2012).
- Blankert *et al.* 2000 Blankert, Albert; Manuth, Volker; Van Eck, Xander. *Jezus in de Gouden Eeuw*, Zwolle – Rotterdam (2000).
- Carod-Artal 2015 Carod-Artal, F. J. *Hallucinogenic drugs in pre-Columbian Mesoamerican cultures*. In: *Neurología* 30/1, Barcelona (2015), pp. 42-49.
- Csaki 1901 Csaki, M. *Freiherr Samuel von Brukenthalisches Museum in Hermannstadt. Führer durch die Gemäldegalerie*, 5th edition, Hermannstadt (1901).
- Csaki 1909 Csaki, M. *Freiherr Samuel von Brukenthalisches Museum in Hermannstadt. Führer durch die Gemäldegalerie*, 6th edition, Hermannstadt (1909).
- Csaki 1921 Csaki, M. *Die Gemäldegalerie*. In: * * *, *Das Baron Brukenthal'sche Museum. Festschrift zur Erinnerung an den 200. Geburtstag seines Stifters Samuel Baron von Brukenthal*, Hermannstadt (1921), pp. 26-35.
- Csaki 1926 Csaki, M. *Freiherr Samuel von Brukenthalisches Museum in Hermannstadt. Führer durch die Gemäldegalerie*, 8th edition, Hermannstadt (1926).
- De Goede, Gosselink 2008 De Goede, Jannet; Gosselink, Martine (eds.), *At Home in the Golden Age: Masterpieces from the SØR Rusche Collection*, Zwolle (2008).
- De Maere, Sainte Fare Garnot 2009 De Maere, Jan; Sainte Fare Garnot, Nicolas (coords.). *Bruegel, Memling, Van Eyck... La collection Brukenthal. Ouvrage publié à l'occasion de l'exposition Bruegel, Memling, Van Eyck... La collection Brukenthal au musée Jacquemart-André du 11 septembre 2009 au 11 janvier 2010*, Bruxelles (2009).
- Denucé 1934 Denucé, Jean. *Brieven en documenten betreffend Jan Breugel I en II*, Amsterdam (1934).
- Die Gemälde- Galerie 1844 * * *. *Die Gemälde- Galerie des freiherrlichen v. Brukenthalischen Museums in Hermannstadt*, Hermannstadt (1844).
- Ertz, Nitze-Ertz 2012 Ertz, Klaus; Nitze-Ertz, Christa. *Die Maler Jan van Kessel: der Ältere, der Jüngere, der "Andere". Die Gemälde mit kritischen Oeuvrekatalogen*, Lingen (2012).
- Frimmel 1894 Frimmel, Theodor von. *Kleine Galeriestudien. Die Gemäldesammlung in Hermannstadt*, Wien (1894).

-
- Führer 1893 * * *. *Freiherr Samuel von Brukenthal'sches Museum in Hermannstadt: Führer durch die Gemäldegalerie*, Hermannstadt (1893).
- Groeneveld-Baadj 2012 Groeneveld-Baadj, Nadia. *Sketches of simians and savages on the versos of Jan van Kessel's copper plates*. In: *Bolletín del Museo del Prado* 30/48, Madrid (2012), pp. 72-83.
- Groeneveld-Baadj 2013 Groeneveld-Baadj, Nadia. A world of materials in a cabinet without drawers: re-framing Jan van Kessel's The Four Parts of the World. In: *Netherlands Yearbook for History of Art / Nederlands Kunsthistorisch Jaarboek* 62, Leiden (2013), pp. 202-237.
- Hairs 1985 Hairs, Marie-Louise. *The Flemish Flower painters in the XVIIth Century*, Brussels (1985).
- Hauer 2005 Hauer, Thomas (ed.). *Das Geheimnis des Geschmacks. Aspekte der Ess- und Lebenskunst*, Frankfurt am Main (2005).
- Hill Stoner, Rushfield 2012 Hill Stoner, Joyce; Rushfield, Rebecca. *Conservation of Easel Paintings*, London – New York (2012).
- Janssen *et al.* 2016 Janssen, Paul Huys; Sonoc, Alexandru; Luca, Adrian. *Van Eyk, Brueghel, Jordaens. Meesterwerken uit Romenië / Van Eyk, Brueghel, Jordaens. Masterpieces from Romania*, 's-Hertogenbosch (2016).
- Krempel 1973 Krempel, Ulla. *Jan van Kessel d. Ä. 1626-1679: die Vier Erdteile*, München (1973).
- Lauresseyns 1980 Lauresseyns, W. *Jan van Kessel de Oude*. In: * * *, *Bruegel, een dynastie van schilders*, Brussels (1980), pp. 313-328.
- Lim 2014 Lim, T. K. (ed.). *Edible Medicinal and Non-Medicinal Plants*, 7th vol., Dordrecht (2014).
- Massard 2007 Massard, Jos. A. *Maikäfer in Luxemburg: Historisches und Kurioses*. In: *Lëtzebuurger Journal*, 60/88 (May 8, 2007), Luxembourg (2007), pp. 26-27.
- Nicolaus 1999 Nicolaus, Knut, *The Restauration of Paintings*, Cologne (1999).
- Pollan 2002 Pollan, Michael. *The Botany of Desire*, New York (2002).
- Raupp 2004 Raupp, Hans-Joachim (ed.). *Niederländische Malerei des 17. Jahrhunderts der SØR Rusche-Sammlung*, 5th vol., Münster – Hamburg – London (2004).
- Schimitschek 1977 Schimitschek, Erwin. *Insekten in der bildenden Kunst im Wandel der Zeiten in psychogenetischer Sicht*, Wien (1977).
- Schütz 2004 Schütz, Karl. *Europa und die Vier Erdteile bei Jan van Kessel*. In: Bussmann, Klaus; Werner, Anna Elke (eds.), *Europa im 17. Jahrhundert. Ein politischer Mythos und seine Bilder*, Wiesbaden, (2004), pp. 289-302
- Sinreich 1981 Sinreich, Anni. *Insektendarstellungen von Jan van Kessel*. In: *Journal of Pest Science* 54/3, Berlin (1981), p. 39-41.
- Spek 1941 Spek, R. *Muzeul Brukenthal Sibiu. Ghidul pinacotecei*, 5th edition, Sibiu (1941).
- Sutton, Wieseman 1993 Sutton, Peter C.; Wieseman, Marjorie. *The Age of Rubens*, New York (1993).
- Tepe 2013 Tepe, Emily. *The Edible Landscape: Creating a Beautiful and Bountiful Garden with Vegetables, Fruits and Flowers*, Minneapolis (2013).
- Van den Branden 1883 Van den Branden, Frans Jozef Peter. *Geschiedenis der Antwerpsche schilderschool*, Antwerp (1883).

Van der Donk, Van Gerwen 1981 Van der Donk, Martin; Van Gerwen, Teo. *De wondere wereld van de insecten*, Alphen aan den Rijn (1981).

Wheelock jr. 1989 Wheelock jr., Arthur K. (ed.). *Still Life of the Golden Age, Northern European Paintings from the Heinz Family Collection*, Washington (1989).

LIST OF ILLUSTRATIONS

1. Jan van Kessel the Elder, *Bouquet with roses*, c. 1652-c. 1660. National Brukenthal Museum, Sibiu. Framed painting before conservation (front side).
2. Jan van Kessel the Elder, *Bouquet with roses*. Framed painting before conservation (back side).
3. Jan van Kessel the Elder, *Bouquet with roses*. Front side's photography in UV light (before conservation).
4. Panel's front side before conservation.
5. a-b – Jan van Kessel the Elder, *Bouquet with roses*. Details of the painter's signature.
6. Jan van Kessel the Elder, *Bouquet with roses*. Panel after conservation (front side).
7. Jan van Kessel the Elder, *Bouquet with roses*. Framed painting after conservation (front side).
8. a-f – Jan van Kessel the Elder, *Bouquet with roses*. Details.
9. Jan van Kessel the Elder, *Bouquet with roses*. Detail with flowers and caterpillar.
10. Osias Beert the Elder, *Bouquet in a niche*, first half of the 17th c. Rockox House, Antwerp.
11. Jan van Kessel the Elder, *Tulips, roses, peonies and other flowers in a roemer*, 1650s. Private collection.
12. Jan van Kessel the Elder, *Still life with flowers in a glass vase, with a red admiral butterfly, a bee and other insects, and a pocket watch, a peach and a beetle on the bottom edge*, 1652. Private collection.
13. Jan van Kessel the Elder, *A still life of tulips, a crown imperial, snowdrops, lilies, irises, roses and other flowers in a glass vase with a lizard, butterflies, a dragonfly and other insects*, 1652. Private collection.
14. Jan van Kessel the Elder, *Bouquet with a cockchafer*, c. 1652-c. 1660. National Brukenthal Museum, Sibiu.
15. Jan van Kessel the Elder, *Bouquet with a cockchafer*, c. 1652-c. 1660. National Brukenthal Museum. Detail.
16. Jan van Kessel the Elder, *A vase of flowers*, 1650s. Fitzwilliam Museum, Cambridge.
17. Jan van Kessel the Elder, *A flower garland with the birth of Christ*, 1654. National Brukenthal Museum, Sibiu (before conservation).
18. Jan van Kessel the Elder, *A flower garland with the birth of Christ*, 1654. Signature facsimile.
19. Jan van Kessel the Elder, *Swags of tulips and other flowers on a stone cartouche with insects and the Christ Child as Salvator Mundi*, 1650s. Private collection.
20. „The other” Jan van Kessel, *Swags of fruit and flowers surrounding a cartouche with a sulphur-crested cockatoo*, 1634-1661. Fitzwilliam Museum, Cambridge.
21. Manner of Jan van Kessel the Elder (previous attribution), *Still life with a red and a yellow parrot*. National Brukenthal Museum, Sibiu (before conservation).
22. Manner of Jan van Kessel the Elder (previous attribution), *Still life with green parrots*. National Brukenthal Museum, Sibiu (before conservation).

LISTA ILUSTRAȚIILOR

1. Jan van Kessel cel Bătrân, *Buchet cu trandafiri*, cca. 1652-cca. 1660. Muzeul Național Brukenthal, Sibiu. Tablou înrămat, înainte de restaurare (fața anterioară).
2. Jan van Kessel cel Bătrân, *Buchet cu trandafiri*. Tablou înrămat, înainte de restaurare (fața posterioară).
3. Jan van Kessel cel Bătrân, *Buchet cu trandafiri*. Fotografia feței anterioare a panoului în lumină UV (înainte de restaurare).
4. Fața anterioară a panoului înainte de restaurare.
5. a-b – Jan van Kessel cel Bătrân, *Buchet cu trandafiri*. Detalii cu semnătura pictorului.
6. Jan van Kessel cel Bătrân, *Buchet cu trandafiri*. Panou după restaurare (fața anterioară).

7. Jan van Kessel cel Bătrân, *Buchet cu trandafiri*. Tablou înrămat după restaurare (fața anterioară).
8. a-f – Jan van Kessel cel Bătrân, *Buchet cu trandafiri*. Detalii.
9. Jan van Kessel cel Bătrân, *Buchet cu trandafiri*. Detaliu cu flori și omidă.
10. Osias Beert cel Bătrân, *Buchet într-o nișă*, prima jumătate a sec. XVII. Rockox House, Anvers.
11. Jan van Kessel cel Bătrân, *Lalele, trandafiri, bujori și alte flori într-un pahar roemer*, anii 1650. Colecție privată.
12. Jan van Kessel cel Bătrân, *Natură moartă cu flori într-un vas din sticlă, cu un fluture amiral roșu, o albină și alte insecte și un ceas de buzunar, o piersică și un gândac în partea inferioară*, 1652. Colecție privată.
13. Jan van Kessel cel Bătrân, *O natură moartă cu lalele, fritilarie imperială, ghiociei, crini, iriși, trandafiri și alte flori într-un vas din sticlă cu o șopârlă, fluturi, o libelulă și alte insecte*, 1652. Colecție privată.
14. Jan van Kessel cel Bătrân, *Buchet cu un cărăbuș*, cca. 1652-cca. 1660. Muzeul Național Brukenthal, Sibiu.
15. Jan van Kessel cel Bătrân, *Buchet cu un cărăbuș*, cca. 1652-cca. 1660. Muzeul Național Brukenthal, Sibiu. Detail.
16. Jan van Kessel cel Bătrân, *Un vas cu flori*, anii 1650. Fitzwilliam Museum, Cambridge.
17. Jan van Kessel cel Bătrân, *O ghirlandă de flori cu Nașterea Domnului*, 1654. Muzeul Național Brukenthal, Sibiu (înainte de restaurare).
18. Jan van Kessel cel Bătrân, *O ghirlandă de flori cu Nașterea Domnului*, 1654. Facsimilul semnăturii.
19. Jan van Kessel cel Bătrân, *Ghirlande cu lalele și alte flori într-un cartuș din piatră cu insecte și Pruncul Isus ca Salvator Mundi*, anii 1650. Colecție privată.
20. „Celălalt” Jan van Kessel, *Ghirlande cu fructe și flori înconjurând un cartuș cu un cacadu cu creastă galbenă*, 1634-1661. Fitzwilliam Museum, Cambridge.
21. Maniera lui Jan van Kessel cel Bătrân (atribuire anterioară), *Natură moartă cu un papagal roșu și unul galben*. Muzeul Național Brukenthal, Sibiu (înainte de restaurare).
22. Maniera lui Jan van Kessel cel Bătrân (atribuire anterioară), *Natură moartă cu papagali verzi*. Muzeul Național Brukenthal, Sibiu (înainte de restaurare).



1.



2.

1. Jan van Kessel the Elder, *Bouquet with roses*, c. 1652-c. 1660. Muzeul Național Brukenthal, Sibiu. Framed painting before conservation (front side).
2. Jan van Kessel the Elder, *Bouquet with roses*. Framed painting before conservation (back side).

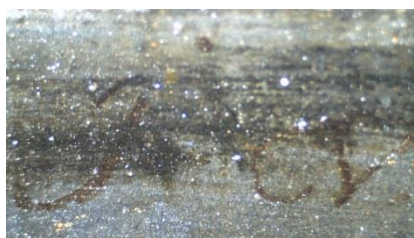


3.



4.

3. Jan van Kessel the Elder, *Bouquet with roses*. Front side's photography in UV light (before conservation).
4. Panel's front side before conservation.



5.a



5.

- 5.a-b Jan van Kessel the Elder, *Bouquet with roses*. Details of the painter's signature.



6.



7.

6. Jan van Kessel the Elder, *Bouquet with roses*. Panel after conservation (front side).

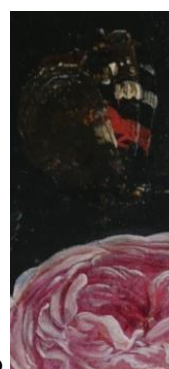
7. Jan van Kessel the Elder, *Bouquet with roses*. Framed painting after conservation (front side).



8.a



8.b



8.c



8.d



8.e



8.f 9

8. a-f – Jan van Kessel the Elder, *Bouquet with roses*. Details.



9. Jan van Kessel the Elder, *Bouquet with roses*. Detail with flowers and caterpillar



10.



11.

10. Osias Beert the Elder, *Bouquet in a niche*, first half of the 17th c. Rockox House, Antwerp.
11 – Jan van Kessel the Elder, *Tulips, roses, peonies and other flowers in a roemer*, 1650s.
Private collection.



12.



13.

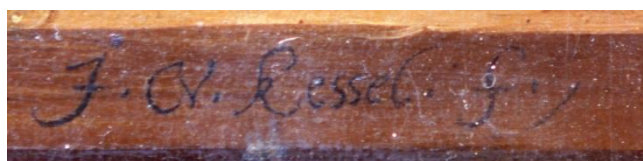
12. Jan van Kessel the Elder, *Still life with flowers in a glass vase, with a red admiral butterfly, a bee and other insects, and a pocket watch, a peach and a beetle on the bottom edge*, 1652. Private collection.

13. Jan van Kessel the Elder, *A still life of tulips, a crown imperial, snowdrops, lilies, irises, roses and other flowers in a glass vase with a lizard, butterflies, a dragonfly and other insects*, 1652. Private collection..



14

14. Jan van Kessel the Elder, *Bouquet with a cockchafer*, c. 1652-c. 1660. Muzeul Național Brukenthal, Sibiu.



15. Jan van Kessel the Elder, *Bouquet with a cockchafer*, c. 1652-c. 1660. Muzeul Național Brukenthal, Sibiu. Detail.



16.



17.

16. Jan van Kessel the Elder, *A vase of flowers*, 1650s. Fitzwilliam Museum, Cambridge.

17. Jan van Kessel the Elder, *A flower garland with the birth of Christ*, 1654. Muzeul Național Brukenthal, Sibiu (before conservation).

J. v. K. L. fecit (A° 1654)

18. Jan van Kessel the Elder, *A flower garland with the birth of Christ*, 1654. Signature facsimile.



19.



20.

19. Jan van Kessel the Elder, *Swags of tulips and other flowers on a stone cartouche with insects and the Christ Child as Salvator Mundi*, 1650s. Private collection.

20. „The other” Jan van Kessel, *Swags of fruit and flowers surrounding a cartouche with a sulphur-crested cockatoo*, 1634-1661. Fitzwilliam Museum, Cambridge.



20. Manner of Jan van Kessel the Elder (previous attribution), *Still life with a red and a yellow parrot*. Muzeul Național Brukenthal, Sibiu (before conservation).



21. Manner of Jan van Kessel the Elder (previous attribution), *Still life with green parrots*. Muzeul Național Brukenthal, Sibiu (before conservation).

RESTORATION OF A "STUTZUHREN" STYLE FIREPLACE CLOCK

Ecaterina CONSTANTINESCU*

Andrei BUDA**

Abstract: *The fireplace clock is part of an antique dealer private collection ,who has requested its restoration in 2019 that has been finished after 5 months. The article begins with the stylistic framing of the restored object and a short history of the "Stutzhren" fireplace clocks. The second part briefly describes the elements of the object, the materials used to make it and its construction. To try to determine the original materials, information used in the elaboration of restoration operations, a series of physical, chemical and biological analyses were applied. The last part is a detailed description of the restoration process, the materials used and the conclusions drawn after the completion of the work.*

Keywords: *fireplace clock, empire, conservation, restoration, investigations.*

Rezumat: *Ceasul de șemineu face parte din colecția particulară a unui negustor de antichități, aceasta a intrat în restaurare la cererea lui în 2019 și a fost finalizată după 5 luni de la începerea restaurării. Articolul începe cu încadrarea stilistică a obiectului restaurat și un scurt istoric al ceasurilor de șemineu tip "Stutzhren". În a doua parte sunt descrise succint elementele piesei, materialele folosite pentru realizarea ei și construcția acesteia. Au urmat o serie de analize fizice, chimice și biologice ce au avut ca scop determinarea materialelor originale, informații folosite în elaborarea operațiunilor de restaurare. Ultima parte este o descriere pe larg a procesului de restaurare, a materialelor folosite și concluziile trase în urma finalizării lucrării.*

Cuvinte-cheie: *Cuvinte cheie: ceas de șemineu, empire, conservare, restaurare, investigații.*

Short history

The history of "Stutzhren" watches begins with their production in Vienna in the 18th century and lasts until the 19th century. Being inspired by French watches, in Empire style, in Viennese manufactures they become special creations, of great refinement, with a rich ornamentation, a combination of expensive materials, processed in different techniques, can be cataloged as true art objects or unique jewelry.

The "Stutzhren" watches stand out through their fantasy, as well as through the skill and finesse with which they are worked. Craftsmen from different guilds, carpenters, masters who worked precious materials, different from other metals (brass, bronze, iron, tin, copper, zinc, etc.), sculptors and watchmakers participate in their creation. (László 2015, 28-35; Atterbury, Tharp 1998, 45).

The construction of the carcasses demonstrates the exceptional skill of the craftsmen, being decorated with sculptures and bas-reliefs, miniatures inspired

by mythology, legends, fairy tales or historical events, becoming independent creations.

Before 1816, there was already a law that distinguished between carpenters and art carpenters, those who created high-quality objects such as watchmakers and used expensive materials, both locally sourced and brought from abroad. In order to meet the increased demand for watches, it was allowed to come from some manufacturers in Geneva who later settled in Vienna (Kaltembock 1988, 17). They brought with them, in addition to technical knowledge, the principle of dividing production into categories, for different elements of watches (mechanisms, cases, decorations, etc.) as well as collaboration between guilds.

Typical for fireplace clocks (or furniture), it is an overload with decorative elements, well harmonized, so as not to look cumbersome. The decorations became so refined that watchmakers became a guild that produced not only inside the empire, but also exported to Italy, Poland, Russia,

*SC RESTORIS SRL; e-mail: katy.const123@gmail.com

**Student at "Lucian Blaga" University; e-mail: andrei.buda@ulbsibiu.ro

Turkey, etc.

Influenced at first by the clocks produced in France, gradually the decors have become typical for Vienna.

Emperor Franz Joseph II supports the production of small and large watches in Vienna, with a high standard of quality at the highest level. The “Josephine” reforms protect local products from competition from foreign products (England, France, etc.), by imposing customs duties and abolishing taxes within the empire. In 1784 the import from abroad of products that were also produced inside the empire was banned (Kaltemböck 1988, 18).

Of the luxury products, especially the “Stutzuhren” watches, they were sold in the noblest circles, in the countries with which the monarchy was in close relations (Poland, Russia, etc.).

The “Stutzuhren” fireplace clock, which was brought to our restoration workshop, is part of this category of luxury products and is a proof of the mastery of Viennese watchmakers from the end of the 18th century - the beginning of the 20th century (Kaltemböck 1988, 18).

Part description

The fireplace clock was made of several types of materials, namely: wooden support, decorative elements made of wood and plaster, covered with a polychrome coating or gold foil, metal mechanism and certain profiles made of gilded paper. Two essences were used as wood. Softwood for the structure of the clock, in the form of plates, cut tangentially and joined according to carpentry techniques and hardwood (linden) according to the analysis bulletin, for making miniature, carved decorations (dragons, plant ornaments, decorative geometric ornaments) and for the elements turned (legs). The decorative plates with bas-reliefs were made of plaster. The sculpted parts and some of the profiled ones were covered with bolus and gold leaf. The wooden support and the plaster ornaments have a layer of black paint, covered with varnish.

All the materials used are of superior quality, and the whole is extremely well executed and harmonious.

State of conservation

• *Wooden support and wooden decorative elements*

The wooden support was in a relatively good state of preservation, but with small physical-mechanical degradations: the vertical board, from

the front-top, had a crack of 102 mm, with a spacing of 2 mm.

The wooden decorative elements presented several problems, starting with a material loss to the lacy profiles, the fracturing of one of the dragons into four fragments, the detachment and detachment of some carved portions and of some profiles. Over time, inadequate interventions have been carried out in an attempt to bond some fragments with incompatible adhesive materials, such as tape and adhesive tape, as well as the use of mechanical screw clamps.

Functional wear is especially visible at the level of the turned legs.

Based on the clock and at the top, three holes were identified; most likely the place of the plugs of some turned or sculpted elements that were lost (Fig. 2, 3).

• *Polychrome layer*

It had dust deposits and spider webs on the entire surface. On the black surfaces were visible degradations only at the level of the varnish, which was slightly tinted and scratched. On the details covered with gold foil, a repainting with liquid bronze was performed. Under the bronze layer, there were other types of deposits or defects of the cousin. In the area of the feet where we have functional wear of the wooden support, there are also losses in the color layer.

• *Plaster elements*

The plaster elements are in a relatively good condition, and the only problems were related to the dislocation in three fragments of one of the scenes and the degradation of the varnish.

The metal mechanism

The metal mechanism having several problems, such as worn parts over time, or some deficiencies required special interventions, and the owner opted to send it to a workshop specializing in metal restoration in Hungary.

• *Gilded paper*

The gilded paper was in good condition. Comparing the parts exposed to natural light with those protected from the back of a profile, a slight photochemical degradation could be observed.

Scientific investigations

• *Identification of wood essences*

After the macroscopic characters, the exact wood essences could not be identified and as a result, it was necessary to observe the microscopic

characters. In this regard, two wood samples were taken. One of the samples was extracted from inside the watch, from a defibrated area, and the second from the sculpted and perforated ornament, behind it, where there is no preparation layer, and the intervention is not visible because the ornament was re-glued.

Sample 1 - After the macroscopic observation of the wood design and its color, sections of the sample were prepared, previously prepared by boiling. Characteristics of annual rings in cross section (thin-walled tracheid in early wood and thickened walls in late wood), the presence of secretory cells and resin channels in cross-sections and tangential sections, as well as undetangled medullary rays in radial sections indicated it is a spruce wood (*Picea abies*).

Sample 2 - After the macroscopic observation of the wood design and its color, sections of the sample were prepared, previously prepared by boiling. The characteristics of the annual rings (gradual transition from one ring to another, the presence of pores grouped in groups of two or four) in cross section and spiral vessels in a longitudinal section indicated that it is a lime lemma (*Tilia sp.*).

Therefore, the plates that make up the structural support of the clock were made of spruce wood (P. 1), and the carved and perforated ornaments were made of linden wood (P. 2).

• *Metal leaf Identification*

The gilding was not identified by any physical or chemical process, only by observing the appearance of the surface. From the micronic thickness and the absence of oxides on the surface of the sheet, it turned out that it is made of gold. Another argument is the valuable style of this watch, made with quality materials.

• *Primer identification*

The sample was taken from an area where the primer accidentally ended up behind a sculpture and as a result, was not gilded. The primer was identified based on its reaction with hydrochloric acid. The observed characteristics were the immediate effervescence and the fact that the sample remained wet until the next day, not as in the case of plaster. This indicates that the primer is calcium carbonate (mountain chalk).

By facilitating access to the laboratories within the Astra National Museum Complex and the "Lucian Blaga" University of Sibiu and under the

supervision of chemists and biologists, the investigations were carried out by restorers.

• *Varnish identification*

Natural varnish was identified by two methods. The first was the careful observation of the thickness of the lick layer and the second by a burning test. The small thickness of the varnish layer is characteristic of the shellac, which was used at that time and was applied with the polishing ball according to the French method. The rest of the varnishes (dammar, sandarac, copal, rosin) were usually applied with a brush and such a fine apple was not reached. The combustion test consisted of taking a small sample from a weakened area and raising it to a high temperature so as to emit a specific odor. The sweet smell resulting from burning is characteristic of natural resin. Given the thickness of the layer and the fact that it is a natural resin, I concluded that the varnish is shellac.

Cleaning tests

"Cleaning is always an integral part of interventions on heritage objects and components. The purpose of cleaning can be to improve the appearance of the surface, to prepare the surface for a subsequent intervention process or to prevent further damage. The process involves removing from the surface, an unwanted layer, a more or less adherent surface dirt, or a disturbing layer, a varnish, a coating layer, etc. cleaning it must be done in such a way that the layers or surface to be preserved are affected as little as possible (Guttman 2013, 80).

• *Cleaning tests on wood*

Coarse dry cleaning was performed with various tools and materials to avoid the risk of excessive cleaning with aqueous solutions or solvents that could lead to the penetration of deposits between the wood fibers (Guttman 2013, 83). Cleaning tests for wood were performed with several solutions (Signorini 2010, 18; Guttman 2013, 93), of different compositions and proportions (Tab. 1).

The solutions were applied on support with sticks, by rubbing the swab on the surface. The best results were given by the third variant tested, to be used in the process of cleaning the wooden components: back, interior.

We belong to a century in which the chemicals and the physical characteristics of water, its power and the risks associated with its use are better understood than in the past. The same goes for the pH values compatible with the constituent

materials of the piece and the addition of chelating agents, soaps and enzymes to obtain the desired result (Signorini 2010, 20).

• *Repaint pickling tests*

Chemical cleaning is an irreversible intervention and assumed by the restorer, it can vary in depth, having the role of removing deposits that can affect the health of the object (Guttmann 2013, 80). "Cleaning must be preceded by a careful examination and assessment of the state of conservation of the object, as much as possible by the analysis of the layers on which the intervention is performed and a series of tests (Guttmann 2013, 82)."

For the pickling tests of bronze repainting, a series of mixtures were selected, from the most frequently used in European countries (Guttmann 2013, 92), in the last 25 years (12), (Tab. 2).

The solutions were applied on support with sticks, by rubbing the swab on the surface.

The most effective results were obtained with the fourth mixture tested. The fifth was too aggressive. However, it was decided to use the DMF combination with 1: 1 xylene, which has good results as the fourth solution, but acts more slowly. Taking into account the much shorter toxicity and evaporation time, this variant was chosen. This process was used to pick up the bronze layers on the surfaces initially covered with gold foil (Fig. 5). Cleansing tests are an empirical method for determining the solubility of the layer, so the operation must be well documented for the choice of sets of mixtures that act in the solubility range of the solvate (Guttmann 2013, 82).

• *Polychromy cleaning tests*

The lake did not need to be stripped because it did not affect in any way the state of preservation of the color layer and did not bother aesthetically, it was only necessary degreasing on the surface.

The solvent used was: Water isopropanol ethanol 1: 1: 1, applied to the surface with a cotton swab.

Restoration process

In order to start the restoration process, we performed documentation on cases of similar or similar pieces as case studies, published in the scientific literature. The work of the restorer Mardarászné Gore Judit (Gorej 2018, 27-58) was a real help to us, who faced similar conservation and restoration problems.

The solvents and mixtures used were documented from the publications of Erminio Signorini

(Signorini 2010, 17-22) and Guttmann Márta Júlia (Guttmann 2013, 80-97). From their mixing proposals, a part was selected that acts effectively on the unwanted layers on this type of piece. Different combinations were used for: degreasing, cleaning and pickling of some surface layers, selected from the list of the two (See previous chapter: Cleaning tests).

The restoration process was lengthy due to the multitude of shapes and volumes that were difficult to access and the complex operations that were performed.

The restoration began with the superficial dusting of painted or wooden surfaces, using a very fine brush. For accessibility in the back of the piece, it was necessary to remove the wooden board.

For cleaning the wooden components, a mixture of demineralized water, ethyl alcohol and ten drops of ammonia was chosen. To remove the deposits stuck on the surface, after solubilization, a mechanical cleaning with the scalpel was performed. Also, on the back of the sculpted sculptures and profiles remained the film of degraded glue which was removed by applying the pap on the surface and removing it after three minutes by scraping with the scalpel.

For degreasing the original surface, which did not show repainting, a solution composed of demineralized water, isopropyl alcohol and ethyl alcohol was used.

The most difficult step in the chemical cleaning was to remove the repaintings with liquid bronze from the gold foil. The action time had to be short, so that the solvent did not reach and remain on the sheet for a long time, so the repainting was removed progressively, with drying times after each intervention.

Greater attention was needed to the miniature decorations made of gilded paper because they can be much more fragile than the rest of the wooden ornaments with preparation. At the top of the watch where a slight detachment of the paper from the support appeared, a low concentration of 5% fish glue was applied by injection and lightly pressed for resetting.

At the crack at the level of the vertical board, a balsa wood filling was made, in the direction of the fiber, and the adhesive material used for fixing it was 10% rabbit glue. Subsequently, the profiles covering the completion were mounted using the same glue and hand presses. The presses were removed after 12 hours, the time required to obtain

the cohesiveness of the glue after the water evaporated.

The fragmented dragon was re-glued with the same adhesive as in the case of additions.

At the decoration at the top of the clock, where several leaves are missing, it was decided to take a negative and pour them from a two-component resin (Balsite W+ Balsite K).

Detached carved elements were pickled by repainting, cleaned and glued in areas with cracks or cracks with 10% rabbit glue. The areas where the profiles that framed the scenes with characters were missing were remade of linden wood and thick paper, and after they were primed and gilded, they were mounted.

The gaps in the gold foil layer were integrated with the watercolors, and the varnishing of the foil was done with shellac.

The varnish of the black pigment, being in a pretty good condition, was not removed, but with the help of an abrasive sponge, with very fine granulation, the whole surface was tinted. Basically, some very fine networks of scratches were created so that the final varnish adheres very well to the original layer.

The final varnishing was done with shellac applied with the polishing ball (Schnaus 2000, 53-55), and on the sheet with shellac applied by brushing. Prior to drying the varnish, the removable elements were mounted in their original places (Fig. 4, 5). After this last operation, the restored clock mechanism was installed at the workshop in Hungary.

Conclusions

In order to know the origin, the historical context in which they were made and the techniques used in the manufacture of fireplace clocks called "Stutzuhren", several specialized works were consulted. The information obtained was useful for us to understand the importance of this type of object, the skill with which they were worked and the appreciation they enjoyed, being considered true luxury items.

The piece entered the restoration workshop of the Constantinescu couple brought by a private collector of antiques. He demanded that the piece be restored and documented, being aware of its true value. Studies, investigations and

interventions of passive and active conservation had a decisive role, prior to the restoration process. The restoration process spanned four months of 2019 and each intervention was well documented and motivated before it was applied. Being a valuable and spectacular piece, it enjoyed the attention of everyone in the workshop, therefore a lot of theories and tips were launched that contributed to its restoration stages, and the final result was as expected for both the owner and for restorers.

Although the restoration works of the piece took place in a private workshop, for the realization of some professional investigations, it was collaborated with the specialists from the institutions that have specialized laboratories. Based on the experience gained within the faculty and the volunteer activities, analyzes could be performed even by restorers.

To propose interventions, several solutions and mixtures were tested and the most appropriate were chosen for the different types of operations and with the least impact on the piece.

The restoration process was a real pleasure due to the multitude of operations performed and the diversity of materials it came in contact with. The real challenge was the stage of stripping the repaint layer discovered over the gold foil and varnishing the piece. The varnishing did not aim to remove the original lake, and it was chosen to refresh it, and the difficult application process due to the multitude of surfaces makes this stage both complex as a technique and spectacular as a final result.

The methodologies and techniques presented in the paper apply mainly to old artifacts that contain original materials, but also to inappropriate subsequent interventions. Preliminary research is needed and should take precedence in this area of restoration, and we hope that less invasive cleaning methods will be developed in the future.

** * Thanks*

Biologist investigator Livia Bucsa, chemist investigators Daniela Văcariu and Marta Guttmann, restorers Gabriel Constantinescu, Ioan Brai, Teodora Raicu and Katharina Lindner-Barth and carpenter Mircea Deacu.

REFERENCES

- László 2015 Balló László, Melchior Hefele bútorművészete Szombathelyen. Szülőföld Könyvkiadó Kft. 2015
- Schnaus 2000 Ellinor Schnaus, Urania-Ravensburge, *Möbel restaurieren*, Berlin, 2000
- Signorini 2010 Erminio Signorini, *Surface Cleaning of Paintings and Polychrome Objects in Italy: The Last 15 Years*, în *New Insights into the Cleaning of Paintings*, Smithsonian Contributions to Museum Conservation, New York, 2010
- Kaltembock 1988 Frederick Kaltembock, *Die Wiener Uhr*, Verlag Calley, Munchen, 1988
- Guttmann 2013 Guttmann Márta Júlia, *Aspecte teoretice ale curăţirii obiectelor din lemn*, în *Caietele Restaurării* 2013, Editura ACS, Bucureşti, 2013
- Gorej 2018 Mardarászné Gorej Judit, *Oszlopos állóóra restaurálása*, pp: 47- 58, articol din revista ISIS, Erdélyi Magyar Restaurator Füzetek 18, anul 2018, editura Haáz Resző Muzeum, anul 2018
- Atterbury, Tharp 1998 Paul Atterbury şi Lars Tharp, *Enciclopedie Ilustrată, Antichităţi*, Editura M.A.S.T., 1998

LIST OF ILLUSTRATIONS

Table

1. Mixtures used for cleaning tests on wood substrates
2. Mixtures used for performing the repainting stripping tests

Figure

1. Fireplace clock after restoration
2. Front assembly before restoration
3. Reverse assembly before restoration
4. Detached fragments
5. Fragment, before-after stripping
6. RLV of materials

LISTA ILUSTRĂȚIILOR

Tabel

1. Mixturile folosite pentru efectuarea testelor de curățire pe suportul lemn
2. Mixturile folosite pentru efectuarea testelor de decapare a repictării

Figură

1. Ceasul de șemineu după restaurare
2. Ansamblu față înainte de restaurare
3. Ansamblu verso înainte de restaurare
4. fragmente descleiate
5. fragment, înainte-după decapare
6. RLV-ul materialelor

	<i>Mixtures</i>	<i>Components</i>	<i>Ratio</i>
1	water- ethanol	water + ethanol	1:1
2	ammonia water	water + ammonia	1 +10 drops
3	water-ethanol and ammonia	water + ethanol +ammonia	1:1 +10 drops
4	water- ethanol and C2000	water + ethanol + C2000	1:1 +5%
5	water- C2000 and ammonia	water + C2000 +ammonia	1 +5% +10 drops
	*Percentages refer to the amount of solution in the total mass of the mixture 200 ml.		

1. Mixtures used for cleaning tests on wood substrates

	<i>Mixtures</i>	<i>Components</i>	<i>Ratio</i>
1	D	DMF	1
2	D-X	DMF + xylene	1:1
3	D-T	DMF + toluene	1:1
4	D-A	DMF + acetone	1:1
5	D-AE	DMF + ethyl acetate	1:1

2. Mixtures used for performing the repainting stripping tests



1. Fireplace clock after restoration



2. Front assembly before restoration



3. Reverse assembly before restoration



4. Detached fragments



5. Fragment, before-after stripping



6. RLV of materials

THE RESTORATION OF A LANTERN CLOCK

Ioan BRAI*

Abstract: *The lantern clock is a weight-driven wall clock, shaped in the form of a lantern. This was the first type of clock widely used in private homes. They originated before 16th century but only became common after the 17th century. This type of clock became obsolete in the 19th century due to other more modern mechanisms, and styles (Milham, Willis I. 1945, 89–94).*

Keywords: *pendulum, lantern, clock, mechanism, restoration, conservation*

Rezumat: *Ceasul felinar este un ceas de perete cu greutate, în formă de felinar. Acesta a fost primul tip de ceas utilizat pe scară largă în casele private. Ele au apărut înainte de secolul al XVI-lea, dar au devenit comune abia după secolul al XVII-lea. Acest tip de ceas a devenit învechit în secolul al XIX-lea datorită altor mecanisme mai moderne și altor stiluri.*

Cuvinte-cheie: *pendul, felinar, ceas, mecanism, conservare, restaurare*

For this type of clocks there are two theories for the origin of the name "lantern clock", the one that it refers to the brass, which was the main metal from what lantern clocks were made. Clocks were first made out of iron, with iron wheels, and then later with brass wheels. Later still, clocks began to be made from brass mainly (only the axis pins were made out of steel and other "load bearing" parts). Brass alloys were then called latten, and it seems that brass clocks would have been called "latten clocks" to distinguish them from iron clocks, and the term "lantern" could be an English interpretation or corruption of latten (Robey, J.A. 2015, 18). The other theory is that the name derived from the shape of the clock (it resembles a rectangular lantern, and like a lantern was hung on the wall). They are usually referred to as "house clocks", or "chamber clocks" or simply "clocks", since in 17th century England they were almost the only type of clocks that have existed. Only after a century, when other types of clocks began to be used in British houses, more descriptive names for this type of clock appeared. Other names used for lantern clocks are "bedpost", "birdcage" or "Cromwellian" clocks. "Sheep's head clock" was a nickname term for a type of lantern clock that had a large chapter ring covering almost the entire front.

The main style characteristics of lantern clocks are: a wall clock with square bottom and top plates surmounted by a large bell, four corner pillars, a

series of vertical plates positioned behind each other and a movement with one or more weights. Usually there is one weight for time keeping and a second for the bell. A few later lantern-style clocks were constructed with spring mechanisms, and many surviving examples of the original weight-driven type have been converted to spring or pendulum mechanisms (Jeff Darken & John Hooper 1997, 12).

The restoration process of the lantern clock

The clock was brought from the warehouse of the Museum of History "Altemberger House" and has the designated inventory number M 5503, it was found without: a dial, a pendulum, the weights that power the mechanism, the ropes that hold the weights, 4 fastening studs, the bottom part of the bracket that holds the dial, and one of the tightening square nuts that hold the pillars attached to the housing (specifically the bottom left one that was replaced with a normal hexagonal nut). Also, the count wheel of the anchor escapement is detached from the rest of the mechanism (Fig.1). After a closer look at the count wheel, 1 tooth from the wheel was missing.

The clock, once present in the laboratory, was found to be covered in deposits of dust and dirt poorly adhered, also deposits of adhesion and fat dirt due to dust incrustation with lubricating oils over time. Also, underneath the dirt and dust, was detected the presence of metal oxides specific to

*Brukenthal National Museum, Sibiu john30x@yahoo.com

copper and iron, present on discontinuous and uneven surfaces, on all gears and the other elements of the clock. The metal sheet covering the back, top and bottom (the housing) of the clock had mechanical deformations; also mechanical deformations are seen at the pendulum rod (Fig. 2). Mechanically deformed hammer rod. Fractured and mechanically displaced upper cover in the back (Fig 3). The steel bell is approximately 75% covered with metal oxides specific to iron (rust). The tip of the minute marker is broken off. Some of the gears are dislocated due to sudden impacts. Because of all the problems, and degradations listed above naturally the clock is not working.

The first stage of the restoration process was to roughly disassemble the clock into its components, for the different types of treatments that were necessary without getting into the gear mechanism, yet (Fig. 4).

After the disassembly occurred, the housing and the bell were mechanically cleaned with a steel rotary wire brush. The housing was straightened of all of its dents and mechanical deformations and at the end of it, both the housing and the bell were coated with Ballistol^{tm1}, using a clean cloth (White 1995, 7). The top fractured plate of the housing was attached together using a steel sheet riveted on (Fig. 5). The bottom part of the bracket that holds the dial was made using a steel sheet that was bent at 90°, drilled to match the top one and was riveted on to the housing (Fig.6)

The brass clock hands (the minute and hour markers), were degreased with acetone, afterwards were immersed in 20% orthophosphoric acid and brushed mechanically with a brass brush. A final aesthetic and protection treatment was to polish with Autosol² paste and wipe the pieces with a clean cloth; a final polish was given with a cloth, made especially for jewellers (Silbo)³. The tip of the minute marker was made out of brass, and silver soldered to the main body, afterwards was finished using files and sandpaper of increasing finer grits and finally integrated by polishing.

The dislocated count wheel was cleaned by using a sandblaster (using fine particles of glass beads) to

remove the dirt and the oxide layers. The matte finish left by the sandblaster was removed by using a fine brass brush that brought back the lustre of the brass and the steel. The missing tooth of the wheel was made out of brass and was attached using solder. And as a measure of protection and lubrication the piece was coated with Ballistoltm (Fig.7).

The main body of the clock mechanism (the gears and the gear frame) were also sandblasted, together to remove the dirt and oxide layers and also to make it easier for them to take apart (the pieces were fused together due to rust and brass oxides and also due to dust/dirt ingress) (Fig.8). After sandblasting the pieces came loose and the mechanism was disassembled further, and every piece was treated as the count wheel (Fig. 9). The bent (mechanically deformed) hammer and pendulum rod were straightened by using a light hammer to tap them straight.

The pendulum was made using a thin sheet of brass that was approximately cut to the needed dimensions and hammered into the convex shape, using a carved wood piece, as the negative. (the pendulum was made after a reference of similar size and dimensions). The pendulum was added to the pendulum rod (Fig. 10).

The 4 fastening studs were made from nails that were cold forged into a wedge shape, then cut to size using a hand saw and verified that they fitted into their allocated slots (Fig. 11).

The square nut was also forged out of a piece of steel, shaped to match the other ones, drilled and tapped to match the threads on the pillar. (Fig 12)

As a final step in the process the clock was reassembled without the dial (Fig. 13) and tested to see if the mechanism is functional (the dial was not found, and due to the fact that there was no reference of what it looked or how it was shaped, it was opted to reassemble the clock without it, and not attempt to make a new one). Now the mechanism is functional (no weights were found in the warehouse, but another similar clock's weights were taken and used to test the mechanism).

¹ Gun mineral oil, used for maintaining firearms, other metal ferrous metals, leather, wood and many other materials.

² Autosol- metal polish paste, ingredients: 15-30% aliphatic hydrocarbons, 5-15% aromatic hydrocarbons, <5% anionic surfactants

³ SILBO: 100% cotton cloth, ingredients: <5% non-ionic surfactants, ,5% anionic surfactants

REFERENCES

- | | |
|--------------------------------|--|
| Milham, Willis I. 1945 | Milham, Willis I. (1945). <i>Time and Timekeepers</i> . New York: MacMillan. pp. 89–94. ISBN 0780800087. |
| Robey, J.A. 2015 | Robey, J.A., "Iron Crossings and Brass Rims", <i>The Horological Journal</i> , British Horological Institute, Newark, England, July 2015 |
| Jeff Darken & John Hooper 1997 | Jeff Darken & John Hooper <i>English 30 Hour Clocks</i> Penita Books (1997) ISBN 0953074501 |
| White 1995 | White, Philip R, 'The care and preservation of firearms' <i>Technical Bulletin</i> , no.16, Canadian Conservation Institute, Ontario, 1995 |

LIST OF ILLUSTRATIONS

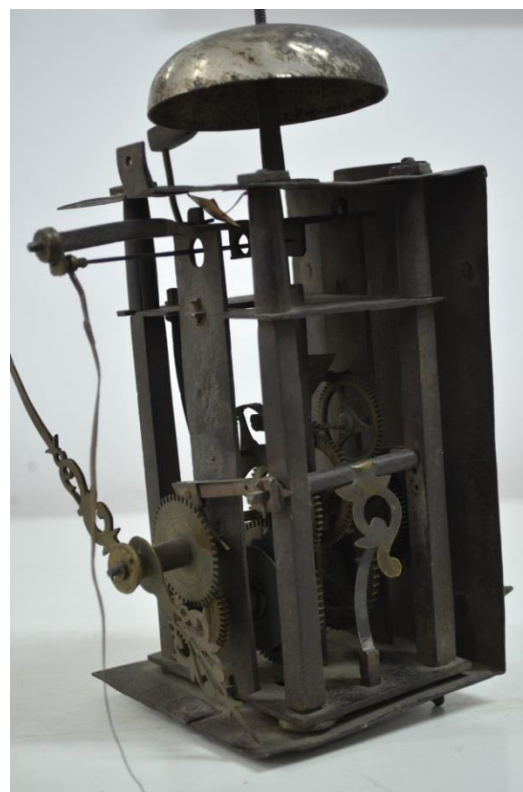
1. Assembly before restoration
2. Detail of bent pendulum rod before restoration
3. Detail of the fractured and mechanically displaced upper cover in the back
4. Rough disassembly of the mechanism
5. Detail of the method used to attach the fractured plate
6. Detail of the new bracket to hold the dial
7. Detail of the count wheel after restoration, and attached to the mechanism
8. Detail of cleaning, by sandblasting the mechanism
9. Detail of the mechanism disassembled after restoration
10. Detail of the pendulum after it was made and attached to the mechanism
11. Detail of a stud fitted into its allocated slot
12. Detail of the new square nut made
13. Assembly after restoration

LISTA ILUSTRAȚIILOR

1. Asamblu înainte de restaurare
2. Detaliu de tijă pendul îndoit înainte de restaurare
3. Detaliu al capacului superior fracturat și îndepărtat mecanic în spate
4. Demontarea provizorie a mecanismului
5. Detaliu privind metoda utilizată pentru atașarea plăcii fracturate
6. Detaliu al urechiusei de prindere a cadranul
7. Detaliu al roțiței de spațiere după restaurare, și atașată la mecanism
8. Detaliu de curățare, prin sablare a mecanismului
9. Detaliu al mecanismului dezasamblat după restaurare
10. Detaliu pendul după ce a fost făcut și atașat mecanismului
11. Detaliul unui știft de prindere montat în slotul alocat
12. Detaliu al noii piulițe pătrate făcute
13. Asamblu după restaurare



1. Assembly before restoration



2. Detail of bent pendulum rod before restoration



3.



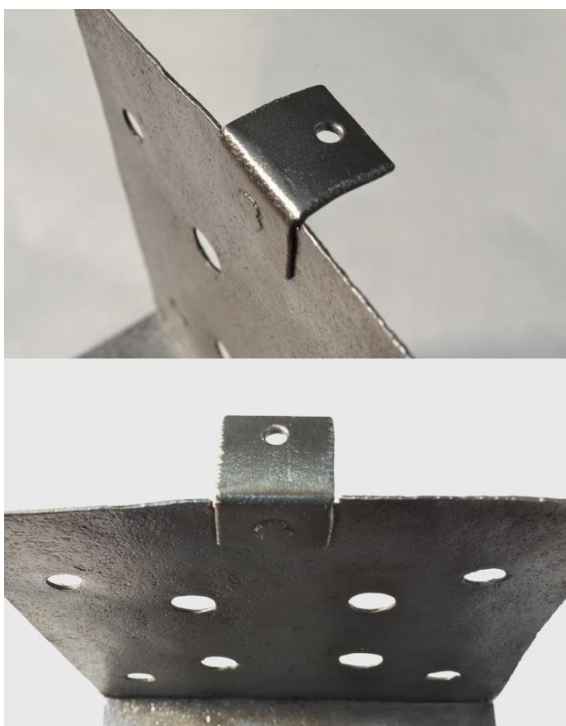
4.

3. Detail of the fractured and mechanically displaced upper cover in the back
4. Rough disassembly of the mechanism



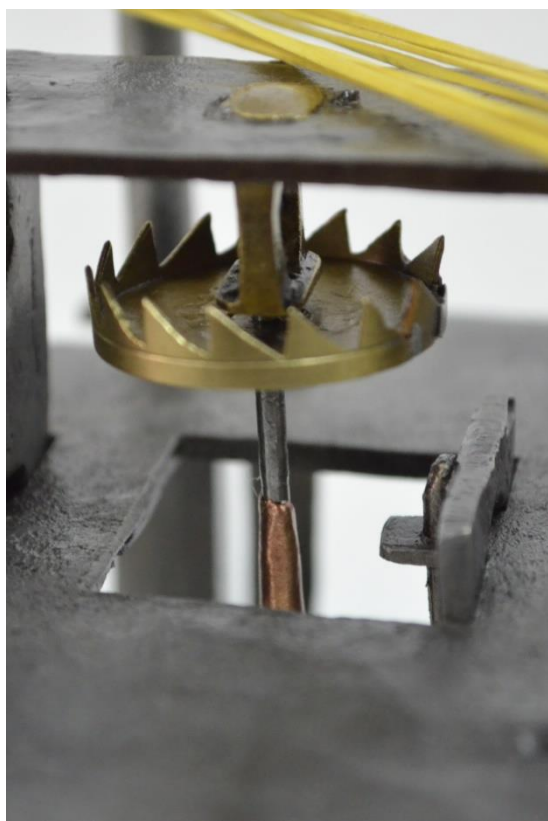
5.

5. Detail of the method used to attach the fractured plate



6.

6. Detail of the new bracket to hold the dial



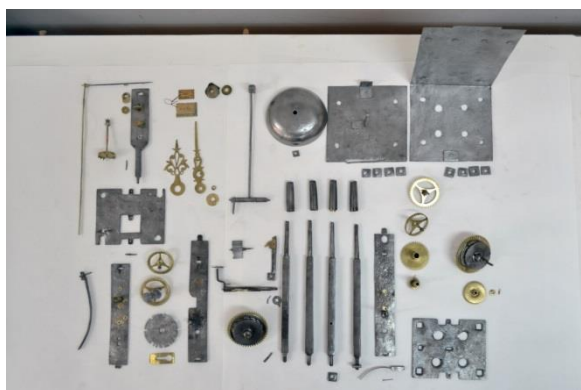
7.

7. Detail of the count wheel after restoration, and attached to the mechanism



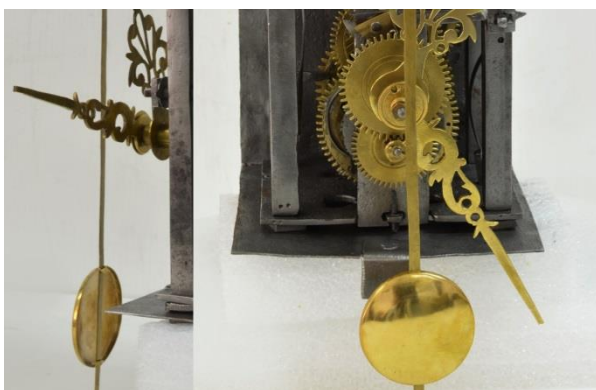
8.

8. Detail of cleaning, by sandblasting the mechanism



9.

9. Detail of the mechanism disassembled after restoration



10.

10. Detail of the pendulum after it was made and attached to the mechanism



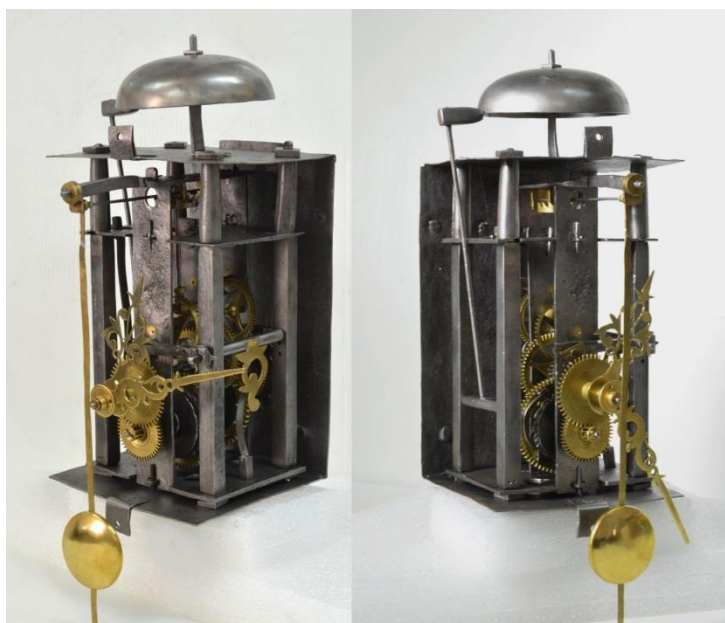
11.

11. Detail of a stud fitted into its allocated slot



12.

12. Detail of the new square nut made



13 Assembly after restoration

RESTORATION OF A NINETEENTH CENTURY CUTLERY SET FROM THE ALTEMBERGER HOUSE HISTORY MUSEUM- COLLECTION

Bobic CĂLIN*

Abstract: *The collection of kitchen utensils, particularly, the 19th-century cutlery assemblage from the History Museum within the Brukenthal National Museum Sibiu offers important information about the evolution of items used in preparing food and cutlery utilized for serving and eating. In this paper are presented, from the perspective of restoration and conservation, different types of eating utensils.*

Keywords: *tablespoon, fork, knife, cutlery set, restauration, conservation*

Rezumat: *Colecția ustensilelor de bucătărie și, în particular lotul de tacâmuri din secolul al XIX-lea din patrimoniul Muzeului de Istorie din cadrul Muzeal Național Brukenthal din Sibiu oferă informații importante cu privire la evoluția lor, de la piese folosite în bucătărie pentru prepararea hranei la tacâmuri folosite pentru servirea alimentelor și pentru a mânca. În lucrarea de față prezentăm diferite tipuri de ustensile pentru servirea mesei din perspectiva restaurării și conservării.*

Cuvinte-cheie: *Lingura, furculița, cuțit, restaurare, conservare, tacâm, servirea*

1. INTRODUCTION:

The term *cutlery* "tacâm" has several definitions according to the Romanian language: it's an *accessory*; *tableware* consisting of *knife, spoon, fork, plate, glass, cloth and napkin*; *totality of objects used by a person when eating* or *a set of objects or tools necessary for a certain operation or specific to a certain occupation*, but also *harness, procession, music band* or *wings, claws, bird necks*, etc. (DEX 1975, 935).

The history of preparing and serving food utensils begins with the appearance of the knife originally used as a weapon and then as a household tool. Initially, it's made of hard rocks, then bronze, iron, and different metals alloys, for example, *German silver* made of copper, nickel, and zinc.

The moment the spoon appeared is unknown, but various historical and travel documents specify the materials from which it's made (wood, bone, ivory, ceramic, or metal) and the different bowl and handle shapes (Academia Română 1960, 560).

A fork is a tool for serving meat meals and is used in the Eastern and Byzantine Roman Empire. The shape and number of teeth change over time so that their handling becomes easier.

In the Middle Ages, cutlery is an attribute of the aristocratic classes and many of them are made of precious metals (Bacumenco- Pîrnău 2016, 32-38).

Starting with the second half of the 18th century, different styles of knives, spoons, and forks appeared. In the second half of the 19th century, a revolution in the cutlery manufacture is generated by the discovery of stainless steel. The 20th century brought a simplification of the cutlery design as tools used in the preparation and serving of food.

2. THE OBJECTS DESCRIPTION (Mihuț 2007, 343-349):

2.1 Spoons

Spoon and ladle. The objects from Figure 1, made from German silver, represent a soup spoon and a ladle for serving sauces. The bowl of the spoon is oval, concave. The ladle bowl is circular and concave. The handle of each piece is thin and arched, which progressively widens and ends in a rounded shape.

Dessert spoon. The objects from figure 2 are a mother of pearl spoon used for serving desserts, jams, and other luxury sweets and a leather holster. The dessert spoon is composed of a slightly concave bowl and foldable handle. The materials used in making this object are mother-of-pearl, brass, and iron, as follows: the cup is made entirely of mother-of-pearl, the tang is made of iron and brass, decorated with dots, lines, and circles manufactured through casting, riveting and engraving, the handle is made from mother-of-pearl, fixed with

*Brukenthal National Museum, Sibiu

brass rivets (Licuță 2009, 23-31).

The holster of the dessert spoon is made of hardwood, partially covered with leather decorated with geometric motifs.

2.2 FORK

The usual fork. The object from figure 3 is made of German silver, has four teeth, and a handle, which is thin and slightly curved. The end of the handle, in its width, widens progressively.

Fork and knife. The objects from figure 4 are a fork and a knife, made of steel, with wooden handles. The blade has a rounded tip. The fork has three sharp teeth. The objects handle has three iron rivets.

Forks and holster. The objects from figure 5 are two forks and a holster. Both forks are made of steel, have 2 sharp teeth, and a handle made of wood, decorated with brass bands and equipped with a brass terminal button.

The holster is made of wood completely covered with leather. The base has a lightly decorated brass band.

2.3 KNIFE

Wide blade knife. The object from figure 6 is a knife with a straight blade, which narrows and curves, unilaterally, towards the point.

The handle is made of brass plates decorated with sinusoidal edges that partially cover bone plates fixed by 3 flower-shaped rivets arranged in a line. The terminal pommel is made of brass.

Knife with curved handle. The object in figure 7 is a knife with a straight and thin blade, which narrows symmetrically towards the point. The handle is made of brass, decorated with plant and floral motifs, and the end is curved.

Knife with sheath. The objects from figure 8 represent a knife and a sheath.

The one-dimensional triangular section knife blade is made of steel. The handle is made of bone and has a truncated shape with grooves and ribs arranged longitudinally. The terminal button of the handle is made of silver brass and decorated with stylized plant motifs.

The sheath has brass elements at the base and tip. The body is made from wood, covered with snake-skin.

Brass sheath. The object from figure 9 is a sheath made of tinned brass sheet. It has a base decorated with a curved line, and the body and tip are decorated longitudinally with plant motifs. The sheath

body is decorated circularly on own side with two successively geometric motifs bands interspersed with a floral motifs band, followed by a band with stylized plant motifs and one large floral motifs decoration. The other part of the sheath body is decorated circularly and successively with 2 bands with geometric motifs interspersed with a floral motifs band and date inscription - 1876, followed by the rendering of a male character.

3. DIAGNOSIS

The 19th-century cutlery set from the History Museum's collection presents functional wear, various physical, chemical, and biological degradations, as follows:

Spoon and ladle. The conservation status is satisfactory. The objects have discontinuous and uneven deposits of corrosion products specific to silver, on all surfaces, dust, and dirt

Dessert spoon. The conservation status of the constituent parts is relatively good, but the pearl bowl is broken at the joint to the handle. Corrosion products specific to copper, dust, and dirt are clogged on the entire surface of the object. The holster is covered all over with dust and dirt and needs hydration and softening.

The usual fork. The piece has corrosion products in an uneven layer, dust, dirt, and functional wear.

Fork and knife. The objects have corrosion products specific to iron, dust, and dirt, and the wood of each handle is in a good state of preservation.

Forks and holster. The state of conservation of the forks is satisfactory, so the teeth, brass strips, and terminal buttons have corrosion products specific to iron and copper, dust, and dirt. The wood of each handle is in a good state of preservation. The skin of the sheath needs hydration and softening.

Wide blade knife. The object has medium functional wear. It is covered in a discontinuous and uneven layer of corrosion products specific to iron and copper. Its entire surface is also clogged with dust and dirt.

Knife with curved handle. The degradation of the object's blade is accentuated. A continuous and uneven layer of corrosion covers the surface, and on certain parts, the corrosion products are exfoliated. The corrosion products of the handle are specific to copper.

Knife with sheath. The knife blade is heavily corroded. Some parts, characterized by a lack of material, are replaced by corrosion products. The handle and sheath are in relatively good state of conservation, except the brass components of the

sheath which are coated with specific corrosion products.

Brass sheath. The surface of the object is completely covered with a continuous and uneven layer of copper-specific corrosion products. Dents and deformations are found on both sides of the sheath.

Following the analysis of the data, it appears that the objects in this collection lot require restoration and conservation operations.

4. RESTORATION AND CONSERVATION OF OBJECTS

The actual restoration includes differentiated technological flows for each object's components. The objects from the 19th-century cutlery collection were restored respecting the following operations:

Spoon and ladle.

- Washing with non-ionic detergent Romopal OF-10 of 1% concentration;
- Drying and degreasing with ethyl alcohol of analytical purity;
- Chemical cleaning in orthophosphoric acid of 10% concentration (Stambolov 1985, 52) combined with intermediate brushes under running water until the complete disappearance of corrosion products on the surface of objects;
- Neutralization in distilled water and drying in ethyl alcohol of analytical purity;
- Final polishing with *Silbo* silver cleaning fabric.

Dessert spoon.

- Washing with non-ionic detergent Romopal OF-10 of 1% concentration;
- Drying and degreasing with ethyl alcohol of analytical purity;
- Polishing the components of the mother-of-pearl bowl with specific instrumentation and MTS (suspended technical motor);
- Brushing the components of the brass elements with a fiberglass brush;
- Brushing and tanning the components of the iron elements;
- Final filming of metal elements with silicone oil;
- Filling the mother-of-pearl bowl with two-component Epcon epoxy resin;

- Hydration and softening of the leather elements of the holster;

The usual fork.

- Washing with non-ionic detergent Romopal OF-10 of 1% concentration;
- Drying and degreasing with ethyl alcohol of analytical purity;
- Chemical cleaning in orthophosphoric acid of 10% concentration combined with intermediate brushes under running water until the complete disappearance of the corrosion products on the surface of the parts;
- Neutralization in distilled water and drying in ethyl alcohol of analytical purity;
- Final polishing with *Silbo* silver cleaning fabric.

Fork and knife.

- Washing with non-ionic detergent Romopal OF-10 of 1% concentration;
- Drying and degreasing with ethyl alcohol of analytical purity;
- Mechanical cleaning of the steel components of the parts with rotating mechanical brush until the disappearance of the corrosion products;
- Degreasing with ethyl alcohol of analytical purity;
- Final filming of metal components with Balistol;
- Apply a layer of microcrystalline wax on the handles;

Forks and holster.

- Drying and degreasing with ethyl alcohol of analytical purity of metal elements;
- Chemical cleaning in orthophosphoric acid of 10% concentration combined with intermediate brushes under running water until the complete disappearance of the corrosion products on the surface of the teeth of each fork;
- Chemical cleaning in formic acid of 10% concentration combined with intermediate brushes under running water until the complete disappearance of

the corrosion products on the surface of the brass elements;

- Neutralization in distilled water and drying in ethyl alcohol of analytical purity;
- Final filming of metal elements with Balistol;
- Hydration and softening of the leather elements of the holster;

Wide blade knife.

- Washing with non-ionic detergent Romopal OF-10 of 1% concentration of the metallic elements of iron, respectively of brass;
- Washing with non-ionic detergent Romopal OF-10 of 1% concentration;
- Drying and degreasing with ethyl alcohol of analytical purity;
- Chemical cleaning in orthophosphoric acid of 10% concentration combined with intermediate brushes under running water until the complete disappearance of the corrosion products on the surface of the knife blade;
- Brushing the brass components of the piece with a fiberglass brush;
- Polishing the brass components of the piece with Autosol paste;
- Final filming of the Balistol knife blade.

Knife with curved handle.

- Washing with non-ionic detergent Romopal OF-10 of 1% concentration of the metallic components of iron, respectively of brass;
- Drying and degreasing with ethyl alcohol of analytical purity of metal elements;
- Mechanical cleaning of the knife blade with a rotating mechanical brush until the disappearance of corrosion products;
- Tanning of the knife blade, in three layers, with Fertan solution;
- Chemical cleaning in orthophosphoric acid of 10% concentration combined with intermediate brushes under running water until the complete disap-

pearance of the corrosion products on the surface of the handle;

- Final filming of the knife blade with Balistol;
- Polishing the brass handle with Autosol paste;

Knife with sheath.

- Washing with non-ionic detergent Romopal OF-10 of 1% concentration of the metallic elements of iron, respectively of brass;
- Drying and degreasing with ethyl alcohol of analytical purity of metal components;
- Mechanical cleaning of the knife blade with a rotating mechanical brush until the disappearance of corrosion products;
- Tanning of the knife blade, in three layers, with Fertan solution;
- Final filming of the knife blade with Balistol;
- Mechanical cleaning of the metal components of the sheath with a fiberglass brush;
- Polishing the metallic elements of the sheath with Autosol paste;

Brass sheath.

- Washing with non-ionic detergent Romopal OF-10 of 1% concentration of the metallic components of iron, respectively of brass;
- Drying and degreasing with ethyl alcohol of analytical purity of metal components;
- Chemical cleaning in orthophosphoric acid of 10% concentration combined with intermediate brushes under running water until the complete disappearance of the corrosion products on the part surface;
- Polishing the sheath with Autosol paste;

5. CONCLUSIONS

The cutlery assemblage restoration from the History Museum collection is done according to the technological procedures, established after the state of conservation evaluation and due to the

specific characteristics of each object. Washing with a non-ionic detergent, respectively drying and degreasing with ethyl alcohol are the first two operations and common to the technological flows of restoration. It continues with specific operations for each component element, for example, mechanical and/or chemical cleaning, brushing, tan-

ning, neutralization, filming, polishing, hydration, and softening.

Furthermore, the restoration of these dining utensils exponentially adds value to their importance and usefulness in the lives of community members.

REFERENCES

- Academia Română, 1960 Academia Română, *Călători străini despre Țările Române*, București, vol. V, 1960.
- Bacumenco- Pîrnău, L., 2016 Bacumenco- Pîrnău, L., *Prețurile vaselor și ustensilelor de bucătărie în Moldova Medievală și Premodernă reflectate în sursele documentare*, în Mateev, S., coord., 2016 *Conspecte numismatice (VI)*, Universitatea de Stat din Moldova, Facultatea de Istorie și Filozofie, Muzeul de Antichități "Tudor Arău", Chișinău: CEPUSUM.
- DEX, 1975 Dicționarul explicativ al limbii române, București, editura Academiei RSR, 1975.
- Licuță 2009, Licuță, R.E., *Hrana în secolele XIV–XVII în Europa Occidentală și Centrală*, București, Muzeul Național, vol. XXI, 2009.
- Mihuț 2007, Mihuț, E., *Tacâmuri*, București, Muzeul Municipiului București- XXI, 2007, accessed 25.03.2020, www.muzeulbucurestului.ro / www.cimec.ro
- Stambolov 1985 Stambolov, T., *The Corrosion and Conservation of Metallic Antiquities and Works of Arts*, Amsterdam 1985.

LIST OF ILLUSTRATIONS

1. Spoon and ladle. Before restoration
2. Spoon and ladle. After restoration
3. Dessert spoon. Before restoration
4. Dessert spoon. After restoration
5. The usual fork. Before restoration
6. The usual fork. After restoration
7. Fork and knife. Before restoration
8. Fork and knife. After restoration
9. Forks and holster. Before restoration
10. Forks and holster. After restoration
11. Wide blade knife. Before restoration
12. Wide blade knife. After restoration
13. Knife with curved handle. Before restoration
14. Knife with curved handle. After restoration
15. Knife with sheath. Before restoration
16. Knife with sheath. After restoration
17. Brass sheath. Before restoration
18. Brass sheath. After restoration

LISTA ILUSTRAȚIILOR

1. Lingură și polonic. Înainte de restaurare
2. Lingură și polonic. După restaurare
3. Linguriță de desert. Înainte de restaurare
4. Linguriță de desert. După restaurare
5. Furculița uzuală. Înainte de restaurare
6. Furculița uzuală. După restaurare
7. Furculiță și cuțit. Înainte de restaurare
8. Furculiță și cuțit. După restaurare
9. Furculițe și teacă. Înainte de restaurare
10. Furculițe și teacă. După restaurare
11. Cuțit cu lamă lată. Înainte de restaurare
12. Cuțit cu lamă lată. După restaurare
13. Cuțit cu mâner curbat. Înainte de restaurare
14. Cuțit cu mâner curbat. După restaurare
15. Cuțit cu teacă. Înainte de restaurare
16. Cuțit cu teacă. După restaurare
17. Teacă de alamă. Înainte de restaurare
18. Teacă de alamă. După restaurare



1. Spoon and ladle. Before restoration



2. Spoon and ladle. After restoration



3. Dessert spoon. Before restoration



4. Dessert spoon. After restoration



5. The usual fork. Before restoration



6. The usual fork. After restoration



7. Fork and knife. Before restoration



8. Fork and knife. After restoration



9. Forks and holster. Before restoration



10. Forks and holster. After restoration



11. Wide blade knife. Before restoration



12. Wide blade knife. After restoration



13. Knife with curved handle.
Before restoration



14. Knife with curved handle.
After restoration



15. Knife with sheath. Before restoration



16. Knife with sheath. After restauration



17. Brass sheath. Before restoration



18. Brass sheath. After restauration

THE PROPOSAL PREMISES OF THE BIEDERMEIER STYLE IN TRANSYLVANIA

Victor Arren TURCU *

Abstract: *This article presents the premises of the proof of the Biedermeier style in Transylvania, in the European and socio-economic local context, becoming the German national stylistic expression in the urban area of Transylvania.*

Keywords: *Biedermeier, style, furniture, urban*

Rezumat: *În acest articol sunt prezentate premisele probagării stilului Biedermeier în Transilvania, în contextul european și socio-economic local, devenind expresia stilistică națională germană în arealul urban Transilvan.*

Cuvinte-cheie: *Biedermeier, stil, mobilier, urban.*

The term *Biedermeier*, applied to furniture, gained official acceptance in 1903, when it was included in the *Meyer Encyclopaedia*. It denotes a familiar, comfortable style, the solidity of which signaled a complete reversal of the spirit "Empire". However, on closer examination, there is something unstable and neurotic about this style, its solidity being more of an aspiration than an achievement; sometimes encounter massive forms, supported by a fragile base. In many ways, Biedermeier, which developed from the Empire style, perfectly represents the period of social frustration and disappointment resulting from the failure of the French Revolution.

The new order established by the Congress of Vienna (1815) and the spirit of the Holy Alliance, created an authoritarian, police atmosphere that stifled any expression of social and cultural hum, while Metternich's repressive policies reached Vienna throughout Central Europe. The reaction of the middle class was to give up political aspirations and thoughts of glory and retreat in a quiet, comfortable way of life, pursuing domestic satisfaction and dedicating themselves to trade and industry.

Biedermeier reflects this trend, both in style and in the types of furniture, the most requested being: chairs, sofas, drawing tables around which friends could gather to compose music or to have various conversations; offices, secreting for keeping mail; work tables and side tables. The structural solidity and decorative sobriety of this furniture is, however, sometimes betrayed by elements of whim and

lack of balance, witness signals of a subliminal neurosis.

Vienna was the center of emanation of the Biedermeier style, where the Empire style considered too monumental in its original French form, was interpreted with considerable freedom. The decree of Emperor Joseph II by which Viennese carpenters could not be officially accredited until following the graduation of a design school within the Academy of Figurative Art, contributed greatly to the improvement of the quality of furniture. In 1816, in Vienna, there were 578 duly licensed carpentry workshops and 297 cabinet-manufacturing masters. Some workshops operated on an industrial scale, with more than 130 employees, anticipating the technical revolution.

After a short period of abandonment of mahogany, as a dissident reaction to Empire furniture, it returns in the preferences of the Viennese, in the form of a thin veneer applied to less valuable wooden casings, usually made of resinous wood. The aim is to achieve a sober elegance with an emphasis on the natural beauty of the fibre of the various wood essences. It also opted programmatically for local essences such as walnut, cherry, birch, maple and ash. Bronze mounts were very rare, replaced by gilded wood or gilded casts, sawdust ornaments, or intars. (Boidi Sassone et al. 2000, 522-539)

Biedermeier style is an eminently bourgeois style, the furniture being designed to satisfy the requirements of this social class, characterized by comfort and practical utility, restrained sober elegance, re-

* Brukenthal National Museum, Sibiu, e-mail: turcuvictor@hotmail.com

leasing a family atmosphere and informal hospitality.

The cradle of the Biedermeier being Vienna, the style spread in the empire and in the prolo-German areas, assuming slightly different forms depending on the economic situation and the prevailing taste.

The German Biedermeier tends to be severe, imposing and architectural, having little in common with the more family-friendly, Viennese style. The German Biedermeier remained rooted in the Empire style, with square shapes framed by columns, with smooth surfaces, without decorations, with an emphasis on the beauty of the fibre of the veneer placed vertically, symmetrically in the mirror, polished with scaffold. In German space, mahogany was little used because of its high cost. (Litchfield 2011, 353-357)

Biedermeier penetrates the Principality of Transylvania both on the Viennese line, but especially on the German line. The political, social, ethnic, religious Transylvanian specificity demands a distinction between the great nobility; the city's patriciate, the high clergy, the senior soldiers, the magistrates and the superior officials - usually nobles and the modern bourgeoisie of the era of enlightened absolutism.

Those mentioned in the first category, in Europe and in Transylvania, are stylistically subject to the note proposed by the various sovereign courts, namely Baroque and Empire, in opposition to the nobility, bourgeoisie by its specificity, especially the German one, beneficiary of collective constituent privileges, evolving as a privileged enclave, quasi-independent of the cultural dictatorship of sovereign courts, benefits from greater freedom of choice or stylistic fixation, takes the stylistic expression metropolitan, bourgeois from the German space, namely Biedermeier.

The "royal" cities, especially Saxons, constituted in the 16th century as fortified cities with a Gothic plan offer small building space with high density of owners conditioning the stylistic expression of the resident patriciate and bourgeoisie.

City houses are restricted in space and affect much of the construction of lucrative functions, housing both owners and caliphs and apprentices. Thus, the resulting crowding must be considered the condition by excellence of this habitat and the specifics of the dwelling. (Bocşan et al. 2016, 477-505)

In these conditions, regardless of the financial possibilities of the owners, the dwellings had small rooms except for one or two vast rooms of representation, located on the first floor, often the only one, positioned in the front of the houses, as a result the pieces of furniture had to be small and with high functionality, extensible or foldable, tables, couches with demountable handles and backrests fulfilling the function of bed or mobile backrest, thus changing the direction of seating, screens, corner windows, wheeled photos for easier positioning in the interior of the room or with adjustable angle spacing becoming even more convenient for informal moments of reading or rest, sewing tables with multiple storage spaces, etc. This constructive polyvalence and ingenuity, the technical of the furniture becomes very tasted and appreciated by the public materialized in the prestigious piece mandatory in a Biedermeier interior namely the secretor.

The functionality, size, discreet elegance and quality of Biedermeier objects primarily explain their preservation in current use to this day, becoming the German national stylistic expression in the Transylvanian urban area.

However, the Biedermeier style penetrates Transylvania with some delay, first in the form of small products, imported on imperial trade routes, and then through local productions, by taking over slowly modern innovative technologies by local craft associations, dominated by conservatism and conformism. Once adopted in the technological repertoire of workshops and small Transylvanian manufactures, Biedermeier remains the stylistic expression preferred by the public, long after abandoning it in the central European space, coexisting with the following styles (Bretscher 1994, 103-112).

REFERENCES

- Bocşan et al. 2016, Nicolae Bocşan, Ioan Bolovan, Ionuţ Costea, Csucsujă Istvan, Anton E. Derner, Rudolf Graf, Ladislau Gyemant, Lukacs Olga, Ioan Lumperdean, Magyari Andras, Liviu Maior, Thomas Negler, Ioan Aurel Pop, Marius Porumb, Vasile Vesa, *Istoria Transilvaniei volumul III* (de la 1711 până la 1918), Editura Episcopiei Devei si Hunedoarei, Deva, 2016, ISBN 978-606-8694-56-6,
- Boidi Sassone et al. 2000, Adriana Boidi Sassone, Elisabetta Cozzi, Andrea Disertori, Massimo Griffo, Andreina Griseri, Anna M. Mecchi Disertori, Alessandra Ponte, Gianni Carlo Sciolla, Ornella Selvafolta, *Furniture from Rococo to Art Deco* Taschen GmbH, Singapore, 2000, ISBN 3-8228-6517-6,
- Bretscher, 1994, Peter Bretscher, *Museum Lindwurm Stein am Rhein Burgerliche Wohnkultur und Landwirtschaft im 19. Jahrhundert*, Hubert and Co. AG, Grafische Unternehmung und Verlag, Frauenfeld. Stein am Rhein, 1994, ISBN 3-274-0010-4-x,
- Litchfild, 2011, Frederick Litchfild, *Illustrated history of furniture* Arcturus Publishing Limited, China, 2011, ISBN 978-1-84837-803-2

CONSERVATION AND RESTAURATION OF THE ARTISTIC COMPONENTS ON THE FACADE OF THE BETHLEN GÁBOR COLLEGE - AIUD

Mihai IANCOVESCU RUDEANU*

Abstract: *This article presents the restoration works of the Bethlen Gabor Commemorative Ensemble in Aiud, along with a short history of the ensemble.*

Keywords: *portrait, symbol, marble, conservation, restoration.*

Rezumat: *Lucrarea de față prezintă lucrările de restaurare ale Ansamblului comemorativ Bethlen Gabor din Aiud, împreună cu un scurt istoric al ansamblului.*

Cuvinte-cheie: *portret, simbol, marmură, conservare, restaurare.*

Historic

Gábor Bethlen, in full Iktári Bethlen Gábor, in German Gabriel Bethlen von Iktár (born 1580 - died Nov. 15, 1629, Gyulafehérvár, Transylvania [now Alba Iulia, Romania]), Calvinist prince of Transylvania and briefly titular king of Hungary (from August 1620 to December 1621), in opposition to the Catholic emperor Ferdinand II. Gabriel was the elder of the two sons of Farkas Bethlen de Iktár and Druzsiána Lázár de Szárhegy. (Barcza 1987, p. 11), (Oborni 2012, p. 206)

Born into a leading Protestant family of northern Hungary, Bethlen as a young man was sent to the court of Prince Sigismund Báthory of Transylvania. Later he helped István Bocskay gain the throne of Transylvania and supported his successor, Gábor Báthory. Differences between Bethlen and Báthory, however, forced Bethlen to take refuge with the Turks. The Ottoman sultan Ahmed I, suzerain of Transylvania, provided Bethlen with an army and proclaimed him prince of Transylvania. When Báthory was driven from power, Bethlen was proclaimed prince by a Diet at Kolozsvár in 1613. Bethlen did much to promote the arts and sciences in Transylvania and founded the Academy of Weissemburg (Karlsburg). According to Gabriel's first extant letter (from 1593), Sigismund Báthory, Prince of Transylvania, seized the brothers' estates "at the word of many coaxing people" without paying a compensation to them in 1591 or 1592, but a "few primary kinsmen" convinced the prince to offer restitution or other landed property

to them. (Barcza 1987, p. 12), (Erdösi & Lambert 2013, pp. 860-864). Gabriel also mentioned in the letter that he decided to visit the prince's court in Gyulafehérvár (now Alba Iulia in Romania). (Keul 2009, pp. 141-150)

During the Thirty Years' War (1618–48), while the Holy Roman emperor Ferdinand II was occupied with the Bohemian revolt of 1618, Bethlen took over most of northern Hungary, captured Pozsony (now Bratislava, Slovakia), and seized the crown of St. Stephen. After the collapse of negotiations between Bethlen and Ferdinand, the Diet at Besztercebánya elected Bethlen king of Hungary (Aug. 20, 1620). Realizing that Hungary's Roman Catholic nobles would never accept a Protestant king, however, he refused to be crowned. At this point war between Bethlen and Ferdinand broke out. After the Bohemians, who were supporters of Frederick (the Protestant contender to the Bohemian throne), were defeated at White Mountain in 1620, Bethlen concluded peace with Ferdinand, and the following year he agreed to renounce the Hungarian throne and return the crown of St. Stephen. Ferdinand II agreed to reaffirm the 1606 Treaty of Vienna and guarantee liberty of worship to Hungary's Protestants; he also promised to summon the national Diet within six months. Bethlen became a prince of the Holy Roman Empire and secured for himself seven counties in north-eastern Hungary.

In 1613, after Báthory was murdered, the Ottomans installed Bethlen as Prince of Transylvania

* Brukenthal National Museum, Sibiu, e-mail: mihai_iancovescu@yahoo.com

and this was endorsed on 13 October 1613 by the Transylvanian Diet at Kolozsvár (Cluj-Napoca). In 1615, after the Peace of Tyrnau, Bethlen was recognised by Matthias, Holy Roman Emperor. (G. Etényi, Hom & Szabó 2006, pp. 162-169)

Bethlen's rule was one of patriarchal enlightened absolutism. He developed mines and industry and nationalised many branches of Transylvania's foreign trade. His agents bought goods at fixed prices and sold them abroad at profit. In his capital, in Gyulafehérvár (Alba Iulia), Bethlen built a grand new palace. Bethlen was a patron of the arts and the Calvinist church, giving hereditary nobility to Protestant priests. Bethlen also encouraged learning by founding the Bethlen Gabor College, encouraging the enrollment of Hungarian academics and teachers and sending Transylvanian students to the Protestant universities of England, the Dutch Republic, and the Protestant principalities of Germany. He also ensured the right of serfs' children to be educated. (Barta 1994, pp. 295-298)

Description of the work

The commemorative ensemble has a total size of 3000/2200 cm. It is made of three types of material:

- marble
- bas-relief portrait at the top 70/50 cm.
- a plate inscribed in the central area 160/90 cm.;
- limestone
- respectively the bas-relief depicting the owl at the bottom of the 180/70 cm. ensemble, the architectural elements of the sill and the cornice and the plaque behind the portrait;
- from mortar
- decorative architectural elements of the framing of the ensemble.

Preservation state

The whole work shows site-specific degradations, being in direct contact with atmospheric factors, exposed to anthropically induced deterioration and due to the various types of material used. Thus, we can identify on the surface physical-mechanical, physical-chemical and biological degradations.

- Physical-mechanical degradations: are mainly due to previous inadequate volumetric completion, repeated repairs and painting. Under the layers of lime the support was the support has been well preserved.

- Physical-chemical degradation: the assembly shows degradation due to frost-thaw cycles as well as other adverse air factors such as pollution and acid rain, which have caused stains especially of the stone surfaces. These degradations are found mainly in the upper parts of the elements, where they have been more exposed to weather, rain, snow. Also, on the entire surface there is an adherent dirt layer.

- Biological degradations: especially in horizontal areas where moisture has persisted and in concavities lichens, algae and mold can be observed.

Description of restoration works

Before any intervention, photographs were taken to record initial state of conservation of the artwork, and then a curative treatment of biocidation was carried out with 5% Biotin T¹ in distilled water. This operation was repeated three times every four days. The following operations were launched after the biological attack was stopped.

Mechanical cleaning

Dustings were carried out with soft brushes, the layers of lime, paint, adhesives, mortar and other deposits were removed and cleaned. For this laboratory tools were used, such as: scalpel, spatulas, very small chisels, vibrating cutter and others. In hard-to-reach areas and with adherent dirt, as well as selectively on other areas, micro-abrasive blasting was used.

Wet cleaning

A distilled water based cleaning solution containing 3% of nonionic detergent² was used to remove dirt, and poultices with distilled water were applied for salt extraction and for areas with adherent dirt.

¹ **Biotin T (CTS)**, Biotin T is a concentrated liquid preparation of active substances to be used, subject to dilution, for the preservation of surfaces like stone materials, mortars, plasters, frescoes, bricks, etc., from microbiological attack. Biotin T is used in solutions in demineralized water - concentrations ranging from 1 to 3%. (see <https://www.ctseurope.com/en/scheda-prodotto.php?id=607>, accessed on 20.05.2020)

² **C2000 (CTS)**, Watery emulsion of anionic and non-ionic tensioactives, inorganic chemicals and stabilizing agents. C 2000 is used for the removal of carbon, fat and oily substances as well as protein material from stone and ceramic artefacts. C 2000 is normally used in watery solutions in concentrations ranging from 2 to 5%, increasing concentration by up to 10% in more complex cases.

Selective cleaning was carried out with 12% ammonium hydroxide in distilled water.

Consolidations

Consolidation treatments of the supporting layer have been carried out especially for areas made of mortar, but also for limestone (Oltean 2015, 191).

Volumetric reintegrations

After cleaning, several problematic areas appeared where restoration treatments were necessary: infilling, Dutchman repair (Pelin et al. 2018, 20) done with marble, filling the sculptural and architectural information, as can be seen in the images in figure 2 (Oltean 2015, 206).

Thus several types of mortars and adhesives were used. For the stone part and the stucco a mortar based on hydraulic lime (NH15) was used, with aggregate of stone dust in different percentages as well as Remmers mortars³. For the bonding of the marble piece to the nose of the main figure Epo 121 bicomponent epoxy resin⁴ was used. .

Chromatic reintegration

It was applied for a uniform perception of the whole artwork as well as for the protection of the intervention areas. For this operation a mixture of lime putty, pigments (inorganic) and a small per-

centage of acrylic resin Acril 33⁵ (3% in distilled water) was used.

Final treatments

Due to the fact that the ensemble is located on the north side and is exposed to further weathering, a hydrophobic treatment with Silo 111⁶ was carried out. This treatment no longer allows moisture to penetrate the structure of the materials, thus a preventive effect is achieved by eliminating the main degradation factor. (Fig.10).

³ **Remmers**, Used for restoring, supplementing and re-profiling mineral substrates such as natural stone, brick, concrete and synthetic stone. It can also be used to reproduce ornamental building elements in a tamping procedure. Remmers Restoration Mortar is a ready-to-use, pre-mixed, dry mortar made of mineral binders and aggregates. Its physical characteristics correspond to the requirement for the lowest possible inherent stress and physical-mechanical properties that are coordinated to the natural stone substrate (compressive and bonding strength, water transport, etc.). The restoration mortar is a component in the Remmers Restoration Mortar System with two different strengths and thus corresponds to the requirements stated in Prof. Snethlages Guideline for Preserving Stone. The grains essentially correspond to those of fine-grained sandstone. Substrate specific modifications in the coarse and fine grain range are possible. If desired, the mortar can also be formulated hydrophobic.

⁴ **Epo 121, (CTS)**, A universal thixotropic epoxy adhesive for bonding stone, marble, concrete, metal, ceramics, etc., smoothing, filling, fastening reinforcement rods. Epo 121 is a structural adhesive with excellent mechanical resistances.

⁵ **Acril 33 (CTS)**, A 100% pure acrylic resin in aqueous dispersion characterized by excellent resistance to atmospheric agents and chemical stability. Thanks to its high alkali resistance, particularly suited for applications with hydraulic binders (hydrate-hydraulic limes, cement, plaster).

⁶ **Silo 111 (CTS)**, Ready-to-use water repellent protective, based on organosiloxane oligomers, with an excellent capacity for penetration. Silo 111 is formulated in 10% deaerated mineral solvent. Once the reticulation reaction is completed (thanks to atmospheric humidity), they impart excellent waterproofness to the treated surfaces. They do not form any superficial film impervious to water vapour, nor cause chromatic alterations or glossy effects. Both can be applied to marble, stone, plasters, bricks, concrete. Silo 112 can also be added to mortars to impart them water repellent properties.

REFERENCES

- Barcza 1987 Barcza, József (1987). *Bethlen Gábor, a református fejedelem [Gabriel Bethlen, the Reformed Prince]* (in Hungarian). Budapest: Magyarországi Református Egyház Sajtóosztálya. ISBN 963300246X.
- Erdősi & Lambert 2013, Erdősi, Péter; Lambert, Sean (2013). "The Theme of Youth and Court Life in Historical Literature Regarding Gábor Bethlen and Zsigmond Báthory". *The Hungarian Historical Review*. MTA Történettudományi Intézet. 2 (4): 856–879. ISSN 2063-8647. JSTOR 43264470.
- G. Etényi, Hom & Szabó 2006, Barta, Gábor (1994). "The Emergence of the Principality and its First Crises (1526–1606)". In Köpeczi, Béla; Barta, Gábor; Bóna, István; Makkai, László; Szász, Zoltán; Borus, Judit (eds.). *History of Transylvania*. pt. 3. The Principality of Transylvania (English ed.). Budapest: Akadémiai Kiadó. pp. 247–300. ISBN 9630567032.
- Keul 2009 Keul, István (2009). *Early Modern Religious Communities in East-Central Europe: Ethnic Diversity, Denominational Plurality, and Corporative Politics in the Principality of Transylvania (1526–1691)*. Brill Academic Publishers. ISBN 978-90-04-17652-2.
- Oborni 2012 Oborni, Teréz (2012). "Bethlen Gábor". In Gujdár, Noémi; Szatmáry, Nóra (eds.). *Magyar királyok nagykönyve: Uralkodóink, kormányzóink és az erdélyi fejedelmek életének és tetteinek képes története* [Encyclopedia of the Kings of Hungary: An Illustrated History of the Life and Deeds of Our Monarchs, Regents and the Princes of Transylvania] (in Hungarian). Budapest: Reader's Digest. pp. 206–209. ISBN 978-963-289-214-6.
- Olteanu, 2015 Iulian Olteanu *Piatra în patrimoniul românesc. Degradări specifice și tratamente adecvate*, Art Conservation Support, 2015
- Pelin et al 2018 Vasile Pelin, Ioan Gabriel Sandu, Viorica Vasilache, Andrei Victor Sandu, Silviu Gurlui, Ion Sandu *Cercetări actuale privind investigarea, prezervarea și restaurarea monumentelor istorice*). [online] available at: <http://www.euroinvent.org/cat/w2018.pdf>, 2018 [pdf], [Accessed 25 July 2020]

LIST OF ILLUSTRATIONS

1. Ensemble and detail before and after restoration
2. Degradation details – stages of work
3. Selective cleaning details
4. Details, volumetric reintegration of the ornament
5. Ensemble bas-relief cleaning
6. Cleaning details
7. Biological attack details
8. Biocidal details and selective cleaning
9. Details of completions and volumetric reintegration
10. Details mounting nose Dutchman repair
11. Ensemble after restoration

LISTA ILUSTRAȚIILOR

1. Ansamblu și detaliu înainte și după restaurare
2. Detalii degradari – etape de lucru
3. Detalii curatiri selective
4. Detalii întregire volumetrică ornament
5. Ansamblu curatire basorelief
6. Detalii curatiri
7. Detalii atac biologic
8. Detalii biocidare și curatiri selective
9. Detalii chituri și întregiri volumetrice
10. Detalii montare țesela nas
11. Ansamblu după restaurare



1. Ensemble and detail before and after restoration



2. Degradation details - stages of work



3. Selective cleaning details



4. Details, volumetric integration of the ornament



5. Ensemble bas-relief cleaning



6. Cleaning details



7. Biological attack detail



8. Biocidal, details and selective cleaning



9. Details of completions and volumetric integrations



10. Details, mounting nose Duchman repair



11. Ansamble after restoration

**EFFECTS OF ATMOSPHERIC FACTORS ON EXTERIOR WALL PAINTINGS.
CASE STUDY: CONSERVATION STATE OF THE VOTIVE IMAGE OF THE "SAINT NICOLAS"
CHURCH FROM TURNU ROȘU**

Paul Victor LANGA*

Abstract: *This article presents the effects of atmospheric factors on the exterior mural painting of churches. A case study presented is the analysis of the state of conservation of the votive painting of the church "Saint Nicholas" in Turnu Roșu, Sibiu County, painted on its northern facade. It has suffered degradations over time, caused mainly by the action of these factors.*

Keywords: *state of conservation, exterior mural painting, atmospheric factors, votive image, Turnu Roșu, Sânpetru, Avrig.*

Rezumat: *În acest articol sunt prezentate efectele factorilor atmosferici asupra picturii murale exterioare a bisericilor. Un studiu de caz prezentat este analiza stării de conservare a tabloului votiv al bisericii „Sfântul Nicolae” din Turnu Roșu, județul Sibiu, zugrăvit pe fațada nordică a acesteia. Acesta a suferit de-a lungul timpului degradări, cauzate în special de acțiunea acestor factori.*

Cuvinte-cheie: *stare de conservare, pictură murală exterioară, factori atmosferici, imagine votivă, Turnu Roșu, Sânpetru, Avrig.*

From the Middle Ages, which had a major impact on the Balkans, continuing with the Renaissance and reaching the nineteenth and twentieth centuries, the paintings in fresco illustrate both religious and mythological or social scenes with humanistic nuances (especially in the Renaissance, the period of apogee of the fresco), accompanied by decorative motifs full of symbolism, each painting ensemble carrying a historical message about the culture and civilization of the region. At the same time, the raw materials, models or various instructions on the creation of these murals allow us to identify the circulation of certain craftsmen, artists, techniques and ideas in the European geographical area, and beyond. Thus, the study of mural painting, especially the fresco technique, involves many specialists such as art historians, theologians, sociologists, but also painters, physicists, chemists, biologists, conservators and restorers whose main purpose is to decode the message transmitted by the painting and its behavior over time, in order to preserve it. Remembering a mention of Alexandru Efremov in his study on the professional collaboration between the art historian and the restorer (Efremov 1973, 76-80), our orientation towards many old architectural monuments decorated with frescoes must start in the reverse order of the above enumeration, starting from the “intimate structure of the work” (Efremov 1973, 76) through

applied research and scientific intervention, in order to be able to observe its more or less complete picture. As a result of such research, some substantial changes may occur in the previous perception of the artistic message or historically important previous interventions may be observed¹. (Boldura 2013, 390-399)

From a technological point of view in a mural painting there is a series of stratigraphic elements which form the ensemble that we see with the naked eye. The first of these is the wall, the second, *arriccio*, the plaster applied on it as a smoothing layer, the third, *intonacco*, another layer of finer plaster, on which the fourth element, the color layer, is applied. Depending on the region studied and its resources, the materials used are different in origin and react specifically due to their composition, impacting the whole ensemble over time under the influence of various microclimatic or macroclimatic factors, natural phenomena or human actions.

* Lucian Blaga University from Sibiu, Faculty of Social and Human Sciences, Department of History, Heritage and Protestant Theology, Conservation and Restoration Section; e-mail: paul.langa@ulbsibiu.ro

¹ The churches from the monasteries from Humor, Probota, Sf. Ioan cel Nou from Suceava and those from Pătrăuți, Arbore and Bălinești.

The painting of the old places of worship of Transylvania bears the mark of the painters who for centuries embellished the foundations of knezes, princes or various people who supported their construction and painting.

In many cases, the fresco decoration was made not only inside the churches, but also outside them, a fact usually found in Moldova and Wallachia. Depending on the architecture of the place of worship, the scenes are isolated or stretch on an entire wall, giving the building a magnificent look by their color. At the same time, they carry a moralizing function (for example Deisis, the Last Judgment) or a protective one (painting of Saint Christopher, the south wall of the old church from Sânpetru, Braşov County).

Many of the frescoes in these places of worship suffer over time numerous degradations caused by various atmospheric, geographical or human factors. If the interior mural painting is, to a certain extent, more protected from certain factors among those listed, the exterior painting is more often exposed to their action, the fluctuations being more frequent and often with destructive effects. (Boldura 2013, 24-25)

Atmospheric factors with a major impact on exterior painting are temperature and humidity, more exactly the action of precipitation and sunlight. The fluctuations of these parameters at the level of the external frescoes have negative effects both on the surface and in depth. The main effects are the discoloration of the pigments, structural changes of the plaster that lead to the exfoliation of the color layer or even to the loss of the plaster adhesion, the migration of salts and even the total loss of the plaster layer and implicitly of the painting. Also, the action of air currents can have a destructive effect by carrying various dust particles or other materials that are deposited on the painting or that have an erosive effect on it. (Boldura 2013, 76, 81, 83, 89-90)

The geographical position influences the exterior painting through the prism of air currents. On the other hand, due to the frequency of road traffic around the building, the particles are deposited on the exterior painting and there are also certain shocks that structurally influence both the architecture and the painting.

In addition to the factors set out above, the human factor can also play a decisive role in preserving or degrading the exterior painting of places of worship. On the one hand, the lack of maintenance of the place of worship and the area around it can ac-

centuate the action of atmospheric factors. Thus, defective gutters, broken tiles, paving the area close to the church without an area of evaporation of moisture from the soil, short eaves, cracks that are not repaired and their failure to protect against infiltration are just some of the problems that lead to structural degradation of the exterior painting. On the other hand, inappropriate interventions such as plasters with materials incompatible with the substrate, cleaning with aggressive solutions or non-compliant repainting also cause changes in the original message and style of representation, degrading the historical character of the painting. (Boldura 2013, 144-147, 151-152)

For a better example of the effects of these factors on the exterior mural painting of places of worship, we will discuss mural fragments found on the facades of researched churches in southern Transylvania (Braşov and Sibiu counties).

On the southern facade of the old church from Sânpetru (Braşov County) there are five scenes, from west to east, Saint Christopher with a dog's head, the Parable of Solomon, the Parable of Wisdom and two apostles, Philip and Thomas. Around the narthex, the nave and the altar is painted a belt but also a frieze of the apostles, in the axis of the apse of the altar being painted Christ Pantocrator. Degradations are mainly caused by moisture infiltration from the gutters, especially in the lower part of the medallions on the northern facade, where there are losses of color. At the ends of the frieze facing the street we can see consistent deposits of wind-driven dust and along the frieze to the apse we can see discolored white areas that have appeared due to leaks and salt migration. In the corner area from the apse we notice a blurring of scenes or medallions due to erosion caused by various wind-driven materials or precipitation and leaks from defective gutters. Another cause of the degradation of the frieze and the image of the Pantocrator in the apse area is the distance of the gutter from the wall, so the water drains both in the gutter and on the surface of the painting; in some areas only the outline is observed. The short eaves and the distance of the gutter also negatively influenced the scenes in the lower part of the church on the south wall. In their lower area, exposed to precipitation and sunlight, there are exfoliations or losses of the color layer, but also losses of adhesion of the plaster. Roof infiltrations have produced structural changes in the brickwork in some areas causing cracks and fissures that over time can lead to massive detachment of the plaster. There are also contour areas of the characters

where the color has been lost, an effect caused by technical defects (painting in *Fresco-secco*) or the poor quality of the binder, the second variant being less plausible given that in the upper part of the scenes and the frieze the contour has been preserved.

The same effects can be observed at the "Palm Sunday" church in Avrighi, Sibiu County. Compared to the one in Sânpetru, it is located on a hill, the northern facade being exposed to the open field and the Olt River. The medallions with prophets from the frieze under the eaves, especially those from the north, show substantial losses of the color layer caused by air currents and the rain which have an erosive effect on the layer. The most degraded scenes on the facade are those in the southwestern part of the church, with exposure to the road. Again, in addition to the fact that precipitation and sunlight have a direct effect on them, the action of particles carried by air currents has a negative effect, causing erosion and the accumulation of deposits on the paint layer. At the same time, frequent fluctuations led to exfoliation and layer loss, especially at the Sunday of All Saints scene in the southwest corner.

Another place of worship, this time on the right bank of the Olt River, also in a hilly area, is the church "Saint Nicholas" in Turnu Roșu, Sibiu county, founded in 1653 by the Wallachian voivode Matei Basarab (1632-1654) and his wife Elena, and painted inside a century later, in 1755. Over the centuries it has undergone a series of architectural changes and interventions that changed its original appearance. For this reason, the historical painting is preserved in a small proportion, especially on the outside, on the northern facade and above the access door to the church, and inside, in the area of the hallway and the narthex. The painting on the exterior facade is older, given that its repainting is mentioned in 1750, so we can assume that only it dates by appearance from the time of the foundation. We do not have clear evidence to prove that the original scenes currently existing on the northern facade had continuity on the western facade as well. However, it is certain that with the construction of the tower they could have been lost. The image of Saint Nicholas, the spiritual patron of the church, is painted in a different style in comparison with the mentioned fragments.

On the northern facade we see four fragments of exterior painting disposed from West to East in the following order: Constantine and Helena, Mother

of God with a military saint² (?), followed by Saint George represented in the form of legend and the votive painting of Matei Basarab with Mrs. Elena. The first scene and half of the second one, located in its nearness are almost completely lost, it is possible to see with difficulty some contours and fragments of color that allow us a difficult identification of the images with the naked eye. The other fragments below are preserved in a better state of conservation with the possibility of an easy reading of the image.

Given the fact that the place of worship has undergone a process of renovation and restoration, the new painting of the facade does not allow us a concrete identification of the factors or conditions that led to the degradation of the exterior painting in this area.

Compared to other cases, we can also discuss in this case the action of precipitation as a main cause, the sun's rays acting less during the day. At the same time, we can observe the inadequate interventions with cement plastering applied at the base of each scene. We notice a descending line that starts from the base of the votive picture and stops in the middle of the base of the north-western scene. The hypothesis would be that the gaps were caused by the rising humidity or water leaks due to precipitation accumulated on the edge of the space where the scenes are painted. Whatever the cause, it is certain that the areas went through high humidity values which, due to the action of temperature, led to the loss of the color layer in various proportions. Analyzing the open areas resulting from the loss of the color layer, we can also assume the existence at a certain moment of some efflorescence of salts on the surface that led to an advanced degradation of the painting.

The votive painting represents Voivode Matei Basarab and Princess Elena holding in their hands the ark of the church which has its original aspect (Langa 2018, 118). At the top we can see a fragment of blue color used in the background. The presence of the color layer in a high proportion is also found in the area of the crowns, clothes and the reddish background on which the characters are projected. The absence or low proportion of the color layer in the upper half could be caused by the action of precipitation allowed by the relatively short eaves of the church or by water leaks from the roof. The lower part of the sky background has

² Attributed by the tip of the sword that can be seen in the upper right of the scene kept intact.

suffered the most degradation, in some places can be observed only the layer of plaster.

Compared to the state of preservation of the background at the top of the other scenes, it seems that the blue pigment did not withstand the impact of high humidity and efflorescence, possibly caused by inadequate interventions on the support.

Based on the studied cases, the conclusion that can be drawn is valid for all monuments with exterior painting. Lack of weather protection and inadequate interventions lead over time to massive degradation and even to the total loss of a past testimony, often full of symbols and messages passed on to future generations.

In the case study of the votive painting of the church "Saint Nicholas" in Turnu Roșu, the fragment is a historical document attesting an event and the individualized portraits of the founders or the ark held in hand are important historical sources in the analysis of the architectural developments of the monument and of the social evolutions through the image of the donors. The loss of such a fragment can be associated with the loss of the original identity of the building, since the votive image reinforces the message recorded in the inscription carved in stone or painted wording the act of founding the church.

REFERENCES

- Boldura 2013 Boldura, Oliviu, *Pictura murală din nordul Moldovei. Modificări estetice și restaurare.*, Editura ACS, 2013, pp. 24-25, 76, 81, 83, 89-90, 144-147, 151-152, 390-399.
- Efremov 1973 Efremov, Alexandru, *Restaurarea picturii privită prin prisma istoricului de artă*, in *Buletinul Monumentelor Istorice*, XLII/3, București (1973), pp. 76-80.
- Langa 2018 Langa, Paul Victor, 'Patru tablouri votive din sudul Transilvaniei (secolul XVIII – începutul secolului XIX)', in *Studia Universitatis Cibiniensis. Series Historica*, Universitatea Lucian Blaga din Sibiu, Sibiu, 2018, pp. 113-121.

LIST OF ILLUSTRATIONS

1. Detail frieze of the apostles, northern facade. "Saint Nicholas" Church from Sânpetru, Braşov County.
2. Altar apse, eastern facade. "Saint Nicholas" Church from Sânpetru, Braşov County.
3. Northern facade. "Saint Nicholas" Church from Sânpetru, Braşov County.
4. Detail of northern facade. "Palms Sunday" Church from Avrig, Sibiu County.
5. Southern facade of nave. "Palms Sunday" Church from Avrig, Sibiu County.
6. Detail scene All Saints' Sunday, southern facade. "Palms Sunday" Church from Avrig, Sibiu County.
7. Details of mural painting fragments on the northern facade. "Saint Nicholas" Church from Turnu Roşu, Sibiu County.
8. Detail with votive image, northern facade. "Saint Nicholas" Church from Turnu Roşu, Sibiu County.

LISTA ILUSTRAȚIILOR

1. Detaliu friză apostoli fațada de nord. Biserica „Sfântul Nicolae” din Sânpetru, județul Braşov.
2. Abisda altar, fațada de est. Biserica „Sfântul Nicolae” din Sânpetru, județul Braşov.
3. Fațada nordică. Biserica „Sfântul Nicolae” din Sânpetru, județul Braşov.
4. Detaliu fațada nordică. Biserica „Duminica Floriilor” din Avrig, județul Sibiu.
5. Fațada sudică a naosului. Biserica „Duminica Floriilor” din Avrig, județul Sibiu.
6. Detaliu scenă Duminica tuturor sfinților, fațada de sud. Biserica „Duminica Floriilor” din Avrig, județul Sibiu.
7. Detaliu fragmente murale, fațada nordică. Biserica „Sfântul Nicolae” din Turnu Roşu, județul Sibiu.
8. Detaliu imagine votivă, fațada nordică. Biserica „Sfântul Nicolae” din Turnu Roşu, județul Sibiu.



1.



2.

1. Detail frieze of the apostles, northern facade. "Saint Nicholas" Church from Sânpetru, Brașov County

2. Altar apse, eastern facade. "Saint Nicholas" Church from Sânpetru, Brașov County



3.



4.

3. Northern facade. "Saint Nicholas" Church from Sânpetru, Brașov County

4. Detail of northern facade. "Palms Sunday" Church from Avrig, Sibiu County.



5. Southern facade of nave. "Palms Sunday" Church from Avrig, Sibiu County.



6.



7.

6. Detail scene All Saints' Sunday, southern facade. "Palms Sunday" Church from Avrig, Sibiu County.
7. Details of mural painting fragments on the northern facade. "Saint Nicholas" Church from Turnu Roșu, Sibiu County.



8. Detail with votive image, northern facade. "Saint Nicholas" Church from Turnu Roșu, Sibiu County.

RESTORING A REVERSE GLASS ICON WITH THE THEME "THE HOLY MARTYRS GEORGE AND THEODORE TIRON"

Mirel-Vasile BUCUR*

Abstract: *In the beginning, we present the "The Holy Martyrs George and Theodore Tiron" theme from the reverse painting on glass from Transylvania. We present the state of conservation and the restoration process. This study will present the gluing operations of fragments, the consolidation of paint layer, the consolidation and the completion of the wooden elements. Finally, we expressed some recommendations regarding storage conditions and exposure.*

Keywords: *Reverse painting on glass, restoration, consolidation, Nicolae Oancea.*

Rezumat: *La început prezentăm tema Sfinților martiri Gheorghe și Theodor Tiron în icoanele pe sticlă din Transilvania. Prezentăm starea de conservare a piesei și procesul de restaurare. Studiul arată operația de lipire a fragmentelor, consolidarea stratului pictural și consolidarea și completarea elementelor din lemn. În final recomandăm câteva condiții de conservare și expunere.*

Cuvinte-cheie: *: pictura pe sticlă, restaurare, conservare, Nicolae Oancea.*

1. General considerations

Glass paintings took an honorary place in the homes of locals who considered them the bond between earthly and eternal life. Between these icons, we recognise a few that were considered to be quite important for the locals: The Madonna and Child, the Savior: Christ Pantocrator or Christ in the vineyard, the Holy Trinity, representations of patron saints such as St. Nicholas, protector of the family, Saint George, protector of the earth, Saint Elijah Joseph, protector of the harvest, Saint Demetrius, protector of the shepherd, Saint Haralambos, protector against diseases (Roșca 2010). Our icon is a representation of saints that are illustrated, in general, in iconography in equestrian portraits with one or multiple figures. Very rarely we found an icon with multiple characters, the one with Saints George, Demetrius and Theodore Tiron portrayed on horseback being a beautiful example. (Dumitran 2018, 19).

The iconography of the saints on horseback is present from the beginning in the iconography of glass paintings; Saint George is one of the most

frequent theme, being well-illustrated in the works of the most important glass icon painters such as Savu Moga, Matei Țimforea or Ioan Pop from Făgăraș. We also see icons in which other military saints are the subject, but they are not as many as we might thought: for example there are icons representing Demetrius and Theodore Tiron in extremely similar positions, the only differences being made by the elements which made the composition (Irimie, Focșa 1971, 30). In the cases of Saint George and Saint Theodore we can observe, at the base of the composition, the dragon and in Saint Demetrius case can be seen a male character, in the lower part of the icon, which is a reference to the Giant Lie defeated by Nestor. Obviously, the illustrations are trying to narrate to the viewers the legends related to the lives of the military saints.

In the icons, that were painted in Nicula village, dated between the end of the 18th century and the beginning of the 19th century, in which Saint George is represented on horseback, the palaces, the rocks and the princess were not placed in the composition, leaving only the saint, who through

* PhD Lecturer, Lucian Blaga University of Sibiu, Faculty of Social and Human Sciences, Department of History, Heritage and Protestant Theology, mirel_bucur@yahoo.com, mirel.bucur@ulbsibiu.ro

a movement, pierces the dragon with the spear. Here, the dragon hooked between the horse's legs takes the shape similar to a snake (Fig. 1, 4). In another representation of Saint George, coming from the same village, now in the collection "Cornel Irimie" from CNM ASTRA, Olimpia Coman-Sipeanu mentioned that: "The quick painting and the sloppy representation of the horse and the dragon, the disproportions of the human body-very big head and short legs, the shrill coloring reduced to the primary colours: red, yellow, blue as well as the Latin inscription, are arguments for dating the icon in the late period of the Nicula village." (Coman Sipeanu 2010, p. 134) (Fig. 5). In another version, the dragon is only suggested, the princess appearing on her knees, showing a pious attitude in front of a castle full of battlements. The people of Nicula manage to execute the composition wonderful, to bring the figures to the forefront and to give depth to the background in a skilful gradation.

In Șcheii Brașovului, Saint George is represented approximately after the same compositional imagery, but in different versions: on the left side of the image, the princess appears in front of a palace that looks similar to the Transylvanian house or church, the saint, who kills the dragon, is crowned by an flying angel; in another icon, dated from about 1900, the angel holds in his hand the crown, resembling a bishop's mitre (Fig. 6, 7), the nightly sky being adorned with stars and curtains (possibly flowers in other icons). The iconographer sometimes painted the divine glory in the form of a semicircle from which rays come out, and in the glory appears the hand of Christ blessing (Fig. 6). Typical for Șchei paintings the value stands in the white or black lines over the flat tones to help lighting or shading the surface. The icons with this theme painted in Șchei, Țara Oltului or Mărginimea Sibiului, had as models the woodcuts that circulated in Transylvania. At the outskirts of Sibiu, at Săliște, in the second half of the 19th century, in the workshop of the Morar family, Saint George is represented compositionally similar to the icons of Șchei, the princess being found on the left and the horse coming from the right of the composition.

Another military saint, Theodor Tiron, was often represented with Saint George in a series of

icons in which the chromatic is reduced to black, brown, green and white, the colour covering the surface of the support only partially. The background consists in a sheet of silver paper, attached over the painting (Fig. 8, 9). The pattern of the two saints, on white horses, with slain dragons at their feet, was used throughout the 19th century by glass painters from various villages.

Olimpia Coman-Sipeanu described an icon with the theme of the Holy Martyrs George and Theodor Tiron from the Collection "Cornel Irimie" (Fig. 10), emphasizing the difficulty of assigning it to a painter, saying "graceful, supple drawing, made with a black line which seems modulated, is supported by the chromatic which is based on the heavy contrast between the light and the dark colours [...] the icon sums up a series of elements that can be found in the art of iconographers from a wider geographical area, which includes the area of Sibiu and Sebeș Valley, which makes it difficult to assign this piece to someone with certainty." (Coman-Sipeanu 2010, 142).

In an icon belonging to Savu Moga, a new character appears, a child sitting on a horse behind Saint George. The portrayal of this child, with a vessel in his hand, is in accordance with a miracle made by Saint George, referring to the moment when he liberated a child from slavery. The scene is framed in a frame with a decorative floral theme, as is the decorated wooden frame (Dancu 1975, pl. 83) (Fig. 11). Moreover, two icons from the CNM ASTRA collection are assigned to Savu Moga, because they are extremely similar to the examples mentioned above. One depicts Saint Demetrius, the other Saints Demetrius and Theodore Tiron (Figs. 12, 13).

Despite all the stylistic differences, we can see this compositional model in our icon which is a representation of Saints George and Theodore Tiron. If in the first phase we are tempted to classify it as an icon of the Sebeș Valley, after the discovery of the silver paper under the cover of the icon, any doubt disappears. Besides the icon of the grieving Madonna painted on wood on which the painter's signature appears, mentioned by Juliana Dancu (Dancu 1975, 116), this one is the second known icon where we meet the author's signature. This time the signature was

on the document found inside the icon and we do not have only one signature, but two because the paper that protects the colour film is composed of two glued pieces as it can be seen in Fig. 16 and it appears on each piece. At the same time, before the first mention of the name, the year 1848 can be visible. It is a situation similar to the one described it by Juliana Dancu who says that when "opening the lid of a beautiful icon *The Flight into Egypt* found in Vale village, I found, in the space that protects the colour film, a page from an old newspaper which used to be based in Sibiu, with the indication of the subscriber's address: „Nicolae Oancea, Vale, Poșta Săliște" (Dancu 1975, 115-116).

If the painter is known for the way his sky is painted with a specific blue, in the mentioned icon we have an almost black sky, made with a dark green that stands out from the usual pattern. Instead, we find specific characteristics such as the typology of the faces or the way that the grass is painted under the shaped of "small brushes of grass, made from a few curved lines, black and white, having red dots at the top, all being underlined by three horizontal lines" (Dancu 1975, p. 117). We noticed the very neat, calligraphic line also specific to Nicolae Oancea.

2. Preservation state before restoration

Coming back to the icon that is the subject of this paper, we noticed that it is painted on manufactured glass. The glass was broken into three large fragments, the poor colour film of the binder had a state of visible powder, and the silver paper background was partially adherent to the colour film, superficial and adherent dirt. The pictorial layer shows detachments, cracks and lacunar areas. The frame is made of profiled rods joined at 45 ° by gluing and with wooden wedge.

The cover is composed of two boards, cut tangentially, initially fixed on the frame with wooden nails, later being added metal nails in order to strengthen the connection between the cover and the frame.

The dimensions of the glass are 37.5 x 31.5 cm and of the frame 47.5 x 41.7 cm. After removing the cover, we noticed that the pictorial layer is

covered with a "silver" paper, although the entire surface of the icon is covered in colour, and that it adhered in a few points to the colour film. Also, the paper shows a waving pattern and we notice deposits of superficial and adherent dirt as well as a series of material losses due to the biological attack. The pictorial layer shows small detachments and colour losses, especially in the area where the crack is.

3. Description of restoration the interventions

First, the cover was removed. The cover was dusted with a rougher brush and then cleaned with 3% ammonia water. Fragments of the icon were extracted one by one from the frame.

The glass was carefully dusted with a fine brush on the painted side. The consolidation of the pictorial layers was performed by brushing with egg yolk emulsion in water (1:2 concentration).

After the consolidation of the pictorial layer, the cleaning with egg emulsion in a concentration of 1:3 followed. Selectively, chromatic integration was achieved by imitative retouching with watercolours.

The glass fragments were glued together with two-component Bison type epoxy resin. In order to glue these fragments, the contact surfaces were degreased with alcohol and acetone. The gluing of the fragments is done respecting the sequence of work phases described in the following rows. The two components of the adhesive are mixed in a 1: 1 ratio in small quantities because the drying time is fast. We applied a small amount of adhesive to the contact surface to prevent it from migrating to the colour film. For the same reason, the fragments are placed upside down. On the work table, on which this operation takes place, is placed a non-stick and transparent polyester foil (Melinex type). A foil is placed over the fixed fragments and a marble press is placed above it for 12-24 hours, the necessary period for the adhesive to reach its maximum toughness. The removal of the adhesive's surplus is mechanically removed with a scalpel (Bucur 2007, p. 288).

Chromatic integration was done on small areas with a mix of watercolours and yolk emulsion 1:4.

After cleaning each element, the frame was reassembled with new triangular splines and collagen-based adhesive (rabbit glue 15% aqueous solution)

The icon was assembled in the frame, with the help of small pieces of synthetic felt glued to the edge of the frame with Covidez L180. This type of assembly is semi-rigid, limiting the movement of the icon in the frame, without creating high tensions, with potential danger of fragmentation of the glass. For the protection of the document paper we applied a sheet of Japanese paper between the silver paper and the cover. The final step was to put in place cap, which was secured with bolts.

The restored icon (Fig. 19) can be exhibited now and, as always, the efforts to save such pieces that George Barițiu said in 1847 that "the peasants made them with wonderful ease" are re-

warded by the satisfaction experienced when the restoration is finished. According to the Conservation Rules, which are available in Romania through the laws that are in place here, we recommend that the icon to be stored or exposed in an environment with a relative humidity between 50-65%, a temperature between 18-20 °C, without wide or sudden fluctuations of their values, and the lighting level should not surpass 180 lux.

The theme, which is a common one among the glass icons, shows almost a uniform spread in the Transylvanian space and even in the entire Christian European basin. We can see countless heroes who fight and kill scary beings in the literature, all worshipping Saint George. We have before us a cultural model spread throughout the whole Christian area, which manifests itself in an amazing variation in the icons on glass which had been made in Transylvania.

REFERENCES

- Băjenaru 2012 - Băjenaru, Elena, *Icoane și iconari din Țara Făgărașului. Centre și curente de pictură pe sticlă*, Oscar Print, București, 2012
- Bucur 2007 Bucur, Mirel, *Restaurarea icoanei pe sticlă „Sfânta Treime” de la Schitul Sub Piatră, comuna Sălciua, județul Alba*, în *Conservarea și restaurarea patrimoniului cultural*, vol. VII, Centrul Mitropolitan de cercetări T.A.B.O.R, Editura Trinitas, Iași, 2007, p. 282-291
- Coman Sipeanu 2010 Coman – Sipeanu, Olimpia, *Icoane pe sticlă din patrimoniul Muzeului ASTRA Sibiu. Colecția "Cornel Irimie"*, Ed. ASTRA MUSEUM, Sibiu, 2010
- Dancu 1975 Dancu, Iuliana, Dancu, Dumitru, *Pictura țărănească pe sticlă*, Ed. Meridiane, București, 1975
- Dumitran 2018 Dumitran, Ana, *Colecția Mușat: O geografie spirituală a icoanei pe sticlă transilvăneană*, DAR Development Publishing, București, 2018
- Dumitran, Rustoiu 2008 Rustoiu, Ioana, Dumitran, Ana, Băjenaru, Elena, Szöcs, Fülöp Károly, ...*Prin mine, Ioan Pop Zugravul*, Editura Altip, Alba Iulia, 2008
- Ionescu 2009 - Ionescu, Geanina – Alina, *Icoane pe lemn și sticlă din principalele colecții sibiene*, Editura ASTRA MUSEUM, Sibiu, 2009
- Irimie, Focșa 1971 Irimie, Cornel, Focșa, Marcela, *Icoane pe sticlă*, Editura Meridiane, București, 1971
- Roșca 2010 Roșca, Simona-Teodora, *Icoana pe sticlă: identitate transilvăneană în context european* 2010, (on-line) *Preuniversitaria*
<http://www.ccdcluj.ro/vechi/Preuniversitaria/v1,nr1/Lucrari%20Plen/Rosca%20Simona%20Icoana%20.pdf>

LIST OF ILLUSTRATIONS

1. *Saint George*, Nicula, beginning of the century XIX
2. *Saint George*, Nicula, beginning of the century XIX
3. *Saint George*, Nicula, first half of the XIX century
4. *Saint George*, Nicula, beginning of the XIX century
5. *Saint George*, Nicula, Nicula, middle of the XIX century
6. *Saint George*, Șcheii Brașovului, XIX century,
7. *Saint George*, Șcheii Brașovului, XIX century,
8. *The Holy Martyrs George and Theodore*, Ioan Pop from Făgăraș, 1844
9. *The Holy Martyrs George and Theodore*, Ioan Pop from Făgăraș
10. *Saints George and Theodore Tiron*,
11. *Saint George*, Savu Moga, 1872
12. *Saint Dimitrie*, Savu Moga, 1866
13. *Saints Dimitrie and Teodor Tiron*, Savu Moga, 1858
14. *The Holy Martyrs George and Theodore Tiron*, Nicolae Oancea, 1848. Assembly before restoration
15. Appearance after removing the wooden cover
16. Detail with the document that appears on the "silver paper"
17. Detail after fixing in the frame. Chromatic integration is observed
18. Fixing the support glass in the frame
19. Assembly after restoration

LISTA ILUSTRĂȚIILOR

1. Sfântul Gheorghe, Nicula, început sec. XIX
2. Sfântul Gheorghe, Nicula, început sec. XIX
3. Sfântul Gheorghe, Nicula, prima jum. Sec. XIX
4. Sfântul Gheorghe, Nicula, început sec. XIX
5. Sfântul Gheorghe, Nicula, Nicula, mijlocul sec. XIX
6. Sfântul Gheorghe, Șcheii Brașovului, sec. XIX,
7. Sfântul Gheorghe, Șcheii Brașovului, sec. XIX,
8. Sfinții Mucenici Gheorghe și Teodor, Ioan Pop de la Făgăraș, 1844
9. Sfinții Mucenici Gheorghe și Teodor, Ioan Pop de la Făgăraș
10. Sfinții Gheorghe și Teodor Tiron,
11. Sfântul Gheorghe, Savu Moga, 1872
12. Sfântul Dimitrie, Savu Moga, 1866
13. Sfinții Mucenici Dimitrie și Teodor Tiron, Savu Moga, 1858
14. Sfântul Mucenici Gheorghe și Teodor Tiron, Nicolae Oancea, 1848. Ansamblu înainte de restaurare
15. Aspect după demontarea capacului
16. Detaliu cu înscrisul ce apare pe „hârtia argintată”
17. Detaliu după fixarea în ramă. Se observă integrarea cromatică
18. Fixarea sticlei suport în ramă
19. Ansamblu față după restaurare



1.



2.



3.

1. *Saint George*, Nicula, beginning of the XIX century
2. *Saint George*, Nicula, beginning of the XIX century
3. *Saint George*, Nicula, first half of the XIX century



4.

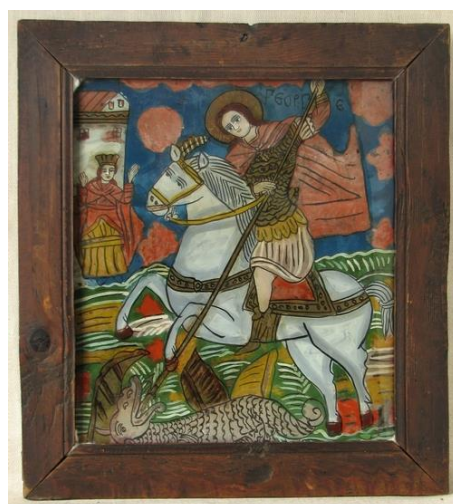


5.

4. *Saint George*, Nicula, beginning of the XIX century
5. *Saint George*, Nicula, Nicula, middle of the XIX century



6.



7.

6. *Saint George*, Șcheii Brașovului, XIX century,
7. *Saint George*, Șcheii Brașovului, XIX century,



8



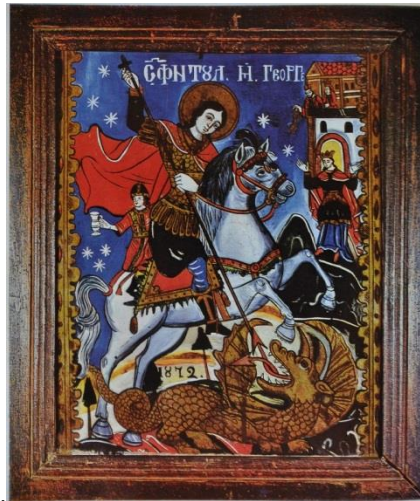
9.

8. *The Holy Martyrs George and Theodore*, Ioan Pop from Făgăraș, 1844

9. *The Holy Martyrs George and Theodore*, Ioan Pop from Făgăraș



10.



11.

10. *Saint George*, Savu Moga, 1872

11. *Saint Dimitrie*, Savu Moga, 1866



12.



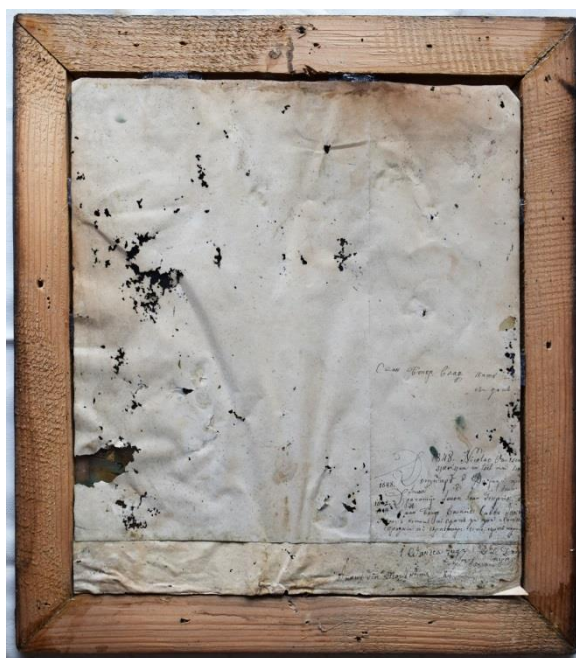
13.

12. *Saint Dimitrie*, Savu Moga, 1866

13. *Saints Dimitrie and Teodor Tiron*, Savu Moga, 1858

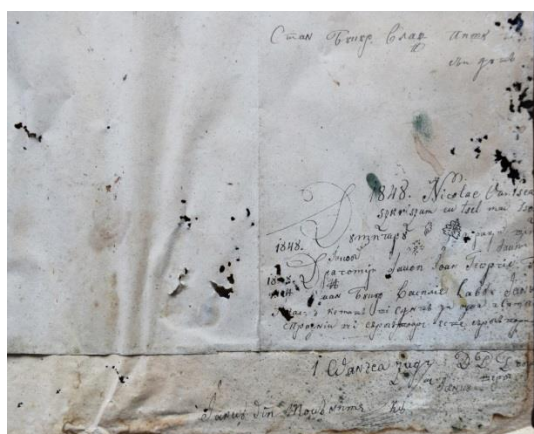


14.



15.

14. *The Holy Martyrs George and Theodore Tiron*, Nicolae Oancea, 1848. Assembly before restoration
15. Appearance after removing the wooden cover



16. Detail with the document that appears on the "silver paper"



17. Detail after fixing in the frame. Chromatic integration is observed



18. Fixing the support glass in the frame



19. Assembly after restoration